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छत्रपती शाहू महाराज शिक्षण संस्था संचलित

आयुर्वेद महाविद्यालय व रुग्णालय

CHHATRAPATI SHAHU MAHARAJ SHIKSHAN SANSTHA'S

AYURVED MAHAVIDYALAYA & RUGNALAYA

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| 2       | Antimicrobial resistance (amr) in kaumarbhrutya: an ayurvedic view | Dr. K.S. Ratnaparkhi | Kaumarbhrutya             | World Journal of Pharmaceutical Research | June 2022                   | 2277-7105 | <a href="https://wjpr.net/abstract_show/19767">https://wjpr.net/abstract_show/19767</a>   |
| 3       | A protocol on association between madhumeha (diabetes mellitus)    | Dr. Smita v. Dhurde  | Samhita                   | Wutan Huatan Jisuan Jishu                | June 2022                   | 1001-1749 | <a href="https://drive.google.com/file/d/1X5Hw47e600zaPuuwaa4GcCrLyGMu411v/view">https://drive.google.com/file/d/1X5Hw47e600zaPuuwaa4GcCrLyGMu411v/view</a>   |

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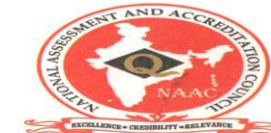
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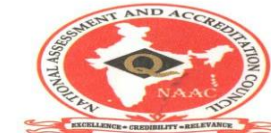
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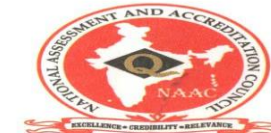
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| 11 | A review on Pain Management through Panchakarma                        | Dr. Ganesh Barahate<br>Dr. Neralkar U.K.         | Panchakarma  | Journal of Ayurveda and Integrated Medical Sciences      | September 2022 | 2456-3110 | <a href="https://jaims.in/jaims/issue/view/42">https://jaims.in/jaims/issue/view/42</a>   |
| 12 | An effect of copper toxicity in relevance to public health             | Dr. R.S. Upadhyay                                | Agadtantra   | International ayurvedic Medical journal                  | Oct2022        | 2320-5091 | <a href="http://www.iamj.in/posts/images/upload/2665_2671.pdf">http://www.iamj.in/posts/images/upload/2665_2671.pdf</a>   |
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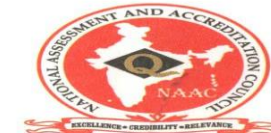
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| 17 | Importance of madhu in ayurveda with special reference to honey: a review   | Dr. Rathi Pritam                       | Samhita     | International Journal of Research in Ayurveda Pharmacology | Feb-2023   | 2229–3566 | <a href="https://ijrap.net/index.php/admin/searcharticle">https://ijrap.net/index.php/admin/searcharticle</a>                                     |
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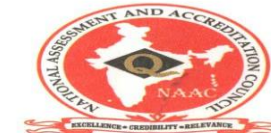
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| 19 | Book Review-<br>Bhela Samhita  | Dr. Tandale<br>C.A.                                | Panchakarma                | IJOOR   | March2<br>023 | 2456-<br>432X | <a href="http://ijoor.com/Issue.aspx?v=7&amp;i=1">http://ijoor.com/Issue.aspx?v=7&amp;i=1</a>   |
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| 24 | Immunity –<br>ayurvedic<br>perspectives and<br>practices   | Dr. P. V.<br>Bulbule                               | Kaumarbhrutya              | World<br>Journal of<br>Pharmaceuti<br>cal Science         | May202<br>3   | 2581-<br>6217 | <a href="http://www.wjpst.com/article/immunity-ayurvedic-perspectives-and-practices">http://www.wjpst.com/article/immunity-ayurvedic-perspectives-and-practices</a>   |

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|----|---|--|----------|---|----------|-----------|---|
| 25 | A review of samprapti of bahu pitta kamla and rudhpath kamla with special reference to modern science | Dr. A. M. Deshmukh,<br>Dr. D. J. Amale | Rognidan | International Journal of Current Science (IJCS PUB) | May 2023 | 2250-1770 | <a href="https://ijcs pub.org/searchpage.php?searchvalue=A+review+of+samprapti+of+bahu+pitta+kamla+and+rudhpath+kamla+with+special+reference+to+modern+science">https://ijcs pub.org/searchpage.php?searchvalue=A+review+of+samprapti+of+bahu+pitta+kamla+and+rudhpath+kamla+with+special+reference+to+modern+science</a> |
| 26 | Conceptual study of Asthidhatvagni by evaluating association of Vitamin B12 and Vitamin D3            | Dr. D. J. Amale                        | Rognidan | International Journal of Herbal Medicine            | May 2023 | 2321-2187 | <a href="https://www.florajournal.com/archives/2023/vol11issue4/PartA/9-3-67-370.pdf">https://www.florajournal.com/archives/2023/vol11issue4/PartA/9-3-67-370.pdf</a>   |

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## PRAKARADI YOGAS AS RASAYANA AND ITS IMMUNOMODULATORY PROPERTIES

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### ABSTRACT

An entire section of the Materia Medica of Ayurveda is devoted to “Rasayana”, drugs reputed to enhance body resistance. Rasayana that age specific can be prescribed for particular age groups which can ultimately retard age specific conditions to extend and can promote longevity. Thus, a plan for Rasayana therapy right from birth shall be introduced in routine immunization schedule. The Rasayana herbs seem to operate through immunostimulant, immunoadjuvant, and immunosuppressant activities or by affecting the effector arm of the immune response. An authentic book of ayurveda called Arogya Raksha Kalpadruma, aims at achieving the same goal by taking care of the base that is the phase in which various traditional ayurvedic

formulations are used right from beginning of birth up to 12 years of age. For achieving disease free body this book has mentioned various PRAKARADI – YOGAS (Immunomodulatory measures) that are mentioned to be given specifically at starting phase of each growing month. This article highlights the role of prakara yogas and its immunomodulatory properties.

**KEYWORDS:-** Prakaradi yogas, Immunomodulatory, Rasayana, Immune system, botanical name, Immunoadjuvant, Immunosuppressant, Arogya Raksha Kalpadruma.

### INTRODUCTION

Every system of medicine emphasizes on treating the disease but in ayurveda, treating a disease is always secondary rather, maintaining and presenting health which is the first objective of health care plans. To achieve this goal, daily regimen and seasonal regimen, code



of conduct of diet and social behavior are mentioned in ayurveda along with implication of Rasayana. Rasayana is one of the comprehensive disciplines of ayurveda, which comprises a specialized use of herbs, Herbo mineral formulations, food article and lifestyle along with self-discipline with social etiquette to achieve the optimum state of tissues and system of body so that there is the least effect of etiological factors on the body in the other words, it can be stated that Rasayana is a way to achieve homeostasis and thus retarding the process of aging phenomenon and prevention of diseases.

An entire section of the Materia Medica of Ayurveda is devoted to “Rasayana”, drugs reputed to enhance body resistance.<sup>[1]</sup>

As per Ayurveda with advancing of age, there are certain organ, or system related changes and replenishing of these structures may postpone many age-related health issues and thus, Rasayana that age specific can be prescribed for particular age groups which can ultimately retard age specific conditions to extend and can promote longevity. Thus, a plan for Rasayana therapy right from birth shall be introduced in routine immunization schedule. Most of the drug formulations used in Prakaradi yogas have immunomodulatory properties.

### **Mechanism of action of Rasayana / Immunomodulators**

It has been reported that the Rasayana are rejuvenators, nutritional supplements and possess strong antioxidant activities. The Rasayana herbs seem to operate through immunostimulant, immunoadjuvant, and immunosuppressant activities or by affecting the effector arm of the immune response.<sup>[2]</sup>

An authentic book of ayurveda called Arogya Raksha Kalpadruma, a widely accepted Kerala’s traditional ayurvedic pediatric care, classical text book also aims at achieving the same goal by taking care of the base that is the phase in which various traditional ayurvedic formulations are used right from beginning of birth up to 12 years of age. For achieving disease free body this book has mentioned various PRAKARADI – YOGAS (immunomodulatory measures) that are mentioned to be given specifically at starting phase of each growing month.<sup>[3]</sup> According to this book due to vitiation of doshas many diseases are occurring to children very easily due to so many possible reasons so to reduce this prevalence rate of susceptible towards the disease these Prakaradi yogas are given. Most of the drug formulations used in Prakaradi yogas have immunomodulatory properties.

For new born child the drug Vacha is grinded in the juice of Tripadika, three drops of this preparation of juice is to be instilled over the anterior fontanelle of baby from the first day of birth up to 7 days, by doing this procedure digestive power is maintained correctly.

Acorus calamus (VACHA) is proved for anti inflammatory, hepatoprotective, immunomodulatory activity on human neutrophils<sup>[4]</sup>

| Age group           | Drug formulation               | Mode of administration | Duration | Time    | Effect                         |
|---------------------|--------------------------------|------------------------|----------|---------|--------------------------------|
| Newborn (Jatamatra) | Vacha mixed with Tripadika ras | Sinchan on murdani     | 7 days   | Morning | Dosha samyata and agni vridhhi |

15 days old child after the 15 th day of birth panchanga bilva are collected and powdered well and then mixed with juice of Dhatri and this preparation is to be given internally for 7 days in the morning to prevent occurrence of disease.

Bilva have immunomodulatory, antimicrobial, anti-inflammatory, antipyretic, analgesic, hepatoprotective, cardioprotective, antioxidant, anticonvulsant, antidiarrheal properties hence used in Prakaradi yogas in early days of life.

| Age group         | Drug formulation      | Mode of administration | Anupan        | Duration | Time    | Effect            |
|-------------------|-----------------------|------------------------|---------------|----------|---------|-------------------|
| Completed 15 days | Bilva panchang swaras | Oral                   | Dhatri swaras | 7 days   | Morning | Preventive aspect |

1 month old child after one month drug as mentioned HINGU, MUSTA, VIDANG are powdered well and added with ghrita medicated with juice of TRAYANTI and it is to be given internally in the morning for 7 days.

Cyperus rotundus (MUSTA) contain potent components such as flavonoids that may potentially be useful for modulating the immune cell functions, provoking analgesic, anti inflammatory and anti oxidant effect.<sup>[5]</sup>

AMALAKI, VIDANG have shown an increase in immunoglobuline levels in infant which is significantly greater than that of multivitamine used cases.<sup>[6]</sup>

| Age group         | Drug formulation     | Mode of administration | Anupan         | Duration | Time    | effect             |
|-------------------|----------------------|------------------------|----------------|----------|---------|--------------------|
| Completed 1 month | MUSTA, HINGU, VIDANG | Oral                   | Trayanti sarpi | 7 days   | Morning | Disease prevention |

3 month old child, after three months drugs like VYOSHA and powder of SARIVA is added with butter and advised to give internally for 7 days

| Age group         | Drug formulation         | Mode of administration | Anupan   | Duration | Time    | effect             |
|-------------------|--------------------------|------------------------|----------|----------|---------|--------------------|
| Completed 3 month | Vyosha and sariva churna | Oral                   | Navaneet | 7 days   | Morning | Disease prevention |

Sariva possess anti-inflammatory, antipyretic, anti-oxidant, antiulcerogenic and an immune modulatory activity related to IgG secretion and ADA activity.<sup>[7]</sup>

6 month old child after 6 months the baby is given power of musalikand and trikatu (pippali + marich + shunthi) mixed together well and added with honey and is given internally for 7 days in the morning to prevent disease

| Age group         | Drug formulation               | Mode of administration | Anupan | Duration | Time    | effect             |
|-------------------|--------------------------------|------------------------|--------|----------|---------|--------------------|
| Completed 6 month | Musalikanda and trikatu churna | Oral                   | Madhu  | 7 days   | Morning | Disease prevention |

Trikatu compound is an immunomodulatory and anti inflammatory agent with reference to cell mediated immune responses.<sup>[8]</sup>

Dhatri (*Emblica officinalis*) and Musta (*Cyperus rotundus*) have an immunomodulatory effect through its antioxidant and antimicrobial properties.<sup>[9]</sup>

Piper nigrum extract exert immunomodulatory roles and anti anti cancer effect this can promote healthy immune system.<sup>[10]</sup>

Punica granatum have an immunomodulatory activity confirm by stimulation of cell mediated response.<sup>[11]</sup>

The potential immunomodulatory effect of *N.sativa* (Jeerak)investigated.<sup>[12]</sup>

**At 1 year:** Each month for 7 days

1st month-(Dhātri+Musta) + Vyosha + Madhu

2nd month - (Dhātri + Musta) + mixed with Ghrita

3rd month - (Dhatri + Musta) in sugar and warm water

4th month - (Dhatri + Musta) with sugar and honey

5th month - (Dhatri + Musta) with Panchakola Churna and Ghrita

6th month - (Dhātri + Musta) with Jeeraka and Pippali powder and honey

7th month - (Dhātri + Musta) with Vyosha + Dadima + Mastu

8th month - (Dhātri + Musta) with Granthika Mula +Kutaja processed in Ghrita

9th month - (Dhātri + Musta) with Vidanga + Pippali +honey

10th month - (Dhatri + Musta) Jiraka + Vyosha + sugar

11th month - (Dhātri + Musta) with goat milk

12th month (Dhātri + Musta) with sugar + Jeeraka powder + cow milk

Only the mixing substance changes each month

**3rd year:** All the medicines should be given empty stomach for 7 days of each month depending upon weight. Ghee and sugar in equal quantity of medicine

1st month - Guduchi, Pippali, Vacha.

2nd month - Vyosha, Yashti, Vacha, Saindhava, Abhaya.

3rd month Vidanga, Musta, Ela, Vacha, Shunthi, Pippali.

4th month Sariba, Vyosha, Vacha, Jiraka, Kaisiki (Māśīkka).

5 month-Dadima, Musta, Vacha, Dhanyaka, Pippali.

6th month- Punarnava, Bhūnimba, Vacha, Tvacha.

7th month- Mashaparni, Musta, Bimbi Root, Pippali, Vaca

8 month-Dronapushpa, Musta, Vacha, Palasa Tvak.

9th month-Brahmi, Musta, Vacha, Kutaja, Pippali

10th month Malatipushpa, Vacha, Jiraka, Māyōphala.

11th month - Shami Patra, Jiraka, Chitraka, Vacha, Pippali.

12 month- Musta, Trikatu, Dadima, Amalaki, Vidanga, Talisapatra, Chitraka, Ajagandha, Abhaya, Vacha.

**5th year:** Same as above but substitute Vacha with Pushkaramula.

**8th year:** Add Shankhapushpi root + medicines of 5th year-mix powder with ghrita and honey.

**10th year:** Every month give Ghrita made with following herbs for 7 days.

1st month - Abhaya, Vyosha, Saindhava, Vacha, Talisa Patra, Brahmi.

2nd month Vidanga, Amalaki, Vyosha, Patha, . Dädima, Chitrakaka, Mandukaparni Svarasa.

3rd month - Jiraka, Vyosa, Saindhava, Vacha, Musta, Pushkaramula in Vetasámra Rasa.

4th month Jivaniya Gana Musta, Agnimantha, Chitraka, Granthika in goats milk.

5th month Draksha, Punarnava, Patha, Musta, Hapusha Müla, Katphala, Dadima in goat milk.

6th month-Sarivádi Ghritam in goat milk.

7th month Nagarádi Ghritam, Kutaja, Musta, Bilva Panchanga in hot water.

8th month Pippalyadi Ghritam with Dadhi Mastu after making the ghee it has to be filtered into a vessel containing Jiraka and Sita (rock sugar).

9th month Bilvädi Ghritam / Another alternative Patha, Drona Pushpi, Musta in Mastu - make a ghee of that herbal paste.

10th month - Trayamānādi Ghritam.

11th month - Dadimadi Ghritam, Ghritam and Mastu in equal quantity.

12th month Kashaya Patha, Kutaja, Bhunimba, Dhanyaka; Kalka - Vidanga, Palasa Tvak, Nisa Dvaya, Punarnva, Vyosha, Dipyaka, Duralabha, Yashti - make the ghee - administer with honey.

**13th year:**

1st month - Durva, Vacha +Sita, Grita, honey.

2nd month Brahmi, Manduka Parni, Samivalka, Bhṛngamalaka, Magadhi, Asthisrnkhala, Indulekha (Bakuci), Bhunimba, Sariva).

**List of drugs mentioned in prakara yoga chapter with their sanskrit name, botanical name:-**

| Sanskrit name           | Botanical name                         |
|-------------------------|--|
| Vacha                   | Acorus calamus L                       |
| Tripadika               | Adiantum lunulatum L.                  |
| Bilva                   | Aegle marmelos (Linn.) Correa ex Roxb. |
| Dhatri/Amalaki          | Emblica officinalis Gaertn.            |
| Musta/Ambhoda/Abda      | Cyperus rotundus L.                    |
| Hingu                   | Ferula asafoetida L.                   |
| Vidanga/Vella           | Embelica ribes Burn F.                 |
| Trayanti/Trayamana.     | Scindapsus officinalis Scott.          |
| Sunthi/Nagara           | Zingiber officinale Roxb. Piper nigrum |
| Maricha                 | Linn.                                  |
| Pippali/Krishna/Chapala | Piper longum L.                        |
| Chavya Chitraka/Agni    | Piper chaba HUNTER                     |

|                             |                                       |
|-----------------------------|---------------------------------------|
| Jeeraka                     | Plumbago zeylanica L.                 |
| Dadima                      | Carumcarvi L.                         |
| Kalinga/Kutaja              | Punica granatum Linn.                 |
| Guduchi                     | Holarrhenaanti dysentrica Wall.       |
| Yastimadhu                  | Tinospora cordifolia (Wild) Meirs.    |
| Haritaki                    | Glycyrrhiza glabra L.                 |
| Vibhitaki                   | Terminalia chebula Retz.              |
| Amalaki                     | Terminaliabellerica (Gaertn.) Roxb.   |
| Ela                         | Emblica officinalis                   |
| Kaisiki                     | Elettaria cardomomum (L) Maton        |
| Dhanyaka                    | Quercus infectoria OLIV.              |
| Vruschiva/Varshabhu         | Coriandrum sativum Linn.              |
| Bhunimba                    | Boerhavia diffusa Linn.               |
| Supyaparni                  | Swertia chirata Buch. Ham             |
| Ruddhi                      | Teramnus labialis var. mollis         |
| Dronapushpi/Vaikundapushpa  | Dioscorea bulbifera Linn.             |
| Dwijataru/Palasha           | Leucasa spera (Willd.) Link           |
| Samipatra                   | Bute monosperma                       |
| Pashugandha                 | Mimosa pudica L.                      |
| Talisapatra                 | Nelumbo nuciferaGaertn.               |
| Sankhapushpi/Anantha/Gopica | Abies webbianaLindl.                  |
| Patha                       | Hemides musindicus (L.) SCHULT.       |
| Dipyaka/Ajamoda             | Cyclea peltata                        |
| Vetasamla                   | Ptychoti sajowan DC.                  |
| Draksha                     | Rumex vesicarius L.                   |
| Habusha                     | Vitis vinifera L.                     |
| Jayanthi                    | Juniperus communis Linn.              |
| Katphala                    | Premna integrifolia Linn.             |
| Ushira                      | Myricanagi Thumb.                     |
| Surahwaya/Devadaru          | Pseudoraphisspinesceus (R.Br.) Vikery |
| Bruhati                     | Cedrus deodara (Roxb.) Loud.          |
| Amshumati                   | Solanum nigrum Linn.                  |
| Tikta                       | Desmodiumgangeticum DC.               |
| Ambu                        | Solanum anguivi Lam.                  |
| Nalada                      | Vallisneriaspiralis Linn. Vetiveriazi |
| Arka                        | zanioides (Linn.) Nash.               |
| Shigru                      | Calotropis gigantea                   |
| Samivalka                   | Moringa oleifera Lam.                 |
| Malatimukula                | Prosopis spicigera                    |
| Utpala                      | Jasminum gradiflorum Linn             |
| Nirgundi                    | Nymphaea stellata Wild                |
| Ativisha                    | Vitex nirgundo                        |
|                             | Aconitum hetrophyllum wall            |

|                     |  |
|---------------------|--|
| Jivanti             | Holostem maadakodien Schultes.           |
| Nisha               | Curcuma linga Linn.                      |
| Munda               | Centellaa siatica Linn.                  |
| Bhrunga/Bhrungaraja | Eclipta alba (Linn.) Linn                |
| Vishala             | Citrullus colocynthis Schrad. Cissus     |
| Vajravalli          | quandrangularis Linn.                    |
| Brahmi              | Bacopa monnieri                          |
| Kakoli/Vira         | Roscoea procera Wall.                    |
| Kshirakakoli        | Lilium polphyllum D. Don                 |
| Jeevaka             | Microstylis wallichii Lindl syn.         |
| Rishabhaka          | Microstylis muscifera Ridley             |
| Medha               | Polygonatum verticillatum (L.) All. syn. |
| Mahamedha           | Polygonatum cirrhifolium (Wall.) Royle   |
| Mudgaparni          | Phaseolus trilobus Ait.                  |
| Mashaparni          | Teramus labialis Spreng                  |
| Jivanthi            | Leptadenia reticulate W & A              |
| Madhuka             | Glycyrrhiza glabra Linn.                 |

## DISCUSSION

As early infancy is a Kapha predominant stage and agni is crucial basis of ailment in infancy. The presence of rasayana drugs in combination pacify mild vata kapha and kapha kshya that might have been formed during deepan pachana process and leads to the formation of superior quality dhatus. Due to presence of rasayana drugs the formulation directly increases the “yuktikrita bala” so far, several clinical trials have been conducted on prakarayoga in children of different age group and their efficacy have been proved beyond doubt.<sup>[13,14]</sup>

Prakara yogas are deepan, pachan, krimighna, tridosahara, medhya, shoolahara, kushtaghna, balya, ayushya, strotoshodhana, rasayana, anulomana and vyadhihar. Moreover, the ghee preparations mentioned from tenth to twelfth year substantiate the fact that the children of that age group are more to diseases due to vitiated pitta and vata and ghee is the ideal form of medication since it is going to pacify pitta and vata doshas. The same ghee preparations aids in brain stimulation, providing strength and disease curing.

## Pharmacological studies showing the immunomodulatory effect of the various constituents of prakara yogas

Several pharmacological studies have been so far conducted on different ingredients of Prakara yoga such as Dhatri (*Emblica officinalis*)<sup>[15-20]</sup> and Musta (*Cyperus rotundus*)<sup>[21-22]</sup> have an immunomodulatory effect through its antioxidant and antimicrobial properties

Piper nigrum extract exert immunomodulatory roles and anti anti cancer effect this can promote healthy immune system.<sup>[23]</sup>

Punica granatum have an immunomodulatory activity confirm by stimulation of cell mediated response.<sup>[24]</sup>

The potential immunomodulatory effect of N.sativa (Jeerak) investigated.<sup>[25]</sup>

Amshumati [Desmodium gaggeticum DC]<sup>[26]</sup> Arka [Calotropis gigantea]<sup>[27]</sup>

Bhrunga/bhrungaraja[Eclipta alba]<sup>[28]</sup> Aegle marmelos [Linn],<sup>[29]</sup> Bacopa monnieri,<sup>[30-31]</sup> Solanum nigrum linn,<sup>[32]</sup> Plumbago zeylanica l,<sup>[33-35]</sup> Coriandrum sativum Linn,<sup>[36]</sup> Leucas aspera (wild)link,<sup>[37]</sup> Tinospora cordifolia (wild) Meirs,<sup>[38]</sup> Terminalia chebula retz,<sup>[39-52]</sup> Premna intergrifolia linn,<sup>[53]</sup> Carum carvi Linn,<sup>[54]</sup> Piper longum L,<sup>[55]</sup> Centella asiatica Linn.<sup>[56-61]</sup>

Cyperus rotundus L.<sup>[62-63]</sup> Vitex nigrundo L,<sup>[64]</sup> Nelumbo nucifera gaertn,<sup>[65]</sup> Moringo oleifera Lam,<sup>[66-67]</sup> Cedrus deodara (roxb) loud,<sup>[68-69]</sup> Acorus calamus L. Boerhavia diffusa Linn,<sup>[70]</sup> Embelia ribes burn, Citrullus colocynthis schrad,<sup>[71]</sup> Terminalia bellerica (gaertn.)roxb,<sup>[72]</sup> Glycyrrhiza glabra L.

## CONCLUSION

The findings of all these studies indicates that Rasayana [Immunomodulator] has a definite role in the maintenance and preservation of health, and appropriate use of Rasayana can help to bring down the prevalence of many diseases, ultimately reducing health care burden. Time has come when more focus shall be done on preventive aspects of disease and thus the present policy of health care system shall deal with awareness among the mass about rasayana utility. The prakara yogas can be practiced as an effective preventive measure right from the birth of a child. Ayurvedic classics, the Prakara Yoga remain the sole authentic traditional age wise immunization schedule for children. Hence it can be concluded that Arogya Raksha Kalpadruma explaining about Prakaradi Yogas as immunomodulatory meure can be very fruitful to our future generation when given as per age and schedule.



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## ANTIMICROBIAL RESISTANCE (AMR) IN KAUMARBHRITYA: AN AYURVEDIC VIEW

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### ABSTRACT

Antimicrobial resistance (AMR) is a global concern. New resistance mechanisms are emerging and spreading globally. When microorganisms become resistant to most antimicrobials, they are often referred to as “superbugs”. We are surrounded by billions of microorganisms. Most of them are not harmful, or are opportunistic which may attack in hosts and children. They may prove harmful in neonatal wards or labour room. Limited ability to manage resistant infections results in prolonged morbidity, disability and increased mortality. AMR is a natural phenomenon. However, it is accelerated by the inappropriate use of antimicrobials. It is quite natural that Ayurveda, the oldest health care system in the world (about 5000 years old) does not have the word

‘Antibiotics’, but a curious search in its literature will definitely show a number of references stating that certain diseases are produced due to micro-organisms (krimi) and Acharya have already mentioned many drugs and Kalpa to kill these micro-organisms/krimi. The paper summarizes the Ayurvedic approaches which can be used effectively for prevention and treatment of bacterial diseases.

**KEYWORDS:** Antimicrobial resistance, AMR, Ayurveda, Krimi, Alternative Medicine.

### INTRODUCTION

The word antibiotics is derived from two Greek words “Anti” means “against” and “Biotics” means life; here life form is represented by bacteria. The existence of unseen microbes was suspected from ancient times.<sup>[1]</sup> These single-celled creatures have threatened humanity with infection which had high mortality and morbidity.<sup>[2]</sup> These microorganisms have potential to spread infection at a very rapid rate and to cause widespread epidemics.<sup>[3]</sup> Antimicrobial

resistance (AMR) is one of the world's most serious public health problems.<sup>[4]</sup> Many of the microbes that cause infectious disease no longer respond to common antimicrobial drugs (antibiotics, antiviral, antiprotozoal drugs).<sup>[5]</sup> Effective antimicrobials are no longer available which could cure virtually all bacterial infections. A high level of drug resistance is reported in *Enterococcus aecium*, *S.aureus*, *Klebsiella pneumoniae*, *Acinetobacter baumannii*, *P.aeruginosa* and the *Enterobacter* spp.- together referred by the acronym ESKAPE which cause the majority of the infections with in the hospital environment.<sup>[6]</sup> The wide range of AMR mechanisms used by the ESKAPE pathogens, includes enzymatic inactivation, modification of drug targets, changing cell permeability through porin loss or increase in expression of efflux pumps and mechanical protection provided by biofilm formation. It is estimated if there is a continued rise in resistance levels, by 2050 it would lead to 10 million deaths annually.<sup>[7,8]</sup> Additionally, AMR leads to longer hospital stays, higher rate of hospitalization and rise in the treatment cost.<sup>[9]</sup>

Bacteria are commonly defined as MDR, extensively drug resistant (XDR), pan drug resistant (PDR). The term MDR applies to resistance to at least 1 agent in more than or equal to antimicrobial classes, XDR when there is resistance to all except 1 agent in less than or equal to 2 antimicrobial classes and PDR when the isolate is resistant to all available antimicrobials.<sup>[10]</sup> AMR is an age-old phenomenon. Most antimicrobial compounds are naturally produced and coresident bacteria in the environment have evolved mechanisms to overcome their action in order to survive.<sup>[11]</sup>

The key mechanisms responsible to antibiotics in bacteria are listed below.

- **Plasmids:** Both chromosomal mutations and / or genetic transfer are responsible for acquisition of resistance, it is the transferable resistance which poses a greater threat as it can achieve much wider dimensions due to rapid dissemination. R plasmids play a vital role in carrying this transferable resistance. A single plasmid can harbor several genes coding for multiple drug resistance.<sup>[12]</sup>
- **Inactivation of antibiotics:** Bacteria may produce enzymes that chemically modify or degrade antibiotics and inactivate the drugs.<sup>[13]</sup> For example, penicillin resistance in *S. aureus* is because of the production of enzyme  $\beta$ -lactamase that inactivates the antibiotic by hydrolyzing the  $\beta$ -lactam ring.<sup>[13]</sup>
- **Target site modification:** The molecules that are normally bound by an antibiotic are normally altered or replaced and thus essentially eliminate the drug's target in bacterial



cells. An example of this mechanism is Methicillin resistance in Staphylococci due to the presence of *mec A* gene which encodes for PBP 2A.<sup>[14]</sup>

- **Prevent drug uptake:** The entry ports for the drugs can be eliminated by bacteria by altering permeability.<sup>[15]</sup> It has been reported that *P. aeruginosa* can develop resistance to imipenem by mutational loss of porin proteins thereby modifying the outer membrane permeability.<sup>[16]</sup>
- **Efflux pumps (EP):** there are 5 super families of microbial efflux systems viz. NorM, multi-antimicrobial extrusion protein family (MATE), QacC small multidrug resistance family (SMR), resistance nodulation cell division (RND).<sup>[17]</sup> These EPs are responsible for the export of antibiotics before they find their intracellular targets.
- **Biofilm formation:** Biofilm is formed by a complex aggregation of microbes, wherein the cells are embedded matrix of extra cellular polymeric substance (EPS) (self-produced). Production of biofilms through adherence of bacteria to human tissues and medical devices is a major virulence factor associated with increased antibiotic resistance, reduced phagocytosis, and overall persistence of the microorganisms.<sup>[18]</sup>

Adaptation to the antibiotic environment seems to occur very quickly in an evolutionary timeframe. India has emerged as the world's largest consumer of antibiotics with 62% in popping habits in last decade. Irrational use of antibiotics may increase the resistance in individuals, on the community level and in the society as a whole. Increased trends of self-medication and poor adherence of dosage may also lead to antimicrobial resistance.

### Concept of microbiology in classics

It is quite natural that Ayurveda, the oldest health care system in the world (about 5000 years old), does not have the word 'Antibiotics', but a curious search in its literature will definitely shows number of references stating that certain disease are produced due to micro-organism (*krimi*) and Acharya have already mentioned many drugs and *kalpa* to kill these micro-organisms/ *krimi*.

In Rigveda, micro-organisms are described as invisible organism having specific unique characteristic. And in Atharvaveda it is mentioned as *sukshma jantu*. Charak Samhita classifies organisms into normal (*sahaja*) and the pathogenic or the invaders (*agantu*). The pathogenic parasites are further classified into those that grow on the external surface or internal environment of the body termed as *krimi*. In various ayurvedic classics, Acharyas

have beautifully explained the term Graha which capture human and produce variety of symptoms.

Another interesting thing can be noted in these references which is, Ayurveda has not only advised on destroying these disease producing organisms but has also stressed that one should also increase the resistance power (immunity) against these organisms to prevent the relapses of the disease. Usually sweetish substances, oily substances and kapha Vridhikara Aharas with alkaline pH inside the gut produces a favorable environment for the growth of the worms.

Hence, those methods, drugs, food materials which destroys this favorable environment like Katu, Ushna, Kashaya, Tikta rasa should be administered as a treatment procedure.

### **Prevention of antimicrobial resistance**

Prevention is the measure taken by an individual prior to the onset of any disease, which will remove the possibility of the disease occurring in the future. Ayurvedic principles related to prevention is widely accepted globally due to its safety and cost effectiveness. The following points mention can be considered for the concept of health education.

- i. Dincharya – Daily regimen to be followed by an individual.
- ii. Ritucharya – Seasonal regimen to be followed by an individual.
- iii. Samshodhana – Seasonal cleansing of the individual.
- iv. Adhaaraniya Vegas- Non-retention of the natural urges.
- v. Rasayanas – intake of Rasayanas.
- vi. Sattvavijaya – improving the mental strength with the help of Yoga and Dhyana.

For strengthening the host, promote health education related to daily regimen, night regimen, seasonal regimens and Achar rasayan.<sup>[19]</sup>

### **Curative care through Ayurveda**

Aparkarshana, praktivighata and nidana-parivarjana are the basic treatment measures mentioned in Ayurveda classics against microbes. Therapeutically it can be correlated with the term sodhana , saman and nidan parivarjana respectively.<sup>[20]</sup>

Panchakarma like sirovirecana, vamana, virecana, asthapana are pointed for apkarsana therapy.<sup>[21]</sup>

Antagonist drug therapy for destruction of infectious agent and reduction of symptoms is achieved through prakritivighata and is performed through the drugs used in krimighna and jvarahara like Mahakashayas.<sup>[22]</sup>

Mahakashyas mentioned in our Ayurvedic classics are having Visaghna , Vranasodhana, Vranaropana and kleda-puyopasosana activities. The ultimate aim of all these drugs is to arrest and encounter the infection. Main action of these drugs is to encounter the visha or antigen caused by the microbes. Krimighna, kandughna, kushthaghna, jvarahara, Svasahara, Kasahar, Sothahara, Sitaprasamana Mahakashayas are to be used against these symptoms.<sup>[23]</sup> Some groups of drugs in mahakashaya are also used to arrest the infections caused by specific type of microbes which produce different types of discharges, burning sensations, pain, redness etc.

Aarvadhadi mahakashaya having kushtagna and kandugna activity destroy the microbes, alleviates itching and cleanses wound; Salasaradi group is also having kushtagna activity and administered in various types of infective skin diseases; Varunadi group is having Vranaghna activity and is highly effective in internal abscess; Lodhradi are yonidoshahara group which arrests the disease of female genital tract caused pathogens; arkadi group cleanses infective wound; Surasadi group is highly effective in respiratory infection both upper and lower tract.

### **Anti-Bacterial Herbs**

There are many herbs and its kalpas which are having anti-bacterial properties and are being used today. These herbs are not only effective but also proved to be safer more than modern antibiotics. These are Haridra (turmeric), Tulsi (Ocimum sanctum), Guggul (Commiphora mukul), Neem (Azadirachta indica).

Pippaladi group is effective in acute and chronic rhinitis; Eladi group is highly effective in boils and furuncles; Vacadi and Haridradi both encounter the pathogens in the diseases like diarrhoeal disorders; Trinapanchamul is highly effective in urinary tract infections.

**Amra:** The leaf extracts revealed antibacterial action against *B. subtilis*, *Staphylococcus* and *vibrio cholera*. It has antifungal properties against *candida*.<sup>[24]</sup>

**Kutaj:** The Therapeutic effect of this plant in amoebiasis is well known. Its active ingredient is considered. Fruit extract showed (50% ethanolic) antiprozoal effect against Ent

histolytica. Clinical studies have been done which show excellent effect in amoebiasis and giardiasis.<sup>[25]</sup>

**Gokshur:** It has nephroprotective effect against Gentamicin induced nephrotoxicity. It acts reducing free Radicle release (MDA) at the nephrons.<sup>[26]</sup>

**Bhumyamalaki:** indicates a small plant simulating Amalaki. This plant is described in ayurvedic classics, Brhatrayi (charak samhita, susruta samhita and Ashtanga Hridaya) by the names of Tamalaki and Bhudhtar and is used in Swasa, kasa.

A clinical trial had been done where Bhumyamalaki has been taken as Phyllanthus niruri linnamarus for the treatment of viral hepatitis B.

Chemical constituents :- two main chemical constituents have been isolated Phyllanitin and Hypothyllantin . Anti HBs like activity of Phyllanthus niruri has also been described in both vitro and vivo models using whole plant extract. There are also indications that Phyllanthus niruri extract may be helpful in interrupting the hepatitis B virus carrier state.

Extract of Phyllanthus niruri inhibits the reaction between HBsAg and the antibody to it (Anti- HBs) Hep B virus contains an endogenous DNA polymerase which is required for its replication. It inhibits the endogenous DNA polymerase of Hep B virus. It is postulated that this drug may have an action with antibody binding sites on HBsAg, which prevent further proliferation of Hepatitis B virus. Bhumyalaki Rasayan vati and its clinical trial on the patients of viral hepatitis B revealed encouraging results. Bhumyamalaki is a dependable drug for treatment of viral Hep B as well as carrier state of Hep B.<sup>[27]</sup>

The importance of Ayurveda in global scenario is because of its holistic approach towards positive life style. It deals with both the preventive and curative aspects of diseases. Ayurveda mentions the treatment modalities as topical (bahi-parimarjana), systemic (anta-parimarjana) or by surgical intervention. Fumigation (dhoopana) catergorized under topical (bahiparimarjan) treatment, has been told as a treatment in all the classics of Ayurveda but detail description is available only in Kashyap Samhita in a chapter named 'Dhoopakalpa'. Fumigation (medicated smoke) creates an aseptic environment, kills microbes and thus, prevents infection. Ayurveda have provided an elaborated explanation of many herbal drugs which may prove to be safe, effective and lucrative in present settings.

**Nimba (*Azadirachta indica*):** its active constituents possess insecticidal and insect repellent activity, like 22, 23-dihyromocinol extracted from leaves and azadirachtin extracted from seeds. *A. indica* fumes against streptococcus pyogenes after 10 mins exposure showed 100% inhibition and 50% inhibition after 5 minutes exposure, it also showed inhibition of *S. aureus*, *S. epidermidis*, and *P. aeruginosa* under same settings. *Azadirachta indica* is effective against head lice in topical use.<sup>[28]</sup>

### **Guggul (*Commiphora wightii*)**

Extracts of guggul were evaluated for their potential antimicrobial activity against both gram positive and gram negative bacterial species of clinical significance. Ethanol extract was found to have comparatively higher activity than other organic and aqueous extracts of guggul. Gram positive bacteria showed competent but various susceptibilities to all the tested extracts. Some of the extracts exhibited significant inhibitions of bacteria even at low concentrations.<sup>[29]</sup>

### **Sarshap (*Brassica campestris*)**

Brassica species contain contrasting profiles of glucosinolates which have biocidal activity on different pathogens including bacterial and fungi. Fumigation with brassica species is effective against nematodes.<sup>[30]</sup>

### **Concept of Kumaragara**

This emphasizes maintenance of healthy environment for children. The bed, clothing, blankets, furniture etc of child should be cleaned and fumigated with rakshoghna dravyas like sarshap, guggul etc. the neonate after nama karan on 11<sup>th</sup> day should be transferred from Sutikagara to Kumaragar. This is done for the purpose of special nursing care so as to prevent drastic infections.

### **CONCLUSION**

To conclude, Ayurvedic interventions can be used effectively for prevention and treatment of bacterial diseases. Ayurveda herbs have great potential as anti-microbial against local as well as systemic pathogens and they can be used in the treatment of infectious diseases. The literature used justifies the use of these herbal preparations in medical practice. However, the range of efficacy is not established and hence such comparative studies are needed to be done. Hence in current era of AMR Ayurvedic interventions will go a long way in reducing

the risk of development of AMR and also in alleviating the adverse effects of antimicrobial therapy.

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**A PROTOCOL ON ASSOCIATION BETWEEN MADHUMEHA (DIABETES MELLITUS TYPE –II) AND RISK FACTORS INSIGHT AYURVEDA IN POPULATION OF DIFFERENT DEHA PRAKRITI(BODY CONSTITUTION)-A CASE CONTROL STUDY .**

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**ABSTRACT:**

The detailed knowledge of the *prakriti* mentioned in *samhita* which covers the applied knowledge of curative, practical utility, clinical importance, and need. In *brihatryi* concept of *prakriti* is mentioned in detail to know about the exact *prakriti*. Ancient texts of Ayurveda has described *madhumeha* in detail. *Madhumeha*, its definition, etiology, symptomatology, pathogenesis, prodromal symptoms, complications, principles of management and various concepts of medical treatment are described in detailed. Genetic predisposition of the disease is described in *Charak Samhita* (1200 AD.) Apart from hereditary certain *ahara* (diet) and *vihara* (life style) are considered as causative factors of *Madhumeha*. According to *acharya charak*, out of 20 types of *Prameha* ,*madhumeha* is one of the type of *vataj prameha* .Here to find out the co-relation of *deha prakriti* along with the manifestation of *madhumeha* (Type -2 Diabetes mellitus) will be done .For this topic assessment will be done by an observations based on questionnaire .Aim and Objectives: To Evaluate the association between *madhumeha* (Diabetes Mellitus Type-2) and risk factors insight Ayurveda in population of different *dehaprakriti*.

**Methodology:** This is a Case Control study, the cases and controls will be taken as a 1:1 ratio. Questionnaires administered by an interviewer are used to survey the *Deha prakriti* in the manifestation of *madhumehi* (Type2 diabetes) in different *Prakriti*. Approval of the study will be taken after presentation from institute's ethics committee. Results– Observation will be noted & presented in the form of tables. **Discussion-**Assessment of *prakriti* gives a knowledge about the causative factors of the *Madhumeha* (Type 2 Diabetes) so, a case control approach always aims at what is the provoking factor in a diseased person as well as preventive or protective factors in healthy individuals. **Conclusion** – By *prakriti* assessment, prevention of progression of the *madhumeha* (Type 2 diabetes) will be achieved. This study helps to establish the covalent bond between the disease and its etiological factor between *madhumeha* and its etiological factors, and also reveals the relative predominance of *dosha* among them.

**Keywords-** *Madhumeha, Deha Prakriti, Prameha, Tridosha*, diabetes mellitus.

#### **Introduction:**

*Ayurved samhitas* have described some fundamental theories to understand its philosophy as well as entire science. Theory of *tridosha* is important in understanding about health and about disease<sup>1</sup>. *Tridosha* theory explained three body *doshas* namely *Vata, Pitta* and *Kapha*. They are part of healthy body in their state of equilibrium and also a part of disease when state of equilibrium among them get disturbed<sup>2</sup>. Numerous properties of *doshas* and how they affect a human being's physiology has been discussed by Acharya. It is said that Physical constitution of body called *Prakriti* based on the dominance of *doshas*<sup>3</sup>.

The disease *Madhumeha* is described in almost all available ancient texts of *ayurveda*. *Madhumeha*, its definition, etiology, symptomatology, pathogenesis, prodromal symptoms, complications, principles of management and various concepts of medical treatment are described in detailed. Genetic predisposition of the disease is described in *Charak Samhita* (1200 AD.) Apart from hereditary certain *ahara* (diet) and *vihara* (life style) are considered as causative factors of *Madhumeha*<sup>4</sup>. The *Prakriti* (physiological and mental constitution) provides fair indication of physiological strength, weakness and mental status and susceptibility to various illness<sup>5</sup>. All constitutional types are very well explained in Ayurveda which is a traditional system of medicine<sup>6</sup>. Ayurveda not only offers personalized treatment but personalized life style by the way of both drug and nondrug modalities suited to an individual's *prakriti* making it holistic science<sup>7</sup>. Father

of western medicine Hippocrates evaluated factors like person's constitution, age and physique in decision making while prescribing drugs<sup>8</sup>. According to *bhela Samhita* lifestyle without exercise is also cause of *prameha / Madhumeha*<sup>9</sup>. The psychosomatic constitution i.e *dehaprakriti*, is an important factor which determines the pattern of susceptibility to different diseases, prognosis, course and complications<sup>10</sup>. From the knowledge of *prakriti*, we can utilized and explore the current understanding of Metabolic Syndrome and Diabetes Mellitus Type- 2<sup>11</sup>. More than 62 million Indians are affected currently with *madhumeha* (Diabetes Mellitus Type-2) which is more than 7.1% of the adult population<sup>12</sup>. One million Indians died due to madhumehi disease every year<sup>13</sup>. According to latest 2016 data from WHO an estimated 422 million adults are living with this disease across the globe<sup>14</sup>.

### Need of study

In India, the increase in prevalence rate of *madhumeha* (diabetes mellitus Type-2) have become a great problem due to its indefinite etiological factors and incurable complications associated<sup>15</sup>. This is not only a problem in front of modern medical faculty but also it is problem for Ayurveda practitioner. Development in modern technology in the field of diagnosis and management of this disorder have not given rational solution in prevention and control of the disease. This is the reason why people are searching a ray of hope from traditional and ancient system of medicine as well as from other systems of medicine. Remarkable research work is in progress in various schools of

Ayurveda to find out rational solution in prevention and control of *Madhumeha* (Diabetes Mellitus Type-2). Principles of management and prevention of *Madhumeha* given in *ayurved samhitas* like diet and lifestyle modifications are prescribed in both general and according to psychosomatic constitution will going to be useful in prevention and control of this disorder. Ayurveda prescribes diet and lifestyle including activities should be planned opposite to *prakriti* for treatment of any disorder and in maintenance of health<sup>16</sup>. All these facts have created interest in me to study this subject describe in detail in *ayurved samhitas*.

Today's dietary and habitual regimen is adding a major risk factor in occurrence of this disorder. Ayurveda advocates to deal with risk factors, *ahara* (diet) and *vihara* (lifestyle), and prevention of any disease according to *Prakriti*. Hence, under this background it is decided to perform "A case control study of association between *Madhumeha* (Diabetes Mellitus Type-2) and risk factors insight Ayurveda in population of different *dehaprakriti*", and this study will be an effort to fill

the gap in the knowledge of the subject in present context. Furthermore Ayurveda have given more emphasis on personalized modification factors may be useful for suffering mankind. So, a case control approach always aims at what is the provoking factor in a diseased person as well as preventive or protective factors in healthy individuals. Hence, the present study has been selected to find out the influence of *deha Prakriti* in the manifestation of *madhumehi* (Type 2 diabetes). Though many research works on *deha prakriti* and *Madhumeha* found individually. But, no work has been carried out on *deha Prakriti* and its manifestation with the *madhumehi* (Type -2 Diabetes). Here to find out the co-relation of *deha Prakriti* along with the manifestation of *madhumehi* (Type2 diabetes) will be going to be more useful, which is to be assessed by an observational study i.e. A Case-Control Study.

Commented [U1]:

**Research question:**

Is there any association between *madhumeha* (Diabetes Mellitus Typr-2) and risk factors insight ayurveda in population of different *dehaprakriti*?

**Null Hypothesis:**

There is no association between *madhumeha* (Diabetes Mellitus Type-2) and risk factors insight Ayurveda in population of different *dehaprakriti*.

**Alternate Hypothesis:**

There is an association between *madhumeha* (Diabetes Mellitus Type-2) and risk factors insight ayurveda in population of different *dehaprakriti*.

**Aim:**

To evaluate the association between *madhumeha* (Diabetes Mellitus Type-2) and risk factors insight ayurveda in population of different *dehaprakriti*.

**Objectives:**

- 1) To find out percentage of *madhumehi* (type-2 diabetics) with different *dehaprakriti*.
- 2) To establish the association between risk factors of *madhumeha* (Diabetes Mellitus Type- II) with different *dehaprakriti*.
- 3) To assess the contribution of risk factors (faulty *ahara* -diet) and *vihara* (lifestyle)) in manifestation of *madhumeha* (Diabetes mellitus Type-2).

**Materials Methods:**

Source of Data

Data will be collected in OPD and IPD of study Centre MUHS, Recognized study Centre.

Type of Study: Observational study

Study Design: Case Control study

Study Duration – 3 years

**Sampling procedure:**

All the subjects on the basis of questionnaire will be personally interviewed. The informed consent of the subject will be taken prior.

Questionnaires administered by an interviewer are used to survey the *deha prakriti* in the manifestation of *madhumehi* (Type 2 Diabetes) in different *prakriti*.

**Sample size (Including sample size calculation):**

Considering the time limit and bounded to essential criteria for Case-Control study, the cases and Controls are taken as a 1:1 ratio.

Cases (*Madhumehi*) =300

Controls (healthy volunteers) =300

**Study Population:**

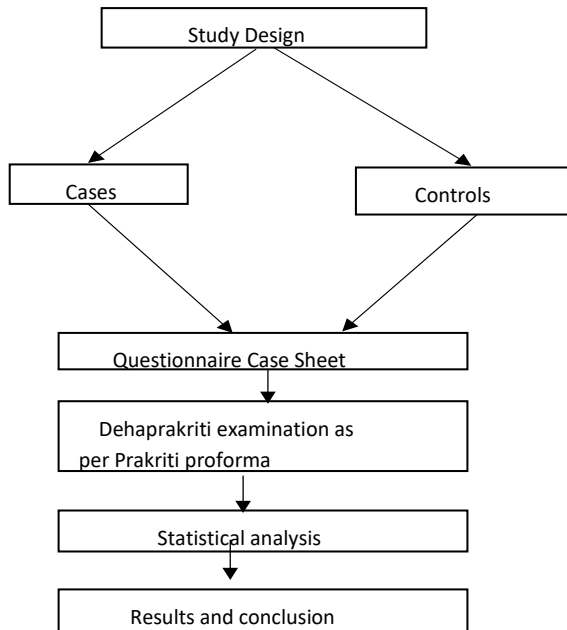
Prevalence rate of Diabetes Mellitus India is 7.1  $n = \frac{z^2 (1 - \alpha / 2) pq}{d^2}$

Where n= sample size. P= prevalence q= (100- p) d= precision. z= value at 95% confidence interval for two tailed study i.e. 1.96.

**Sample Size:**  $n = \frac{1.96 \times 1.96 \times 7.1 \times 92.9}{101.35} = 101.35$  (~105)

All the 300 cases and 300 controls will be screened for Prakriti as per *ayurvedic prakriti* analysis pro forma approved by MUHS university and risk factors will be defined.

**Study plan:**



#### Data collection tools and process:-

##### Inclusion Criteria -

- Fasting blood glucose more or equal to 126 mg/dl. <sup>17</sup>
- Post meal blood glucose more or equal to 200 mg/dl. (two hours after the meals)
- HbA1C > 6.5<sup>18</sup>
- Control will be taken from the same reference population except free from symptoms (without *Madhumeha*).
- Cases and controls of age group between 35 to 70 years of either sex.

##### Exclusion Criteria

- Fasting blood glucose less than 126 mg/dl.
- Post meal blood glucose less than 200 mg/dl.
- HbA1C < 6.5
- Cases and controls of age less than 35 and more than 70 years of either gender.

- Patients with type-1 Diabetes Mellitus.
- Patients with severe diabetic complications like cardiovascular disease, nephropathy, uncontrolled Diabetes with ketoacidosis.
- Diabetes Mellitus associated with various infections like HIV, tuberculosis, Malignancies.
- Patients with other endocrinal disorders like phaeochromocytoma, acromegaly, Cushing's syndrome and hyperthyroidism.

**Assessment Criteria:**

Study instrument/Data collection tools

- *Prakriti* assessment *proforma*
- Questionnaire
- Investigation- Blood Glucose (Fasting-post meals) HbA1c and Lipid Profile.

**Method of data collection Selection of subjects:**

The patients will be selected from IPD (In Patient Department) and OPD (Out Patient Department)

Ayurveda hospital –MUHS, recognized center. Written informed consent will be taken after offering sufficient explanations about the purpose and benefits of the study. Healthy volunteers will be selected from the periphery of center. All the subjects will directly interview in their local language by a single person (research scholar). A detailed history will be taken based on the specially designed *deha-prakriti* *proforma*. In addition to this, in the case of a patients detailed history of the disease about madhumehi (Type 2-diabetes) will be questioned.

**Assessment of Prakriti:**

A special research *proforma* has been developed to assess *deha prakriti*.

**Data Analysis (statistical methods): -**

Detailed history will be taken on specially prepared research *proforma* and fill record for statistical study. The statistical analysis will be done by using statistical tools.

**Statistical Methods**

With proper s Statistical analysis:

1. Chi square test used for categorical data. (As we will going to prove association between two variables – Chi square test i.e. test of association will be applied to the above research study).
2. Odds ratio.
3. Correlation coefficient.

#### **Assessment of Results**

On the basis of questionnaire, in both groups (results) will be assessed regarding the clinical signs and symptoms of *madhumeha*. All subjective-objectives parameters will be observed and recorded during observations then the comparison of the inter group relationship and intragroup relationship result of the group will be done.

#### **Ethical consideration:**

Study will be started after obtaining ethical clearance from IEC.

- Withdrawal Criteria: Patient will be withdrawn from the study if not willing to give proper information of his/her Madhumeha (Type -2 Diabetes Mellitus)
- Consent according to ICMR/WHO Format: Enclosed and will be taken.
- Information to the Patients: All information about study procedure will be given to the subject in his/ her language.

#### **Expected Results**

The Subjects with *Madhumeha* sign and symptoms with different *deha prakriti* will be assessed and expected result will be withdrawn from observations.

By *prakriti* assessment, prevention of progression of the *madhumeha* (Type -2 Diabetes) can be achieved. This study helps to establish the covalent bond between the disease and its etiological factors between *madhumeha* (Type -2 Diabetes) and its etiological factors, and also reveals the relative predominance of *dosha* among them.

#### **Scope and Implications of the proposed study:**

- The present study provides an updated quantification of the growing public health burden of Madhumehi (Type 2 Diabetes) research region.
- This kind of study would further help in prevention of progression of the *madhumeha*.

**Discussion:** Discussion will be drawn from the observations and results of individual groups and comparative statistical Analysis. A number of articles related to deha prakriti and madhumeha conditions available in this region will be reviewed.



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## Case Study

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### ROLE OF MAHAMANJISHTADI KWATH WITH LOCAL APPLICATION OF KESAR AND HARIDRA IN MUKHADUSHIKA WITH SPECIAL REFERENCE TO ACNE VULGARIS: A CASE STUDY

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#### ABSTRACT

Acne vulgaris is a disease of the pilosebaceous follicle characterized by noninflammatory (open and closed comedones) and inflammatory lesions (papules, pustules, and nodules)<sup>1</sup>. Four major factors are involved in the disease production: increased sebum production, cornification of pilosebaceous ducts, microbial involvement, and inflammation. This condition is commonly found in puberty<sup>2</sup>. In *Ayurveda*, it is termed *Mukhadushika*. In *Ayurveda*, *Mukhadushika* is described under the heading of *Kshudrarogas*. The *Shalmali* thorn-like eruption on the face due to vitiation of *Kapha*, *Vata* and *Rakta*, which are found on the face of adolescents, are called *Mukhadushika* or *YuwanPidika*. Although *Vata*, *Kapha* and *Rakta* are mentioned as *dosha-dusya* involved in the pathogenesis of the disease, *pittaja* symptoms are also found in diseases like *daha* and *paka*. The patient has been suffering from Acne over the face (*Pidika*), Burning sensation over the face (*Daha*), Itching over the face (*Kandu*), and Discoloration of skin (*Vaivarnya*) for six months. The patient was treated with local application of *Haridra* and *Kesar* to face and *Mahamanjishtadi kwath* internally. This article shows *Mahamanjishtadi kadha* internally and *kesar* and *haridra* locally in a patient of *Mukhadushika* shows positive results.

**Key words:** *Mukhadushika*, Acne vulgaris, *Mahamanjishtadi kadha*, *kshudraroga*.

#### INTRODUCTION

Skin is the mirror of our state of health. Its appearance reflects our age, origin, health and even state of mind. It is essential to pay attention to this part of the body.<sup>3</sup> *Tvak*, according to *Ayurveda*, is not only the outer covering of the body, but it is a *Gyanendriya* which composes the body from within. The most common ailment that a teen suffers at this age is acne. They mainly occur in the youths, or the *Yuva* and form are like small pustules or boils or *Pidika*; hence they are called “*Yuwan Pidika*”. And for the same reason, it is also called “*Tarunypidika*”. This disease affects the face and vitiates the facial appearance; therefore, it is called ‘*Mukhadushika*’. As per modern science, the symptoms of *Yuwan Pidika* resemble acne vulgaris. Acne is a chronic inflammatory dis-ease of the pilosebaceous glands present in the skin of the face.<sup>4</sup> This disease is characterised by the formation of comedones [blackheads], erythematous papules, and in a few cases, nodules or cysts and scarring. Four major factors are involved in the disease production viz, increased sebum production, cornification of pilosebaceous ducts, microbial involvement, and display of inflammation. This condition is commonly found in puberty<sup>5</sup>. Many synthesis drugs like benzoyl peroxide, antibiotics, and androgens are used to treat this disorder, but these drugs also exhibit several side effects like dryness of skin, dermatitis, darkening of the skin, and recurrence after withdrawal<sup>6</sup>. In *Ayurveda*, this disease is described as “*Mukhdushika* or “*Yuwan pidika*”. According to *Ayurveda*, the *Shalmali Kantak*-like eruption on the face due to vitiation of *Kapha*, *Vata* and *Rakta*, which are found in adolescents, is called

*Mukhdushika*. No single disease causes more psychic trauma, more maladjustment between parents and children, more general insecurity and feeling of inferiority and more outstanding sums of psychic suffering than acne. In *Sushrut Samhita Yuwan Pi-dika* is mentioned under *Kshudra Rogas*.<sup>7</sup>

#### MATERIALS AND METHODS

##### Case report

The present case study is successful *Ayurvedic* management of acne vulgaris.

A 16-year-old male patient visited the OPD with the following complaints:

##### Chief complaints

Acne over the face (*Pidika*), Burning sensation over the face (*Daha*), Itching over the face (*Kandu*), and Discoloration of skin (*Vaivarnya*).

##### History of Present Illness

The patient has had the above complaints for the last six months. During this period, he experienced small pustules over both her cheeks. he had an itching and burning sensation over those areas and some blackheads. The patient tried various allopathic local and systemic drugs, but none could prevent acne relapse. So, he came to the C.S.M.S.S. Ayurved hospital OPD for *Ayurvedic* treatment. Written consent was obtained.

**History:** No history

**Personal History**

Name- XYZ, Bala- *balvaan*, *Prakruti- Pitta vata*, Age- 16 years, Sleep- Inadequate, B.P.- 110/70 mmHg, Sex-male, Weight 54 Kgs, Marital status - Unmarried, Bowel Habit- Irregular, Height- 160 cm, Occupation- Student, Appetite - normal

**Ashtavidh Pariksha**

*Nadi* (Pulse)- 76 / min, *Shabda* (Speech) - Clear, *Mal* (Stool) - Constipation, *Sparsh* (Touch) - *snigdha*, *Mutra* (Urine) - *Samyak*, *Druk* (Eyes) - *prakrut*, *Jivha* (Tongue) - *Saam*, *Aakruti* (Built) - *Madhyam*.



The patient was given *kesar* applied over the face after soaking for 3-4 hours in the water, and then *haridra* was mixed in *kesar*. The *lepa* was applied continuously for 15 days, instructions of *lepa* application were given, and *Mahamanjishtadi kwath* internally 10 ml *pashhatbhakta* continuously for 15 days was given. This remedy was given for one month.

During the complete duration of treatment, the patient was instructed to follow *pathya*- green vegetables, *kadipatta*, *Avala*, warm water and *apthya* means avoid fast food, milk products, and yeast mix products as advised strictly.

The patient was examined after every seven days. After one month, there was complete disappearance of acne and complete relief in itching, burning sensation and pain. Significant improvement was observed in discoloration over the face from grade 3 to 1.

This shows that if a treatment plan is selected according to principles of *Ayurveda* along with proper drugs, doses, duration, *anupana*, *pathya*, and *apthya*, there is an assurance of treatment success, as seen in this case of *mukhdushika*.<sup>8</sup>

*Mahamanjishtadi kwatha* used as the additional intervention was possessing drugs *Manjishta*, *musta*, *kutaj*, *guduchi*, *kushta*, *nagara*, *bharangi*, *vacha*, *nimba*, *haridra*, *daruharidra*, *triphala*, *bibhitaki*, *patola*, *katua*, *murva*, *vidanga*, *chitraka*, *shatavari*, *trymana*, *indrayava*, *vasa*, *mahadaru*, *patha*, *khadira*, *chandan*, *trivrit*, *bakuchi*, *nimba*, *karanja*, *ativisha*, *indravaruni*, *sariva*. All these drugs have properties like *Varnya*, *Kapha pittashamak*, *shothahar*, *Kushtaghna*, *Vranropak*, *Raktashodhak*, *Vedanashamak*, *kandughna*, *dahaprashaman*, which help treat acne.

*Kesar* is one of the costliest Ayurvedic medicinal plants, also known as red gold. The biological source of *Kesar* is the dried stigma of the flower *Crocus sativus* Linn. belonging to the family Iridaceae, known as Saffron.<sup>9</sup> It is native to southern Europe, and in India, its cultivation so far is limited to Jammu & Kashmir. Saffron is a valuable drug used in several *Ayurvedic* preparations. *Acharya Charaka* has classified it under *shonit sthapana mahakashaya*, whereas *Acharya Sushruta* and *Vagbhata* had mentioned it under *eladi gana* It has *katu tikta taste*, *Ushna virya*, *Katu vipaka* and *snigdha guna* and having properties like *Vatahara*, *Varnya*, *Vishaghna*, *Sleshmahara*, *Rasayana*, *Jantuhara*. It is used in diseases like *Chardi*, *Kasa*, *Vyanga*, *Drshti Roga*, *Kantha Roga*, *Sidhma*, *Suryavartta*, and *Shiroroga*. A detailed review was done of its synonyms, classification, pharmacological properties, and different features according to its type from the major *Ayurvedic* classical texts and *nighantus* (*Ayurvedic* materia medica).

**Approach to Systematic Classical Review**

A detailed review was done of the major *Ayurvedic* classical texts and *nighantus* (*Ayurvedic* materia medica). *Laghu trayai texts Charaka Samhita*, *Sushruta Samhita* and *Ashtanga Hridaya*, were reviewed for all the pharmacological references. Eight major *nighantus*, i.e., *Dhanvantari nighantu* (D.N.), *Bhavaprakasha Nighantu* (B.P.N.), *Madanpal Nighantu* (M.P.N.), *Kaiyadeva Nighantu* (K.N), *Shodhala Nighantu* (S.N.), *Raj Nighantu* (R.N.), *Shaligram nighantu* (S.G.N.) and *Priya Nighantu* (P.N.) were reviewed for its synonyms, classification, pharmacological properties, and different features according to its type.

**Classification of Kesar According to Ayurvedic Literature**

*Kesar* is a *Karya dravya* with a *chetanta* and an *audbhid aushadha* (Medicinal) *dravya*. *Acharaya Charaka* has classified it under *shonit sthapana mahakashaya* by the name *rudhir*. *Chakrapani*, in his commentary, explained *rudhir* as *kumkum*, and *kumkum* is the synonym for *kesar*. *Acharaya Sushruta* and *Vagbhata* had mentioned it under *eladi gana* by the name *kumkum*. Among *nighantus* *Dhanwantari nighantu*, *Raja nighantu* and *Shodhala Nighantu* classified it under *chandanadi varga*. It is mentioned under *karpuradi varga* in *Bhavaprakasha nighantu*, *Madanpal nighantu*. Whereas *Kaiyadeva Nighantu* and *Priya Nighantu*. It is mentioned under *aushadhi varga* and *shatpushpadi varga*, respectively<sup>10</sup>.

*Haridra* also has *varnya*, *kushtaghna*, and *kandughna* properties which act as *varnya*, antibacterial and *kandughna* and give additional effect to *kesar*.

**DISCUSSION**

Most of the *nighantu* writers described *Kesar* as having *katu tikta rasa*, but in *Madanpal nighantu*, it is described as having *katu rasa* only, whereas in *Priya nighantu* explained *kesar* as having *tikta rasa*. As per P.V. Sharma in *Priya nighantu*, *Kesar* has *Anushna virya*, whereas the rest of the writers believed it has *ushna virya*. In *Bhavaprakash* and *Kaideva nighantu*, based on the origin, *kesar* is of three types, and the best quality *kesar* comes from Kashmir. In Vedas, it is only used in external preparations, whereas in *laghu trayai* texts, it is used in internal and external preparations. A total of 38 references were found in *laghu trayai* texts; out of this, most references, i.e., 19 were found in *Ashtanga Hridaya*, 11 found in *Sushruta Samhita* and eight found in *Charaka Samhita*. *Charaka Samhita kesar* is used in *visha roga's* three references, followed by *vata vyadhi* two references. In *Sushruta Samhita*, it is used in *visha roga*, having four references, followed by *mutra roga* and *jwara*, each having

two references.<sup>11</sup> In *Ashtanga Hridaya*, it has four references for its use in *visha roga*, followed by three references in *netra roga*.

*Kwath* (decoction) is an important primary dosage form in *Ayurveda*. It is effective in attaining various pharmacological actions like *deepana*, *pachana*, *shamana*, *shodhana*, *tarpana* etc., when prepared according to classical guidelines and used in appropriate concentrations and clinical conditions. So, *Mahamanjishtadi kwath* was used.<sup>12</sup>

Modern medicine provides various treatments for skin problems like acne, but therapy should be in line with the type and severity of skin infections. Mostly, the treatment includes prolonged use of topical creams, lotions, oral antibiotics, and anti-inflammatory drugs. These medicines are known to provide effective management, but these medications are also known to show various side effects like burning sensation, erythema, skin dryness, and scaling.

Besides the side effects, bacterial resistance is also noticeable. Some antibiotics like vancomycin, linezolid and silver sulfadiazine were resistant to *Staphylococcus aureus* and *Streptococcus pyogenes*. Methicillin-resistant *S. aureus* (MRSA) is in rising frequency and has shown resistance to vancomycin. 9% of the *Candida* species isolated were analysed and found to be resistant to fluconazole and itraconazole. Hence, the healthcare fraternity is looking for alternative treatment options for skin diseases and infections. Plant-based Ayurvedic drugs have several advantages over synthetic drugs, such as fewer side effects, better patient tolerance, and more acceptable due to a long history of traditional use.

## CONCLUSION

Hence it is concluded that *kesar* with *haridra* local application on the face along with oral administration of *Mahamanjishtadi kwath* is highly effective in the management of *mukhdushika*.

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## Review Article

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### A REVIEW ON THE ASSOCIATION OF AAHAR WITH MENTAL HEALTH

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#### ABSTRACT

Nutrition is the gross term. It includes body nourishment and mind nourishment. Mind nourishment can be understood in two forms, i.e. good thoughts and good food. Good thoughts depend on a positive mind attitude. The goodness of food depends on what kind of food a person eats and how to eat the food. The role of Satwik Aahar mentioned in Bhagwat Geeta, Chaturvidh Aahar, and Shad-rasatmak Aahar mentioned in Ayurvedic texts are essential to know what to eat, and Aharvidhi Vidhan, which is explained in Charaka Samhita is necessary to understand how to eat. The mind has three qualities, Satwa, Raja and Tama, which are present in almost everything, including food. Chhandogya Upanishad points out that the food eaten has three layers; sthula amsha, madhyama amsha and sukshma amsha, and what is sukshma (the subtlest part), that is mind. It also states Aahar shuddhau satwa shuddhi. From the purity of food comes the purity of mind. One should always try to increase the Satwa guna because; the persons having Alpa Satwa are more prone to have diseases, as Alpa Satwa indulges Pradnyaparadha, and pradnyaparadha is the root cause of all kinds of illness. So, it is important to achieve Satwa Shuddhi and to achieve Satwa Shuddhi Aahar Shuddhi is important.

**Keywords:** Saatwik Aahar, Mental health, Aahar, mind nourishment, Satwa shuddhi.

#### INTRODUCTION

WHO defined health as a state of complete physical, mental and social wellbeing and not merely the absence of disease. Mental health is also more than the absence of mental disorders. It is a state of well-being in which an individual realizes their abilities, can cope with the everyday stresses of life, can work productively, and can contribute to their community. <sup>1</sup>

Ayurved is an ancient life science in which health is defined at a spiritual level, as "Prasanna aatmendriya manaha" <sup>2</sup>. It is not an only equilibrium in your dosha dhatu mala agni and kriya but also equilibrium and harmony in atma (soul), indriya (senses) and mind. Ayurved Sharira is not just a body, but it is grossly defined as Tatra Shariram naam "Chetana adhishtaanbhumam" <sup>3</sup>. Sharira is where Chetana means soul along with mind resides.

So, the term Sharira Poshana includes both body and mind nourishment.

The Ayurvedic texts used in the present study are Charaka Samhita and Sushruta Samhita with their commentaries. The classic texts Bhagwat Geeta, Chhandogya Upanishad references, modern medical literature, and information on various websites are collected for the study.

#### Aahar

Aahar is a substance swallowed through the throat after eating <sup>4</sup>. Acharya Dalhana says the substance consumed through Annalika is called aahar. <sup>5</sup> Whatever is swallowed is called "Aahar". Charaka Samhita states that there is a variety of aahar items humans eat. Yet, due to the necessity of the "swallowing act", whatever is undergone a process of deglutition is Aahar <sup>6</sup>. Acharya Chakrapani mentioned that Ahara means anything which is ingested, and thus it includes both diet and drugs. Also,

Acharya Gangadhara says that anything consumed by the tongue down to the throat is called Ahara. Therefore, drugs are also included in aahar. Ahara (food) is considered the Mahabhaishajya (the superior medicine) in Kashyap Samhita and Brahma in Upanishad. Trayopastambha, namely Ahara, Nidra and Brahmacharya, are three sub-pillars of Ayurved shastra <sup>7</sup>, where Aahar has been mentioned first, which shows its importance.

So many terms are mentioned in the modern medical literature. "Let food be thy medicine and medicine be thy food" - Hippocrates, the father of medicine. <sup>8</sup> These thousands of years old quote acknowledges the importance of healthy eating. Food - mood connection (by Dr Uma Naido) <sup>9</sup>. No health without mental health, stated by WHO <sup>10</sup>, shows the importance of food and mental health.

#### Mind

The mind has three qualities satwa, raja and tama, called gunas.

1. Satwa is the highest guna, representing balance and harmony. It is the ideal state.
2. Raja represents an active and intense mind. Excess raja leads to stress, overstimulation, and over-excitement.
3. Tama is the base guna associated with inertia, lethargy, and laziness.

These three qualities are present in almost everything, including food.

#### Aahar and Mind association

As defined earlier, Sharir poshana includes both body nourishment and mind nourishment. Mind nourishment depends on good thoughts which originate from a positive mind attitude, and

Good food further depends on what to eat and how to eat it.

[A] What kind of food one should eat is explained with “Saatwik Aahar” mentioned in Bhagwat Geeta, Chaturvidh aahar and Shad-Rasatmak aahar mentioned in Ayurvedic texts.

[B] How to eat the food is explained in Charaka Samhita as Aaharvidhi Vidhan.

### Trividha Aahar

#### 1. Saatwik Aahar

“Aayuh-sattva-bala-arogya-sukha-preeti-  
vivirdhanaahaa |  
rasyaaha snigdhaaha sthira hridyaa aahaaraaha  
saatwikapriyaahaa ||”

Food that enhances (aayu) longevity, (satwa) mind strength, (bala) body strength, (aarogya) health, (sukha) happiness and (preeti) joy, that which is (rasya) juicy, (snigdha) oily, stable (sthira) and (hridya) pleasant, is dear to one who is saatwik.

#### 2. Raajasik Aahar

“Katv-amla-lavana-aty-ushna-teekshna-ruksha-  
vidaahinaha |  
aahaaraa raajasasyeshtaa  
dukhkhashokaamayapradaahaa ||”

Food that is bitter, sour, salty, excessively hot, pungent, dry, and burning is dear to the raajasic person, causing pain, sorrow and disease.

#### 3. Taamasik Aahar

“Yaatayamam gatarasam pooti paryushitam cha yat |  
ucchishtamapi chaamedhyam bhoojanam  
taamasapriyam||.”

Stale (Yatayamam) means that food has lost its original state, being kept for a long time. Tasteless (Gatarasam) means that which has lost its natural taste. Putrid (Puti) means emitting a bad smell. Decayed (Paryusitam) means acquiring rancidity by lapse of time. Refused (Uchistam) means the food that has remained over after being taken by persons other than Gurus etc. Such food is Unclean (Amedhyam), and it is not supposed for offering in the worship of God.<sup>11</sup>

So Saatwik food will help calm the body and mind so that one can get the maximum advantage of the food compared to Raajasik and Taamasik food. Raajasik and Taamasik food generate intoxicating vibes in the body, which makes it challenging to focus on spiritual things.

### Chaturvidha Aahar

1. Aashita – bhojyam odanadi, the coarse form of food eaten by churning, is chewable.
2. Khaadita – bhakshyam modakadi, solid form of food eaten by biting, eatable.
3. Peeta – peyam ksheeradi, drinkables are a liquid form of food taken by drinking.
4. Leedha – lehyam madhwadi, mostly semisolid/semiliquid food form, likable.<sup>12</sup>

### Shad Rasatmak Aahar

Rasa is the essence of life. This rasa affects every aspect of our existence. It is considered a powerful therapeutic tool. In Ayurved, Rasa (taste) has given immense significance. Ayurveda recognizes six flavours and is termed Shadrasa, viz Madhura (sweet), Amla (sour), Lavana (salty), Katu (pungent), Tikta (bitter), and Kashaya (astringent). Each of these has a role to play in our health and wellbeing.

- Excessive intake of Madhur Rasa leads to Kapha prakopa, which causes obesity, laziness, heaviness, Mandagni etc.
- Excessive intake of Amla Rasa leads to Pitta Prakop, causing Irritation in the throat etc.

- Excessive intake of Lavana Rasa leads to Rakta-Pitaa Prakopa, causing Greying of hair, Alopecia etc.
- Excessive intake of Katu Rasa causes Dizziness, Weakness, Vertigo etc.
- Excessive intake of Tikta Rasa leads to Dryness, Depletion of Rasa to Shukra Dhatu etc.
- And Excessive intake of Kashay Rasa leads to dryness, infertility etc.

It is said that “Sarvarasabhyaso Balakaranam”. So, it is advised to take shadrasatmak ahar, which is present in aashit khaditadi four food forms.<sup>13</sup>

### Aahar Vidhi Vidhaan

Nutrition is the basic need for a healthy life, but one cannot gain optimum benefit from the food consumed without knowing proper dietary guidelines. There are many guidelines related to diet and its contents in modern aspects, but the Ayurved has its unique approach and importance. Acharya Charaka has given ahara vidhi vidhan (dietary guidelines), which can prevent many diseases arising from faulty dietary habits.

- Ushnamashniyat (consuming warm food)
- Snigdamashniyat (food should be unctuous)
- Matravatashniyat (food in proper quantity) According to Ayurveda, matra (amount) is of two types one is sarvagraha (whole amount) another parigrah (amount of individual ingredient)
- Jeerneashniyat (Meal taken after digestion of previous meal)
- Veeryaaviruddhamashniyat (food having no contradictory potencies)
- Ishtadeshe ishtasarvopkarnam chashniyat (Meal taken at proper place and with appropriate accessories)
- Naatidrutamashniyat (Not eating too fast or not in a hurry)
- Naativilambitamashniyat (Not eating too slowly)
- AjalpanAhasan tanmanabhunjeet (Eating without talking or laughing, Mindful eating, with concentration)
- Atmanamabhisamikshya bhunjeet samyak (Eating after analyzing one Need)<sup>14</sup>

In the Vedanta philosophy, there are said to be five elements. The first two- Akasha (space or ether) and Vayu (air) are not visible to us. The other three-Prithvi (earth) – referred to as Annam (food), Apa (water) and Agni (fire or energy) - are visible, and therefore they have been discussed. These three elements are never found in their pure form. They are always in a combined state. The Mana/ Chitta (mind) is the most refined product of food (annam), the Prana is the most acceptable product of water, and the Vak (speech) is the most refined product of fire.<sup>12</sup>

“Annamashitam tredha vidhiyate tasya yaha sthavisishtho  
dhaatuhu tat purisham bhavati yo madhyamaha tat mansam yo  
anishtha tat manaha ||.”

Chhandogya Upanishad 6/5/1

Food, when eaten, becomes threefold. What is coarsest in it becomes faeces, what is medium becomes flesh, and what is subtlest becomes mind. Here food is not converted into mind, but when we eat the food mind is pleased by apyayana. This proves that if we consume Saatwik Aahar (food), our Mana becomes Saatwik. If we eat Raajasik Aahar (food) our Mana becomes Raajasik and if we consume Taamasik Aahar our Mana becomes Taamasik.<sup>15</sup>

“Aaharshuddhau satwashuddhihi satwashuddhau dhruva  
smritihi smritilambhe sarvagranthinam vipramokshaha.”  
Chhandogya Upanishad 7/26/2

When the food is altogether pure, the mind becomes pure. This pure mind imposes firm memory. All bonds get loosened with this strong memory. Then only one set free becomes liberated.

## DISCUSSION

Day by day, the burden of mental disorders is increasing globally, affecting individuals' quality of life. As estimated by WHO (2004), mental disorders are the third leading cause of disabled life in low to middle-income countries. Mental health disorders are also the fourth leading cause of death worldwide (WHO, 2001).<sup>16</sup> This is because these mental issues are mostly not recognized in the early stages, which is why they become more complex to treat. So, no health without mental health was started by WHO for early recognition and prevention of mental disorders. The role of preventive medicine, nutrition, diet, and lifestyle management is essential here. The primary purpose or objective of Ayurved is "Swasthasya swastya rakshanam" to keep the health of a healthy individual. For that, in Ayurved aahar-vihar, pathya apathy, Dinacharya, Ritucharya, Sadvritta, what to eat? When to eat? How to eat? How to behave? Everything is explained in a very detailed manner. Saatwik Aahar Gow-ghrit, Medhya dravya, Hridya dravya, Abhyanga, Nasya is some of them... More importance is given to Aahar than Aushadhi. As it is said, Aahar (food), if taken properly, is like medicine (aushadhi). A person whose mind is with increased raajasik or taamasik guna is more prone to have mental disorders than a person with saatwik mind<sup>17</sup>. Saatwik mind is said to be a pure mind, and this purity helps to prevent illness. So, one should always try to increase the satwa guna as prevention is always better than cure. This is only possible with saatwik ahar because the purity of mind comes from the purity of food.

Sankaracharya gives a wider import to this word 'food'. Anything we take in through our five senses, i.e., Rupa, Rasa, Shabda, Gandha, Sparsa, is also 'food'. Anything we receive through the senses should also be pure. Food eaten alone will not suffice.<sup>18</sup>

## CONCLUSION

Sharira (body) and mana (mind) are inseparable entities. The things that affect the body also change mental status, such as food. Vata, Pitta and Kapha are three Shareer Dosha; Satwa, Raja, and Tama are three Manasik Dosha. Of which Satwa is said to be an ideal state. Satwa means pure. Satwa also means mind; Satwa Shuddhi is the purity of mind, the healthy and disease-free State. The persons having Alpa Satwa are more prone to have diseases, as Alpa Satwa indulges Pradnyaparadha (misuse of intellect), and pradnyapradha is the root cause of all kinds of illness. So, it can be understood by loka-purusha saamya siddhanta that Shudhha Aahar or Saatwik Aahar is important to achieve Satwa Shuddhi. So, it proves that purity of mind comes from the purity of food.

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# AYUSCRIPT

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१॥ विश्वकर्मो एमाहूयपुरीहाटकनि  
 र्मेता ॥ तत्रयोडशसाहस्रस्त्रीरुग्णैश्चवराधिकम् ॥ ११ ॥ भवनानि मनोज्ञानि  
 योमध्यकल्पयन् ॥ परिजातनरं चैवतासंभोगायकल्पयन् ॥ १२ ॥ या  
 तानां गृहास्तनयदृपेचाशतकोटयः ॥ अल्पिवरुवोलाकावसेनिविगत  
 राः ॥ १३ ॥ यन्त्रिविधुलोकेषु सुंदरं नवदृश्यते ॥ सवाजिनप्रज्ञेनाप्योप  
 नुयस्यविक्रुते ॥ १४ ॥ अर्धोपनीरमासाद्यतन्मनस्कतयावसः ॥ सनाडि  
 स्तपस्तेपस्वर्यं बुद्धिश्च बुद्धिमात्रं ॥ १५ ॥ अतनिरसनेमहस्यस्यैवदुल्लेख  
 नः ॥ प्रसन्नो भगवान् यत्राजितपुरं स्थितः ॥ १६ ॥ सत्रात्रितोषितुष्टावदृष्टादिबंदि  
 तकरश्चानि नोराशानमस्तिरुक्त्तमस्ति सर्वतो मुखः ॥ १७ ॥ विश्वव्यापिनमस्तिरु  
 मस्ति विश्वरूपिणः ॥ कल्पयेयमस्तिरुक्त्त हरिदश्वनमोक्त्तते ॥ १८ ॥ गृहराजन्म  
 त्स्त्तनमस्ति बहुराचिष्यः ॥ वेदत्रयन्मस्तिरुक्त्त सर्वदेवमोक्त्तते ॥ १९ ॥ पृथीद  
 िद्वेवा सुदृष्टो मादिवाकरः ॥ २० ॥ अथैकपमानोऽसादवदेवादिवाकरः ॥ २१ ॥  
 अथोपनीरमपर्यसक जितमयावदे ॥ अत्रैव हि प्रसन्नोऽस्ति यन्मनसि



## Role of Jambher Pinda Sweda in Gridhrasi w.s.r. to Sciatica

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**Abstract:** In ayurveda, one of the most common diseases that affect the hip and the lower limbs is gridhrasi. Gridhrasi is one of the severe debilitating disorder amongst all the neurological disorders. The main symptoms of Gridhrasi are Ruka (pain), Toda (pricking sensation), Stambha (stiffness) and Muhuspananda (twitching) in the Sphika (Gluteal Region), Kati (Low Back), Uru (Thigh), Janu (Knee), Jangha (Calf) and Pada (Foot) respectively and Sakthikshepa Nigraha (restricted lifting of the leg). These symptoms can be compared with sciatica which is characterised by severe pain starting from low back region and radiating down towards the foot. Though many conventional treatments are available but in view of their side effects and dependency it is important to search for safe and effective ayurvedic treatments. Ayurveda treats it by snehan, swedana, shodhana, and shaman chikitsa which are simple, safe and cost effective. The prevalence of sciatica symptoms increasing, Sciatica is more common among the age group between 30-50 years of age. Pinda sweda is a type of sankar sweda explained in the ayurvedic classics, is more effective for the shaman of vitiated vata dosha in the above condition. Drugs used in jambher pinda sweda has vata kaphahara, shothahara, shulaghana action. This paper is review of clinical application of Jambher pinda Sweda and its efficacy in Gridhrasi.

**Keywords** - *Gridhrasi, Sciatica, Pinda sweda*

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**Introduction** Sciatica is a condition where the pain radiates from the lower back down to the leg. This pain may go down the back, laterally, or anteriorly of the leg. It may affect unilateral or bilateral leg. Pain is severe in nature which affect patient physically as well as psychologically. According to acharya Charaka, gridharsi is one of the Vataja nanatmaja vikara<sup>1</sup>. Gridhrasi has been discussed in ayurveda by different Acharyas under the heading of Vatavyadhi. '*Sphikpurva katiprushto - rujanu janghapadam kramat*

*Grudhrasi stambhatodaihi grunhati spandate muhuhu'* <sup>1</sup>/<sub>2</sub> ch. Chi 28/56\

Symptoms of Gridhrasi is Spikapurva i.e.pain starts at hip and radiates to Kati(waist), Prushta(back), Uru (thigh), Jaanu (knee joint), Janga (calf muscle), Paada(foot) along with pain there is other complaints like Stamba (stiffness), Ruka(pain), Toda(pricking type pain), Muhurspandana(tingling sensation), and if there is association of Vatakaphadosha then the symptoms like Tandra(lethargy), Gourava(heaviness) and Arochaka (anorexia) will be present.

The symptoms of Gridhrasi will closely resemble Sciatica and treatment modalities told are basti, agnikarma, and siravedha<sup>3</sup>. As there is a major role of vata dosha, in ayurveda snehan and swedan are used as purvakarma of panchakarma as well

as pradhankarma to treat various vatavyadhis. Snehan and swedan karma plays the important role in vatashamana. Jambher Pinda sweda being one among the Swedana Karma (Sankar sweda) is a well known treatment for many Vatavyadhis including Gridhrasi<sup>4</sup>.

#### AIM AND OBJECTIVE

1. To study the role of Jambher pinda sweda in gridhrasi w.s.r. to sciatica.
2. To study the Jambher Pinda sweda in detail.
3. To study the Gridhrasi as per ayurveda texts.

#### MATERIAL AND METHOD

The study of different ayurvedic and modern literature has been done to fulfil the objective of the study. References regarding Jambher pinda sweda are collected from various textbooks, previous work done, published research papers and detailed description regarding the types of sweda and its probable mode of action has been explained in the present study.

**Nidana** Abhighata (Trauma on lumbosacral spine), Atishrama (excessive exertion), Vishamacheshta (postural defects), Bharavahana (overloading), Aticheshta (abrupt unbalanced movements), Langhana (starvation), continuous jerky movements, sedentary lifestyle as well as psychological factors like Chinta, Shoka etc<sup>5</sup>.

**Purvarupa** In classics, the description regarding the Purvarupa of Gridhrasi is not available. Acharya Charaka opines that, in general the vague symptoms, or else any few symptoms of the respective Vatavyadhi in its minimal severity, that too in their initial stage are the Purvarupa. This nature of the Purvarupa is described as Avyakta Lakshana..Avyakta Lakshanas are Purvarupa of Vata Vyadhi (Ch. Chi. 28/19)<sup>6</sup>.

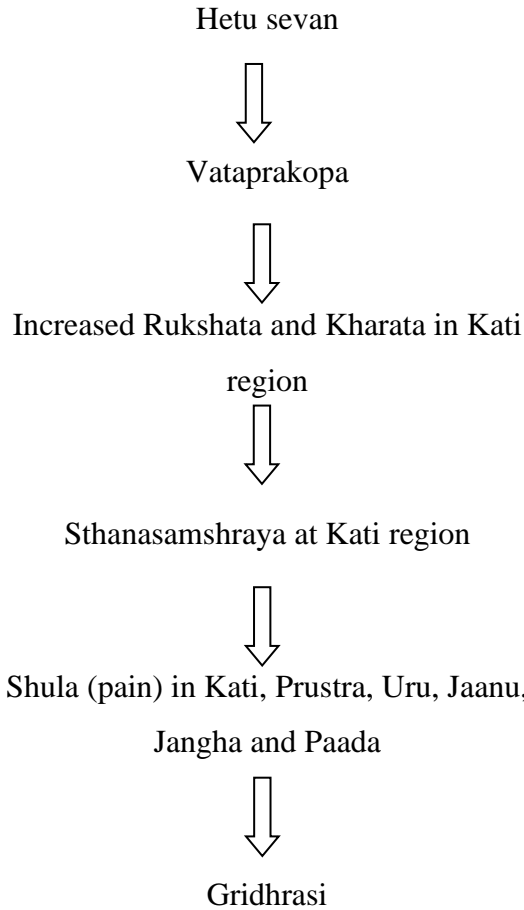
**Rupa** According to Charakacharya Gridhrasi is Vataja Nanatmaja Vyadhi, it is of two types i.e Vataj and Vatakaphaja. The common lakshanas are pain starts from Sphika and then radiates towards Pada along with Stambha (stiffness), Toda (pricking pain), Spandana (twitching), and causes the Sakthiutkshepa Nigraha<sup>7</sup> (restricted movements of lifting the leg); Whereas in Vatakaphaja type of Gridhrasi additionally Arochaka (anorexia), Tandra and Gaurava (heaviness) are found<sup>8</sup>.

**Samprapti** For the disease Gridhrasi, the detailed samprapti has not been mentioned in Ayurvedic classics. It is based on the Pratyaksha Lakshana found in the patients. Since Gridhrasi is a vatavyadhi, the general samprapti of vatavyadhi along with specific description available are considered here for the explanation of samprapti. Gridhrasi is Shoolapradhana vata vyadhi and Shoola cannot be produced without involvement of

Vata Dosha. Vyana vayu and Apana vayu are especially vitiated. Gati (Prasarana, Akunchana, Utkshepana etc.) are the functions of Prakrita Vyana Vata. The hamperd Sakthi Utkshepa Karma indicates Vyana Dusti. Causes and Adhishthana of Gridhrasi resemble to Adhishthana and cause of Apana Dusti, hence Apana vitiation is prominent.

Gridhrasi is Vata prominent and Kapha Anubandhi Vyadhi, but independently kaphadosha cannot produce Gridhrasi. Acharya Sushruta mentioned that, in Gridhrasi, the vitiated Dosha affects the Kandara (ligaments) and thus, the manifestation. According to acharya Charaka Kandaras (ligaments) are the Upadhatu of Raktadhatu. and Kandara (ligaments) may also be taken as Sthula Snayu according to Chakrapani. Snayu is Mulsthana of Mamsa as well as updhatu of Meda. Hence, Rakta, Mamsa and Meda are taken as Dushya in the Gridhrasi. As Gridhrasi Nadi (sciatic nerve) is involved, so Majjadhatu may naturally also be involved. On the basis of Ashraya Ashrayi Bhava, with the vitiation of Vata and above mentioned Dushyas, their Strotas are also known to be involved. So, Rasawaha, Raktawaha, Mamsawaha, Medowaha, Asthiwaha and Majjawaha Strotas may be involved in this Vyadhi. The main Udbhavsthana of this Vyadhi is

Pakwashaya because it is Nanatmaja Vatavyadhi. In the case of Vata Kaphaja Gridhrasi, amashaya may also be considered as an Udbhavsthana<sup>9</sup>.



### Samprapti Ghataka

Dosha - Vata (especially Vyana) and Kapha<sup>10</sup>

Dushya - Rasa, Rakta, Mamsa, Meda, Asthi, Majja, Sira, Kandara, Snayu

Ama - Jathragnijanya and Dhatwagnijanya

Agni- Jathragni and Dhatwagni

Strotas- Rasavaha, Raktavaha, Mamsavaha, Medovaha, Asthivaha, Majjavaha

Strotodusti prakara- Strotosanga, Margavarodha

Rogamarga- Madyama

Udbhavasthana- Pakwashaya

Vyaktsthana- Sphik, Kati, Prusta, Uru, Jaanu, Jangha, Paada

Rogaswabhaba - Chirakari

Sadhyasadyata - Yapya

**Chikitsa Siddhant:** While treating any disease, the first and foremost principle to be followed is to avoid nidanas (Su.U.1/25)<sup>11</sup>. For Gridhrasi, all the vataprakopaka hetus including external factors such as excessive walking, riding etc. should be avoided. Gridhrasi, being a vatavyadhi, the general line of treatment of vatavyadhies can applied to it. Acharya Charaka has advised dravyas having madhur, amla, lavana, snigdha, ushna properties and upakramas like snehana, swedana, asthapana and anuvasana basti, nasya, abhyanga, utsadana, parisheka etc (Ch. Su. 20/13)<sup>12</sup>. Snehanapurvak swedana is indicated in nirama vatavyadhies while only swedana is indicated in samavatavyadhies. Nadi, prastara, sankara etc. are the various types of sweda (Ch.Chi.28/78). Swedana liquifies the doshas and expands the srotasas, helping the doshas to travel towards their own sthana. Swedana activates agni, creates

komalata, ruchi, clears srotasas, diminishes tandra (Su. Chi. 33/22) Snehanapurvak swedana relieves the symptoms such as harsha, toda, ruk, shotha, stambha, graha etc. It produces mruduta in the body. Charak says that proper snehan and swedana can make even dry wood flexible (Ch.Chi. 28/79-81)<sup>13</sup>. In Gridhrasi stambha, ruka, toda etc. are the main symptoms. Snehana and swedana by virtue of their vatashamak and dhatuposhak properties are useful in relieving the symptoms. Here ekanga sweda i.e. on the affected side only can be done. For Gridhrasi, Siravyadhana should be performed over the vein located between Khandara and Gulpha along with Basti and Agnikarma<sup>14</sup>. Difference between Chikitsa of Vataja and Vatakaphaja Gridhrasi.

### Role of Samshodhana chikitsa in Gridhrasi

|  |                                      |   |  |   |
|--|--------------------------------------|---|--|---|
| <b>Acharya Charaka (Ch. Chi. 28/101)</b> | <b>Acharya Sushruta (Su. C 5/23)</b> | <b>Acharya Vagbhata (A.H.S. u. 27/17)</b> | <b>Acharya Vangasena (vata vyadhi adhikara 574-75)</b> | <b>Acharya Yoga Ratnakara (Y.R. 25/68-71)</b> |
| Siravyadha                               | Siravyadha                           | Siravyadha                                | Dipana Paachana  | Siravyadha                                    |

|             |   |   |                              |           |
|-------------|---|---|------------------------------|-----------|
| Basti Karma | - | - | Swedana Mardana              | Agnikarma |
| Agnikarma   | - | - | Basti Upanaha                | -         |
| --          | - | - | Vamana, Virechana, Agnikarma | -         |

### Jambeer Pinda Sweda<sup>15</sup>

This is type of Sweda where Swedan is done by Potali containing Sliced Lemon and other ingredients.

According to different types of classifications, Jambeer pinda Sweda may be put under following groups:

- Agni bheda - Sagni Sweda
- Sthana bheda - Ekanga as well as Sarvanga Sweda
- Guna bheda - Snigdha Sweda
- Roga and Rogi bala - Madyama Sweda
- Charakokta Sankaradi bheda - Sankara Sweda (i.e. Snigdha Sankara Sweda)
- Vagbhatokta Tapadi bheda - Ushma Sweda
- Samshamana and Samshodhanangabhoota bheda - Samshamaniya Sweda

**Procedure of Jambeer pinda Sweda:****Materials required<sup>16</sup>**

1. Jambeer (chopped into pieces) - 750gms
2. Lashuna kalka- 60gms
3. Methika churna - 60gms
4. Haridra churna - 60gms
5. Shatapushpa churna -250gms
6. Cotton cloth - 4 (45 cm X 45cm)
7. Threads - QS
8. Vessels (For heating) - 2
9. Oil: Suitable oil
  - For frying - 100ml (Mahanarayan Tail)
  - For heating Pottalis - 200ml (Mahanarayan Tail)
  - For Abhyanga - 100ml (Mahanarayan Tail)
  - For Talam - 10ml ( Ksheerbala Tail)
10. Rasnadi Choorna - 5 to 8g
11. Soft Towels - 2
12. Attendant - 2

Different medicinal powders can be added, if necessary. Medicines used for Jambeer Pinda Sweda are-

***Drugs of Jambeer Pinda Sweda*****Preparation of Pottali**

The fresh Lemon should be washed in water and chopped into small pieces. The sliced lemon and other ingredients should be mixed thoroughly and fried together in 100 ml of appropriate oil till brown colour appears. Then divide it into four equal parts and made into Pottalis accordingly.



### *Preparation of Pottali*

#### **Procedure of Jambher pinda Sweda:**

##### **Poorva Karma**

The patient should be seated with legs extended over the Droni ( a specific table) facing to the East and abhyanga should be performed with prescribed medicated oil all over the body for about 10

minutes. Talam with suitable oil (10ml) / Choorna should be applied (Talam is a procedure of retaining medicines over the center of the head to protect body from temperature variations during the main treatment which is done before doing almost all Ayurvedic procedures).

##### **Pradhana Karma**

The prepared Pottalis should be heated with suitable oil by keeping on the hot iron pan. These pottalis are applied to the patients after checking the temperature throughout the body with mild pressure in seven prescribed positions by two attendants standing on both sides of the Droni. These pottalis are applied to the patient as per the general procedure for about 30-45 minutes. Care should be taken to maintain the temperature throughout the procedure by reheating the Pottalis.

##### **Pashchata Karma**

After the procedure, wipe off the body using clean dry towel and is covered with thin blanket for 10-15 minutes. Remove Talam and apply Rasnadi Choorna (5-8 gm). The patient should be advised to take complete rest for half an hour to one hour depending on disease and then take hot water bath.

**Duration :** 30-45 minutes

**Precautions** While preparing the medicines care should be taken to prevent



charring and also while reheating the Pottalis.

- Tie the pottalis firmly to avoid leaking of the contents during the procedure.
- Every time the attendant should ensure the temperature of the Pottali by placing it over their own dorsum of hand. Also enquire the patient whether the temperature is bearable.
- If the patient feels any discomfort at any time during the treatment, the therapy should be stopped.
- Ideal time to perform the procedure is between 7-11 am and 3-6 pm.

#### **Complications:**

##### **Burns and fainting:**

If burns or fainting occurs, stop the Jambher pinda sweda and Agnidagdha Chikitsa has to be done.

##### **Mode of action of Jambher Pinda Sweda in Gridhrasi:**

The drugs used in Jambher Pinda Sweda are having gunas like Ushnatwa and Snigdhatwa so it does Strotoshuddhi and Amapachana. Jambher pinda sweda relieves stiffness by acting as Stambhaghna, Gauravaghna and also relieve heaviness in the body through sweating. The contents used are Sheetaghna by their Ushna quality and Swedakaraka as they promote sweating through which impurities of the body comes out.

Swedana increases the metabolic rate in the body. Ushna Guna of Sweda causes vasodilatation, thus it increases blood circulation. Swedana enhances the elimination of waste products and more absorption of Sneha or drugs through the twacha(skin), as in Jambher Pinda Sweda we use Vata-Kaphahara drugs when they are absorbed into the body they do their action along with Swedana. Also it stimulates muscles and nerves, which promotes renovation of muscles and nerves<sup>17</sup>.

##### **The probable mode of action of Jambher pinda sweda in Gridhrasi can be explained under following headings:**

##### **Thermal effect**

According to Kligman, diffusion through the skin is a temperature dependent process, so raising the skin temperature will enhance the transdermal delivery of various drugs by increasing skin permeability, body fluid circulation, blood vessel wall permeability, drug solubility. External heating will dilate the penetration pathways in the skin, increases kinetic energy and movement of particles in the treated area and facilitate drug absorption.

Heat is having indirect effect on-

- Muscle tissue - Increases the temperature of muscle tissues
- Muscle relaxation

- Increased activity of Sweat glands - Reflex stimulation of Sweat glands resulting from effect of heat on the sensory nerve endings.

### Procedural effect

Procedure is exceedingly beneficial to the skin as it works directly on the lymphatic system. This system is supplementary to the blood vascular system and offers an alternative route for the return of tissue fluid to the blood stream. By stimulating lymphatic flow and generating heat through friction (rubbing) and

application of the oils, massage cleanses and vitalizes the body without causing the build-up of toxins. Thus procedure quickens the circulation of blood and lymph and dislodges the toxins and increases the vitality of the tissues.

### Drug effect

The drugs used for the Jambher Pinda Sweda are having Vatahara and Kaphahara property and all the drugs used here have Ushna Veerya, Snigdha, Sukshma Guna. Thus the drugs act on the Vata directly.

| Drug                | Latin name                    | Ras             | Guna                        | Veerya | Vipak  | Doshakarma   | Karma                             |
|---------------------|-------------------------------|-----------------|-----------------------------|--------|--------|--------------|-----------------------------------|
| <b>Jambher</b>      | Citrus acida                  | Amla            | Laghu<br>Ruksha<br>Tikshna  | Anushn | Madhur | Pitta-vata↓  | Dipana<br>Pachana<br>shulaghna    |
| <b>Saindhava</b>    | -                             | Madhur          | Snigdha<br>Tikshna<br>Ushna | Sheeta | -      | Tridosha↓    | Vataghna<br>shulaghna             |
| <b>Turmeric</b>     | Curcuma<br>longa              | Tikta<br>Madhur | Laghu<br>Ruksha             | Ushna  | Katu   | Kapha-pitta↓ | Shothagn<br>vishaghna             |
| <b>Rasna</b>        | -                             | Tikta           | Guru                        | Ushna  | Katu   | Vata-kapha↓  | Pachana<br>Shothagna<br>shulaghna |
| <b>Shata-Pushpa</b> | Anethum<br>sowa               | Katu            | Laghu<br>Ruksha<br>Tikshna  | Ushna  | Katu   | Kapha-vata↓  | Dipana<br>shulaghna               |
| <b>Methika</b>      | Trigonella<br>fenu<br>graecum | Katu            | Laghu<br>Snigdha            | Ushna  | Katu   | Vata-kapha↓  | Vataghna<br>Dipana                |

|                |                     |                          |                           |       |        |             |                                |
|----------------|---------------------|--------------------------|---------------------------|-------|--------|-------------|--------------------------------|
| <b>Shunthi</b> | Zingibar officinale | Katu                     | Laghu Snigdha             | Ushna | Madhur | Kapha-vata↓ | Shulaghna                      |
| <b>Lashuna</b> | Allium sativum      | Pancharasa (except Amla) | Snigdha Tikshna Guru Sara | Ushna | Katu   | Kapha-vata↓ | Shulaghna<br>Dipana<br>Vrushya |

**DISCUSSION:** The main and direct reference available on the mode of action of Bahirparimarjana is from Sushruta Samhita (Su.Sha.9/9)<sup>18</sup> and Charaka Samhita (Ch.Su.11)<sup>19</sup>. Charkacharya says that the therapy which by external contact through abhyanga (massage), Sweda (fomentation), pradeha (pasting), parisheka (sprinkling), unmardana (pressing) etc. removes disorders. It explains that “The branch of body’s peripheral conduction network with their portals in the skin is concerned with perspiration, perception of cutaneous pleasure and pain sensations, as well as circulation of tissue fluid. Conduction of the activity or potency of the therapeutic regimen or agent into the body, after conversion (transduction) in the skin, also forms their attribute”.

Swedana is a karma where stimulating the body temperature by contact with the external heat source, there by producing Sweda. The Ushna Guna of Swedana Karma stimulates the sympathetic nervous system and produces

vasodilatation. It also increases the circulation of Rasa and Rakta dhatu in the body. Due to Swedana karma, the Leena Dosha are liquefied and come out through micropores over the skin, resulting in more excretion of liquefied vitiated Dosha from body.

#### **Action of Jambear pinda Sweda on specific symptoms of Gridrasi:**

##### **Effect on Ruka-**

Ruka i.e. pain is due to Vataavidhi. Once Vata vitiation is corrected Ruka will be reduced. As the drugs used are having Ushnavirya, Vatakaphahara, Vedanasthapaka and Shothahara property helps in reducing the pain. Also by increasing temperature locally to the muscle, improves blood circulation and helps to reduce pain.

##### **Effect on Stambha-**

Stambha is the result of Kapha or Ama. The drugs used in Jambear Pind sweda are having Ushna, Tikshna and Sukshma

Gunas which helps to reduce Kapha and Ama and hence reduces stambha.

#### **Effect on Toda-**

During procedure the drugs used in general relieve muscle spasm and thus relieves pressure on the nerves, then blood supply to the nerves is improved and thus relieves pain.

#### **Effect on Spandana-**

Spandana or pulsating pain occurs as a result of Vataprakopa. Due to Swedana karma, Vataprakopa is reduced by Snigdha and Ushna Guna of Dravyas used, leading to reduction in Spandana.

#### **Effect on Arochaka-**

Increased body temperature increases sympathetic activities, releasing hormones like epinephrine, norepinephrine, cortisol and thyroid hormones. It accelerates metabolic rate and stimulates process of lipolysis, thereby increasing demand of oxygen and increased output of wastes i.e. digestion of Ama leading to Agni Dipana.

#### **Effect on Gourava-**

Gourava is due to Aapa and Prithvi Mahabhoota. During procedure, Aapa Mahabhoota is coming out as perspiration leading to reduction in Gourava and brings Laghava in the body.

## **CONCLUSION**

Gridhrasi is one of the Nanatmaja Vata Vyadhi, intervening with the functional ability of Kati (lower back) and Pada (lower limbs). In Gridhrasi, onset of Ruka, Toda and Stambha is initially in Kati and radiates distal to Prushtha, Janu, Jangha till Pada. This is the unique feature of the Gridhrasi. Snehana, Swedana and Mrudu Sodhana are the Principles of Chikitsa in all Vatavyadhi. Agnikarma and Siravyadha are mentioned among the lines of treatment, as Snayu and Kandara are involved as Dushya. Shamanoushadhis are also mentioned by many Acharyas, along with this an added advantage will be achieved if Snehana and Swedana are done which relieves Stambha, Gaurava, Sheetata and Ruka. According to Charaka Samhita, Sankara Sweda is one among 13 types of Sagni Sweda A prepared pottali of fresh drugs is heated to lukewarm and applied over the painful parts. It is an ideal treatment for application of heat to specific part of body. Due to direct contact of heat the penetration is deeper and hence effectively reduces pain, swelling and stiffness. This is unique and effective method of managing severe pain in Gridhrasi i.e. Sciatica.

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## ROLE OF *FUFFUSA* AS A *KOSTHA* IN COVID 19 AND HRCT FINDING IN *FUFFUSA*

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### ABSTRACT

*Ayurveda* has some unique entities, *Koshtha* is one of them. Word *Koshtha* is used for vacant place having covering, where things can be kept in a lot. The term *Koshtha* term refers to the nature of digestive tract or hollow parts of body. *Koshtha* and *Shakha* are two things related with each other. There are several *Koshtha* and *Shakha* in the body but they can also be taken as a single *Shakha* when a systemic pathogenesis is considered. To know the concept, assessment of the *Koshtha* of a person is very important in the diagnosis and treatment.

**KEYWORDS:** *Koshtha*, *Shakha*, Covid, CT scan etc.

### INTRODUCTION

The *Ayurvedic* principles are formulated based upon some concepts, which are structurally as well as functionally specific and their interpretation which could help in generalization as the matter, such concept is the concept of *Koshtha*. *Koshtha* is the unique refers to the nature of digestive tract or hollow parts of body which represents motility of the intestines and movement of food and fecal matter in the alimentary canal and elimination of stool. Generally, the term *Koshtha* means a hollow viscos. To know the concept, assessment of the person is very important in the diagnosis and treatment of the any disease. In December 2019, a novel coronavirus, now named as SARS-CoV-2, caused a series of acute atypical respiratory diseases in Wuhan, Hubei Province, China. The disease caused by this virus was termed COVID-19. The virus is transmittable between humans and has caused pandemic worldwide.

**AIM**

To study the *role* of *Fuffusa* as a *Koshta* in Covid 19 and HRCT finding in *Fuffusa*.

**OBJECTIVE**

1. To study the concept of *Koshtha*.
2. To study the *Koshthange* by different *Acharys*.
3. To study the impact of covid 19 on *Fuffusa*.

**MATERIALS AND METHODS**

For present conceptual study literary material had been collected from Ayurvedic

1. *Charaka Samhita*
2. *Sushruta Samhita*
3. *Ashtangahrudaya*

**Review of Literatue****Conceptual study of *Koshta***

*Nirukrti*

*Koshtha* – *Kush Aawarane*<sup>[1]</sup> *Koshtha* is derived from root.

*Kush+Than*<sup>[2]</sup> it means *Aavarana*. *Koshtha* is a cavity formed from *Avarana* (wall) which is consisting of *Dhatus* (solid structure). Word *koshtha* is used for vacant place having, *avarana* things can be kept in a lot.

***Koshtha Paribhasha* (Definition)**

‘*Koshtha*’ is defined as the nature of alimentary tract, bowel movements or nature of eliminations of faeces. *Koshtha* is known as *Mahastrotasa* (the great channel) which is from mouth to the anus i.e., complete digestive system and as *Abhyantara Roga Marga* (internal pathway of diseases).<sup>[3]</sup>

This compendium suggested three routes of invasion of diseases in the body. Their names are- outer route (*Bahya roga-marga*), middle route (*Madhyam rogamarga*) and inner route (*Abhyantar rogamarga*). This means that thoraco-abdominal cavity should be taken as *koshtha*. Organs placed in this vacant place are called *koshtangani*.

*Charak Acharya* states the fifteen *koshthangas* *Nabhi* (umbilicus), *Hrudaya* (heart), *Kloma* (pancrease), *Yakruta* (liver), *Pleeha* (spleen), *Vrukka* (kidneys) *Basti* (bladder), *Purishadhana* (caecum), *Aaamashaya* (stomach), *Pakvashaya* (small intestine, large



intestine), *Uttarguda* (rectum), *Adharguda* (anus). *Pakwashaya* (large intestine including pelvic colon).<sup>[4]</sup>

Sushrut Acharya states that *Koshtha* is a cavity containing *Hrudaya* (heart), *Rudhira* (blood), *Phupusa* (lungs), *Aamashaya* (stomach), *Pakvashaya* (intestine), *Unduka* (appendix), *Mutrashaya* (bladder).<sup>[5]</sup>

## Covid 19

In December 2019, a series of acute atypical respiratory disease occurred in Wuhan, China. This rapidly spread from Wuhan to other areas. It was soon discovered that a novel coronavirus was responsible. The novel coronavirus was named as the severe acute respiratory syndrome coronavirus-2 (SARS-CoV- 2, 2019-nCoV) due to its high homology (~80%) to SARS-CoV, which caused acute respiratory distress syndrome (ARDS) and high mortality during 2002–2003.<sup>[6]</sup>

SARS-CoV-2 virus primarily affects the respiratory system, although other organ systems are also involved. Lower respiratory tract infection related symptoms including fever, dry cough and dyspnea. Also, the symptoms of GI System like loose motion, nausea, anorexia are seen in many patients.

**Table 1: Classification of COVID-19 patients.**

|              |  |
|--------------|--|
| Asymptomatic | COVID nucleic acid test positive. Without any clinical symptoms and signs and the chest imaging is normal  |
| Mild         | Symptoms of acute upper respiratory tract infection (fever, fatigue, myalgia, cough, sore throat, runny nose, sneezing) or digestive symptoms (nausea, vomiting, abdominal pain, diarrhea) |
| Moderate     | Pneumonia (frequent fever, cough) with no obvious hypoxemia, chest CT with lesions.  |
| Severe       | Pneumonia with hypoxemia (SpO <sub>2</sub> < 92%)  |

## *Kostha* – *Shakha* Relation

*Kostha* and *Shakha* are two things related with each other. *Kostha* is hollow part of body. These term *Kostha* and *Shakha* are used in different meanings according to the situation. There are several, *kostha* and *shakha* in the body but they can also be taken as single *kostha* and *shakha* whwn a systemic pathogenesis is considered.

According to Acharya *Shushrta*, *Vagbhata* and *Bhavaprakasha* *Fuffusa* (Lungs) are one of *Kostha*. In covid 19 disease there are mainly affected on lungs.

## HRCT

Chest CT was performed with the patient in a supine position and holding their breath after inhalation, and the scan was from the apex of the lung to the top of the diaphragm. The scanning parameters were 120 kV tube voltage, 210–230 mA tube current, 5 mm slice thickness, 512 × 512 matrix, 2 mm slice intervals, and 1.25 mm reconstructed slice thickness. A mediastinal window (window width of 300–400 HU, window level of 40–50 HU) and lung window (window width of 1,100–1,300 HU, window level of –800 HU) were selected for observations in the picture archiving and communication system (PACS) workstation.

## Image analysis

Two radiologists experienced in chest diagnosis viewed the images and recorded the imaging manifestations and characteristics of lesion distribution. When the two radiologists produced different conclusions, the diagnosis was discussed further under the guidance of a third senior radiologist to obtain a mutual agreement. The imaging manifestations of the pulmonary lesions were recorded based on the following characteristics:

- (1) lesion sites: bilateral lungs, right lung (upper lobe, middle lobe, and lower lobe), left lung (upper lobe and lower lobe), or all lung segments.
- (2) Involved area of lesions: focal (single lesion), multiple (two or more lesions, limited to two lobes in the lung), or diffused (multiple lesions, distributed in more than two lobes in the lung).
- (3) Distribution characteristics of the lesions: in the pleura, along the bronchovesicular bundles, or both.
- (4) Lesion density: ground-glass opacity (GGO), consolidation, or mixed type.
- (5) Largest diameter of the lesions: 1 cm, 1–3 cm, > 3 cm.
- (6) Extrapulmonary manifestations: with or without lymphadenopathy.

## DISCUSSION

In Ayurveda, the transfer of nutrients, the exchange of body fluids is fascinated by the mechanism of *Koshtha-Shakha* interaction. *Vata* play a key role in this interaction. According to Acharya *Shushruta*, *Vagbhata* and *Bhavaprakasha Fuffusa* (Lungs) are one of *Koshtha*. In covid 19 disease there are mainly affected on lungs. The most of symptoms are like coughing, sneezing, throat infection are due to increase of cough in *Fuffusa*.

## CONCLUSION

*Koshtha* is unique concept of Ayurveda, but there are different opinions of different

aacharyas about the *koshtha*. By this review we can said that vacant place made by aavarana i.e., whole alimentary tract from mouth to anus is considered as *koshtha*. *Koshtha pareekshana* plays vital role in rog nidan and chikitsa also. Hence, for the treatment of any disease or for the suggestion of *Pathya-Apathya*, *koshtha pareekshana* is important. According to *koshtha*, we can decide suitable drug and suitable.

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**A role of Shirodhara with Virechan in Headache – A case study report****Dr. Anand Baburao Jatal**

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**Abstract**

Ayurveda, the science of life, the ancient and holistic science of well-being and long longevity is a unique tradition of India that has been with us for thousands of years and still now. Ayurveda did not reduce only symptoms but disease from its base Ayurveda includes Panchkarma along with various other procedures e.g. Shirodhara, and Pindsweda. Nowadays human life was very stressful and busy. Some children suffer from headaches burning vision as well as lack of concentration. This is the case study report of a 14-year-old male child who suffered from headache burning vision with lack of concentration parents investigated in all manners with the physician's opinion but the report was normal as the child did not get well relief so this case was planned for treatment with virechan and Shirodhara.

Keywords: - Shirodhara, Taila, Virechan, Aragvadha

**Introduction**

**S**hirodhara term comes from Sanskrit word, Shiro means Head and Dhara means Flow. Shirodhara is a form of Ayurveda therapy that involves gently pouring warm liquids over the forehead<sup>1</sup>. Headache is a common symptom associated with CNS infection or any other systemic diseases. Many times headaches in children are labelled as pain related to the eye site or nothing too major. The head controls the whole system of the body. When a headache starts patient gets irritated which is not to be ignored. Shirodhara has been advocated in many diseases e.g. headache, Daha (burning sensation), Varna, and suryavarta (type of headache)<sup>2</sup> this patient had Prakriti of Pita and Kapha through Virechana followed by Shirodhara was preferred got excellent result. According to Charaka Uttamanga as the head is the substratum of all the sense faculties, or Indriyas (Sense organ).<sup>3</sup>

All material and method of Shirodhara was collected from Samhita, Chikitsa Grantha, and Ayurveda text. Shirodhara room as cleaned well, ventilate and very quiet. Shirodhara was done in the morning time on empty stomach after massage. Dhara would be poured continuously on the forehead neither very fast nor very slow. Charak Samhita

mentioned Aragvadha for Virechan in children for Shodhan.<sup>4</sup>

According to Dosha for Shirodhara<sup>5</sup>

Vata Dosha - Ghrita

Pitta Dosha – Ghrita

Kapha Dosha – Tila Taila

Vata + Pitta + Rakta – Ghrita and Taila

According to Charak for Pitta – Virechan for Shodhan

**Case report**

14 years old male child came to OPD of Kaumarbhritya with chief complaints of headache with lack of concentration in study as described by parents. Patient had initial history of treatment for migraine with beta blocker for smaller duration with no relief. During the treatment symptoms of headache were persistent.

O/E – Temp. – 98.6 F<sup>0</sup>, Pulse – 80/min, RR – 22/min, BP – 110/70 mm of Hg

P/A – Soft Non tenderness

S/E – RS – Clear (AEEBS), CVS – No murmur

CNS – Conscious, Oriented

Tone – Normal, Power – 5, Nutrition – Normal

Reflex – Normal

Below mentioned treatment protocol was followed.

**Treatment – 6,7,8,9,10**

|          |                   |   |
|----------|-------------------|---|
| <b>1</b> | <b>Purv Karma</b> | <b>Snehapana with Go Ghrita</b>                                   |
| <b>2</b> | Pradhankarma      | Virechan with Aragvadha with Gape Juice at night                  |
| <b>3</b> | Paschtkarma       | Parihar Kaal followed by Shirodhara with Chandanbalalakshdi Taila |

**Treatment Protocol:-**

Day 0 – General Examination with Systemic Examination done

| Sr. No | No. of day          | Matra of Snehapana |
|--------|---------------------|--------------------|
| 1      | 1 <sup>st</sup> day | 25 ml              |
| 2      | 2 <sup>nd</sup> day | 40 ml              |
| 3      | 3 <sup>rd</sup> day | 55 ml              |
| 4      | 4 <sup>th</sup> day | 70 ml              |
| 5      | 5 <sup>th</sup> day | 85 ml              |
| 6      | 6 <sup>th</sup> day | 90 ml              |
| 7      | 7 <sup>th</sup> day | 90 ml              |

| Sr. No | Day              | Karma Name   |
|--------|------------------|--|
| 1      | 1 day to 7 days  | Snehapana with Go Ghrita                                 |
| 2      | 8 day to 10 days | Sarvanga Snehana & Swedana                               |
| 3      | 11 day           | Virechan ( Aragdhava (10 gr.) with Grapes juice)         |
| 4      | 12 day to 18 day | Samsarjan Krama for 7 days                               |
| 5      | 19 day to 33 day | Shirodhara for 14 days ( 3 lit Chandanbalalakshdi Taila) |

After that 1<sup>st</sup> cycle was completed rest of 30 days was advised and after that 2 more cycle of treatment was carried out.

**Observation and Result**

The observation was based on clinical examination with patient complaints noted before treatment and after treatment, no adverse reaction was seen during the treatment.

Total duration of treatment – 120 days  
Duration of 1 treatment cycle – 33 days  
Interval between cycles – 7 days

| Sr. No | Symptom                        | 1 <sup>st</sup> Cycle | 2 <sup>nd</sup> Cycle | 3 <sup>rd</sup> Cycle |
|--------|--------------------------------|-----------------------|-----------------------|-----------------------|
| 1      | Headache                       | +++                   | +                     | -                     |
| 2      | Burning sensation              | ++                    | -                     | -                     |
| 3      | Lack of Concentration in study | +++                   | ++                    | -                     |

**Result**

On the first day of OPD child presented with complaints of headache burning sensation and lack of concentration but after treatment patient had no complaints of the above with improving concentration in this study.

**Conclusion:-**

Shirodhara with Virechan was effective treatment in headache which not associated with any systemic infection. Regular Shirodhara is best effective treatment.

Further Advised:- Routine seasonal Panchakarma along with Blanced diet and Dincharya.

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## Case Study

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### AYURVEDIC MANAGEMENT OF VISARPA WITH SPECIAL REFERENCE TO HERPES ZOSTER: A CASE STUDY

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#### ABSTRACT

All ages, from neonates to elderly persons, suffer from skin disorders. Though skin lesions are visible, they have cosmetic importance also. The pathophysiology and management of skin disorders are explained in Ayurved Samhitas as Raktavaha srotasa dushtijanya vikara and its chikitsa. Among them, 'Visarpa' is one of the most typical acute skin disorders. It is explained in detail apart from 'Kushta' vyadhi in all the Ayurvedic Samhitas. According to Ayurveda, visarpansheel (spreading), sukshma pidaka (tiny rash) with shoola (pain), kandu (itching), and daah (burning) are present in Visarpa. The signs and symptoms of Visarpa are correlated with a modern skin disorder called Herpes zoster. Herpes zoster is an actively transmitting viral disease causing localized painful skin rashes, blisters, and burning sensations. A case of 23 years old male who came with complaints of shirogaurav (heaviness of head) and jwarprachiti (mild fever), angamarda (body ache), visarpansheel sukshma pidaka with kandu, daah for two days. The patient was treated with raktamokshan by jalauka and shaman chikitsa. He was advised for pathyakar aahar (dietary modification) and vihar (lifestyle modification). He got relief within seven days.

**Keywords:** Visarp, Herpes Zoster, Raktadushtijanya vikar, Raktmokshana, Shaman.

#### INTRODUCTION

The skin is the boundary between an organism and its environment. Its principal function is that of protection. There are several skin diseases whose cause is unknown but may prove to be due to filterable viruses. Currently, the aetiology of vesicular diseases like herpes simplex, herpes zoster, variola, varicella, hand foot mouth disease and tumours, warts and molluscum contagiosum are known to be so produced<sup>1</sup>.

According to Ayurveda, skin is one of the 'Adhithana of Gyanendriyas' described in Ayurvedic texts.<sup>2</sup> In Ayurved Samhitas, the raktavahastrotasa dushtijanya vikara (disorders) are explained<sup>3</sup>. Among these vikaras, some are related to Twacha (skin). Chikitsa sutra (management) of raktavahasrotodushti vikar is also explained in Samhitas. Based on Dosha's predominance, there are seven types of Visarpa, as per Charaka acharya.

According to Ayurveda Aashu- anunnata shopha, visarpansheel sukshma pidaka with Vedana, Daha, Jwara, Nature of Sphotas /Pidika (vesicles) are so specific that it is described as Agnidagdhavat<sup>4</sup> (with intense burning sensation).

So active management is needed in such conditions. Virechana, raktamokshana, i.e., shodhan chikitsa and Shaman chikitsa, are explained in Ayurved Samhitas for raktadushijanya vikara<sup>5</sup>.

Herpes Zoster is an actively transmitting viral disease. Herpes zoster(shingles) is an outbreak of vesicles preceded by pain and enlargement of neighbouring lymph glands in the distribution of a sensory nerve on one side of the body associated with inflammatory changes in the corresponding poster root ganglion<sup>6</sup>. The disease usually lasts about two weeks, and recovery is complete. The possibility of intractable neuralgia following zoster in older adults should be remembered<sup>7</sup>.

The case described was managed well with Ayurvedic medications, pathyakar aahar and vihar.

**Aims:** To study the effect of Aam pachan and raktamokshan by Jalaukavacharan (Bloodletting) in the management of Visarpa.

**Objectives:** To study the effect of Aam pachan in the management of Visarpa and to study the effect of raktamokshan by Jalaukavacharan in the management of Visarpa.

#### DISEASE REVIEW

##### Ayurvedic Aspect

Visarpa is a severe disorder spreading to various body parts very quickly. Parisarpa means disorder spreads all over the body, which is the characteristic feature of Visarpa.

- 1) Vyakhya (Definition) - sarvataha parisarpanaat Visarpa<sup>8</sup>.
- 2) Hetu (Causes) - Lavan, katu, amla ushnaadi sevan, chhardivega pratighaatat, sharatkaal prabhaavat shonitdushti
- 3) Saptako dooshyasangrah (causative factors) - shonit, lasika, twacha, mansa, vaat, pitta, kapha
- 4) Purvaroop (Prodromal symptoms) - shirashool, jwara, aalasya
- 5) Roop (signs & symptoms) - Aashu- anunnatashopha, Sphotas /Pidaka - Agnidagdhatvat, Visarpansheel, Vedana, Daha, Jwara
- 6) Prakaar (Types) - According to dosha – 7, Ek doshaj - 3, dwidoshaj - 3, sannipaataj -1  
According to sthana – 2, abhyantar, bahya

### Modern Aspect

The term Herpes is derived from the Greek meaning “to creep”. The human herpes simplex virus consists of –

1. herpes simplex virus type 1 (HSV-1)
2. herpes simplex virus type 2 (HSV-2).

The virus causes various mucocutaneous infections and produces both primary and recurrent infections. Transmission of HSV infection most frequently occurs through close contact with a person who is shedding the virus at the peripheral site, a mucosal surface, in genital or oral secretions<sup>9</sup>.

The word “shingles” is derived from the Latin “singu-lus”, a girdle that refers to the segmental arrangement of the eruption. Zoster affects 20% of the general population during their lifetime, especially the elderly. More than two-thirds of the reported cases occur in individuals over 50 years of age, and less than 10% occur in those under the age of 20.

Herpes Zoster is an active transmitting viral disease causing localized painful skin rashes, blisters with a burning sensation

The first symptoms are usually pain, and paraesthesia preceding the eruption for several days and varies from external itching, tingling, burning or lancinating pain. The rashes are nearly always unilateral. It begins as closely grouped macula, and papules, which rapidly become vesicular in 12-24 hours and then pustules in 2-3 days as a part of complication in the case of herpes zoster.<sup>10</sup>

### Case study

A case of 23 years old male.

Day of consultation – 4/05/2022

Consent was taken before participation in the study.

### Pradhan ruja (Chief complaints)

Visarpansheel sukshma raktavarni Pidaka dakshintha (right side) on prushta (scapular region), ura (chest) manya (neck), kapol, karnpaschaat (posterior) pradesh with kandu, shool, sparshasahatwa (tenderness), Daah.  
Karnpaschaat Pradeshi - vrana, alpa kathin (hard) shoph (swelling) with sparshasahatwa

### Anushangik ruja (Related symptoms)

Shirogaurav, jwarprachiti

angamarda, agnimandya (anorexia)

Nidra alpata, khandit (disturbed sleep) Since three days

**Present History:** 6 hours travelling by bus at noon five days before the onset of symptoms. Aatapsevana (sunlight exposure)

**Past History:** Recurrently suffered from Upper respiratory tract infection since childhood. He used to take Allopathy/Ayurvedic medicines since then for Upper respiratory tract infections.

**Family History:** Not significant.

### Personal History

**Diet** - Mixed, very spicy, junk food one week before the onset of symptoms.

**Sleep** – Disturbed 2-3 days after the onset of symptoms.

**Habits** - Tea 2-3 times a day.

### Parikshana (Examination)

**Prakruti** - Vaat pittaj

### Ashtavidha Parikshan

Nadi: 86 /min

Mala: Vibandha, for 2-3 days

Mutra: 4-5 times a day

Jivha: Saam (coated)

Shabda: Aatur

sparsha: Alpa ushna

Drik: Vyakul

Aakriti: Madhyam

### Sthanik (Local) Examination

Pidaka - in clusters, reddish, shiny blisters, wound posterior to the right ear, with slough formation

Palpation – posterior to right ear - lymph node was found swollen, painful and tender.

### Systemic Examination

Temperature: 99<sup>0</sup> F

Weight: 77Kg

BP: 110/80 mmHg

RS – AEBE clear B/L

CVS – S1- S2 heard, no added sounds

CNS – conscious, well-oriented, superficial reflexes, normal

GIT – P/A – soft, non-tender

### Samprapti Ghatak (Pathophysiological Factors)

Dosha – Pitta, Rakta, Kapha, Vata

Dushya – Rasa, Rakta, Mamsa, Twak, Lasika, Sweda

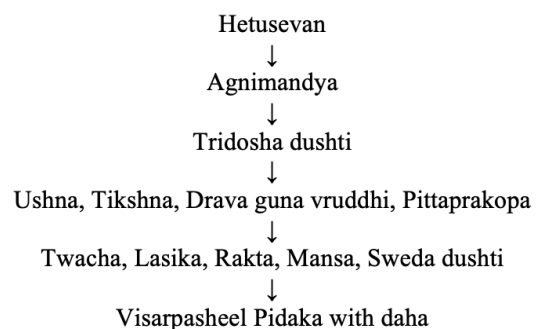
Agni – Mand

Dushta Srotasa- Praanvaha, Annvaha, Udakvaha, Rasaavaha, Raktavaha, Swedavaha, Mamsavaha, Purishvaha, Manovaha

Srotodushti lakshana – Sanga, Paschat Vimarga-gaman

Vyaktasthana – Ura, manya, kapol, Prushtha and karna paschat pradesh

### Samprapti (Pathophysiology of Disease)





## **Vyadhivinishchaya (Diagnosis) – Visarpa (Herpes zoster)**

### **Chikitsa (Treatment)**

Abhyantar - Shaman

Mahasudarshan ghan vati 2-2 with ushnodaka given during kapha and vyankal

Sukshma triphala ghan vati 2-2 with ushnodaka given during kapha and vyankal

Kamdudha vati 2-2 with jal given during pittakal

Chandan, Musta, Ushir Siddha jalpan given during Trishnavega kal

Shodhan – Sthanik - Raktamokshan – Jalaukavcharan

Bahirparimarjan (External) chikitsa

Lepa - Chandan with jal paste lepa 2-3 times

Snana - Siddha jal snan - chandan, triphala ,musta, usheer, nimb Pratisaaran (application) - Chandanbala lakshadi tail at lepa sthana for dryness if necessary

Pathyaaphya - Laghu pathyakar aahar (moong, old rice, wheat /jwar roti) given during Kshudhavega kal. Laja, black raisins 10-20.

Apathya (dietary and lifestyle restriction) - lavan katu amla ushnaadi sevan, Oily substances, non-veg, egg, fermented food, tea and coffee, night awakening (Ratrijagaran), divaswap (daytime sleeping)

## **OBSERVATIONS AND RESULTS**

### **On 1<sup>st</sup> day**

Symptoms seen- Dakshin karna paschaat pradeshi granthivat shoph, Shwet 2-3 pidaka with kandu and daah. Vrana (wound) at karna pashat Pradesh (due to itching at night.), Shirogaurav, Jwar prachiti.

Treatment is given - Mahasudarshan ghan vati 2-2 with ushnodaka given during kapha and vyankal.

The basic chikitsa for raktadushtijanya vikara are Virechana, Raktamokshana and Shaman. According to this Mrudu langhan was given.

Assessing Kshudhavega, laghu pathyakar aahar was given.

### **On the 2<sup>nd</sup> day**

Symptoms seen - Karn paschaat pradeshi granthivat shoph with sparshasahatva (In the morning), Visarpansheel Shweta (whitish), snigdha (shiny), painful pidaka at manya, ura, prushta, kapol, karna paschat pradeshi with daah, kandu. Vrana (wound) at karna pashat Pradesh, Jwar prachiti and khandit nidra, Shirogaurav.

Treatment is given - Sukshma triphala ghan vati 2-2 with ushnodaka given during kapha and vyankal. Mahasudarshan ghan vati 2-2 with ushnodaka given during kapha and vyankal.

After two days of treatment and pathya, the symptoms of Shirogaurav, Kandu and Jwar were relieved. Malanuloman was observed.

### **On the 3<sup>rd</sup> day**

Symptoms seen - visarpansheel (spreading) painful pidaka, daah, aaraktavarn vrana Sparshasahatwa, Shirshool, Sharir Shoola (right side), Mukhapak.

Treatment is given - Sthanik (local) raktamokshana by jalauka.

After raktamokshana, it was observed that Daha, Shoola, and Sparshasahatwa around Vrana subsided rapidly.

Abhyantar chikitsa given as Sukshma triphala ghan vati 2-2 with ushnodaka given during kapha and vyankal, Kamdudha vati 2-2 with jal given during pittakal, Chandan, Musta, Ushir siddha jalpan given during trishnavega kal.

### **On the 5<sup>th</sup> day**

Symptoms seen - visarpansheel (spreading) painful pidaka, daah, aaraktavarn vrana, Sparshasahatwa, Shirshool, Mukhapak.

It was observed that the patient got relief from Shir shool, daah, sparshasahatva, spreading of pidaka, Karn paschaat shoph, pain subsided. Granulation observed at vran.

Treatment given - Mahasudarshan ghan vati was discontinued, and treatment continued with Kamdudha vati 2-2 with jal given in pittakal, Sukshma triphala 2-2 with ushnodak given in vyankal. Chandan, Musta, Ushir siddha jalpan given in trushnavega kal. Bahirparimarjan chikitsa (on location) - Pidaka Sthani Chandan lepa was applied 2-3 times a day.

### **On the 7<sup>th</sup> day**

It was observed that, the spreading of pidaka stopped, Pidaka changed into shyav varna. Daah, shool of pidaka subsided.

Treatment given - Then the dose of internal medicine was reduced as Sukshmatriphala vati 1-1, Kamdudha vati 1-1, Siddha jal snan with chandan, triphala, musta, usheer, nimb churna, Laghu pathyakar aahar, with regular water, was advised. After feeling dryness at lepa sthana, it was advised to apply Chandanbala lakshadi tail on that site.

### **On the 10<sup>th</sup> day**

It is observed that the patient got more relief from all symptoms. The patient was advised to come for a follow-up after 15 days.

Treatment given - Only Siddha jal snan was continued for Grishma ritu. Effects of therapy (Subjective and objective assessment) showed excellent results.

## **DISCUSSION**

The patient was treated on an OPD basis. Visarpa is a Bahudoshaj Vyadhi. Along with three, Dosha's Rakta is also a main supporting factor of vitiation. The vitiated dosha causing the Visarpa were in kaphasthana (ura, manya, shir etc.). But due to Grishma ritu and pitta pradhanya, only mrudu langhana was given for agnivaradhana. Virechana, raktamokshana and shaman chikitsa are the basic principles of chikitsa explained in Ayurved Samhitas for raktadushtijanya vikara.

So Raktamokshana was advised as it purifies the vitiated Raktadosha. Following raktamokshan, daha, shoola sparshasahatwa, shoph and vrana were relieved rapidly.

In shaman chikitsa, Mahasudarshan ghan vati of Jwara adhikar was given as its ingredients are tikta rasa and aampachak. Due to aampachan, patients got relief from jwar, shirogaurav, kandu, and malavibandha.

Before Jalaukavacharan



Jalaukavacharan



After Jalaukavacharan



Sukshma triphaal vati – aampaachak, kledaghna, tridosh shamak  
Kamdudha vati – Pittashamak, jwaraghna, daahshamak  
Siddha jal pan - Chandan, Usheera, Musta have Pittashamak  
property due to Sheeta veerya and that reduced perspiration.

The affected part of the body is applied with a paste of Chandan lepa, which has the property of sheet veerya and ruksha guna. Dravyas of siddhajalsnan have the property of reducing kleda. Shaman chikitsa like lepa and Siddha jal snan, Kamuadha vati was given according to signs and symptoms of Visarpa. The rash was initially erythematous before blisters formation, which increased in size over several days. Characteristically the inflammation remained in one dermatome and was unilateral. It may take up to 3-4 weeks to resolve. But according to the above ayurvedic management, the patient got relief within seven days from the start of treatment.

#### CONCLUSION

In the case stated above, all signs and symptoms like Visarpansheel Sukshma raktavarni Pidaka with kandu, shool, sparshasahatwa, Daah, and vrana are markedly diminished in seven days. The treatment of Visarpa raktmokshan by Jalauka (Shodhan chikitsa) & Aam pachan (Shaman chikitsa) is

significantly effective, followed by a proper pathya-apathya regimen.

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# A conceptual study on Cosmetic Toxicity w.s.r. to Dushi Visha

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## ABSTRACT

In present state thousands of hurtful toxins are accumulated in environment are taken by the human being itself. Cosmetics are one of them. Cosmetics are those elements which are used to improve the appearance of the human body. They are generally combinations of chemical compounds, some being derived from natural sources, many being synthetic. But the people are not aware of adverse effects of these chemical substances on human body due to its long-term usage. Therefore, this study was carried out which was conceptual type in nature. The aim & objectives of this study was to study the concept *Dushivisha* & to study the toxic effects of cosmetics on human body & correlate the *Dushivisha* w.s.r. cumulative toxicity of cosmetics. All the relevant material was compiled from *Brihatrayi* and available commentaries on it. Research articles are also searched from various websites. All the references were collected & analyzed & finally conclusion was drawn. Conclusion of this study is that cosmetics can be included under cumulative type of toxicity. Due to cumulative toxicity hazards of this substance not seen on the body immediately but they can be seen slowly after their long-term use. This cumulative type of toxicity is similar to *Dushivisha* concept described by Ayurveda.

**Key words:** Cosmetic Toxicity, Dushi Visha, Ayurveda

## INTRODUCTION

Ayurveda is the science of human life, which mainly deals with physical, function of an individual Ayurveda, which has arisen from *Vedas*, is fine balance of science, religion & philosophy as well. Ayurveda mostly consist of eight branches. One of them is toxicology. Toxic effect of various substances is seen frequently in today's day to day routine mostly in the cosmetic. Today's trend of society is towards the consumption &

application of things which are easily available. Long term use of this leads to toxicity which is seen very commonly.

Cumulative toxicity is the accumulation of the toxins over a period of time & in turn resulting in the harsh effects on the body & mind. This cumulative toxicity is similar to the *Dushivisha* concept defined by *Acharya Sushruta*. *Dushivisha* is a burning issue in the present era. This is fact that in today's fast life every person is exposed to the pollutants in one or the other way. The exposure may be due to polluted atmosphere, certain professions & long-term use of certain medicines & therapies also. After exposure to the body some of the component of this substance does not get completely eradicated from the body & in due course of time, this frequent addition leads to cumulative toxicity.

In *Samhita's* we have found some associated reference by the name *Dushivisha*. Currently there are number of natural, synthetic & semi synthetic agents which are playing major role of causative factors in human body due to continuous persistent exposure. Cosmetics are

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the one of the major factors everybody wants to have attractive personality and outlooks. Since everybody is not born with desired appearances, people tend to achieve that by the use of various kinds of cosmetics in their day-to-day life. All the types of cosmetics & foods we eat sometimes manipulate with the health of our tissues, at times pronouncing as ill effects of *Dushivisha*. The toxins are accumulated in the body by many ways as described by *Acharyas*. In present time these toxins enter into our body by the means of cosmetics & beauty enhancing chemical treatment also.

Cosmetics are the products proposed to be applied to human body for cleansing, improving, promoting attractiveness, or altering the appearance without affecting structure or function of the body. Though it was recognized initially to safer, due to the increased demand, competition, commercialization the safer cosmetics are replaced by eye catching, bright products which are not only heavy for our pockets but also potentially toxic. Cosmetic toxicology deals with or induces the harmful or toxic effects caused by these products.

Very little is known about the health effects of these chemicals. More than 90% have never been tested for their effects on human health & complete toxicity data are available for only 7% of them by knowing the importance of this sole concept of Ayurveda study has been selected, with the highlight over the importance of *Dushivisha* literary. By this study now along with physician common man also will take care of himself & will free from this hazardous effect of *Dushivisha*.

## AIM & OBJECTIVES

- To study the concept of *Dushivisha*.
- To study the toxic effects of cosmetics on human body.
- To correlate the *Dushivisha* w.s.r.cumulative toxicity of cosmetics.
- To highlight on the toxic effects of cosmetics on human body in front of society

## MATERIALS & METHODS

### Literature search

Review of literature regarding *Dushivisha* is collected from Ayurvedic compendium. Review of literature regarding cumulative toxicity of cosmetics is collected from modern science & on different website. Research articles are also searched from various websites. All Compiled matter is reorganized and critically analyzed for the discussion and attempt has been made to draw some fruitful conclusions.

**Type of study** - Conceptual study.

## CONCEPTUAL REVIEW

The substance after entering into the body causes despair is called as *Visa*.<sup>[1]</sup> According to modern science a poison is a substance which when administered, inhaled or ingested is capable of acting deleteriously on the human body.<sup>[2]</sup> Thus almost anything is poison. According to *Bhavaprakasa* the basic classification of poison is same as like that of *Samhitas*, both classified the *Krtrimavisa* in different manner. The one which is prepared by non-poisonous substances is called as *Garavisa* & other one which is prepared by poisonous substances is called as *Dushivisa*.<sup>[3]</sup> Modern science classified these poisons on the basis of effect produced by them in to four types. Fulminant, acute, chronic & sub-acute. Out of which fulminant means poisoning produced by massive dose of poison by which death occurs rapidly, acute means poisoning produced by a single large dose or several small doses taken in a short period, onset of signs & symptoms is usually abrupt. Chronic poisoning produced by small doses taken over a long period. Onset is insidious. Sub- acute is characterized by mixture of features of acute & chronic poisoning. The word *Dushi* is derived from the root word "*Dusa*" & with suffix "*Nic*" & "*In*."

The word *Dushi* means impure or possessing the property to vitiate.

### Definition of *Dushivisa*

The poison which vitiates *Dhatu*s because of factors such as *Desha* (habitat), *Kaala* (season), food & sleeping during day time is called *Dushivisa*.<sup>[4]</sup> A poison

either *Sthavara*, *Jangma* or *Kritrima* whenever not fully eradicated from the body & weakened by anti Poisonous medications or gets dried up by *Davagni*, *Vata*, *Tapa* (the fire, the wind & the sun) or when foresaid natural ten qualities of poison becomes less potent is called as *Dushivisa*.<sup>[5]</sup> Because of its mild strength does not prove fatal for an individual & as it get enveloped by the *Kapha* it be present in the body for many years.

#### **Avyakta Awasthaa of Dushivisa**

The *Veerya* of *Dushivisa* being less, it does not show any immediate fatality. On the other hand, it becomes *Aavritta* by *Kapha* & stays in that state for years. Its symptoms do not arise immediately.<sup>[6]</sup>

**Prakopkala:** It gets aggravated on the body on a cloudy day & by exposure to cold & wind

**Purvaroop:** When *Dushivisa* is about to flare up it produces some prodromal symptoms such sleepiness, heaviness, yawning, a sense of looseness in the joint, horripilation, bodyache.<sup>[7]</sup>

**Rupa (Features):** The person troubled by this will develop diarrhoea, discoloration of skin, thirst, anorexia, fainting, vomiting, stammering speech, vertigo & accompanied with symptoms of dusyodara.<sup>[8]</sup> *Dushivisa* produces pustules, *Kitibha* & urticarial rashes due to disorder of blood. Thus, poison takes away life soon by affecting each *Dosa*.<sup>[9]</sup>

**Impact of Dushivisa on the body:** *Dushi-Visa* produces sense of intoxication after meals, Indigestion, Anorexia, Eruption of circular patches on the skin, Urticaria, Mental confusion, *Dhatukashya*, Oedema on the face & extremities, ascites, vomiting, diarrhoea, discolouration, fainting, intermittent high grade fever & unquenchable thirst. Some poisons produce insanity, abdominal distension, *Shukra Kshya*, muffled voice while other causes *Kustha* & respective disorders of various type.

Today's generation is fascinated more toward westernized life style & cosmetics are care materials used to develop the appearance, they are proposed to apply to the human body for cleaning, enlightening, increasing charm of the body. A wide range of

chemicals are used in the cosmetics as ingredient, active substances, colorants & preservatives. These cosmetics include skin care creams & lotions, cleansers & body washes, nail polishes, deodorants & many more.

**Skin care creams & lotions:** In these group following products are included

**Foundation:** The main elements in most of the foundations constituent of some of the foundation which is toxic to the nervous system are talc; silica & alumina all are respiratory irritants when inhaled as powders. Aluminium salt is Tri-ethanolamine (TEA) is also one of the ingredients of foundation can also be contaminated with cancer causing nitrosamines. Parabens are often used as preservatives in foundations can interrupt the hormone system & have been found in breast cancer tumors.

**Sunscreen:** Is a cream or lotion used to protect the skin from sun rays. These sun-screen creams or lotions contains toxic principles like cinnamates, salicylates, zinc oxide which may cause skin rashes as an allergic reactions & irritation of eyes is seen if the product comes in contact with eyes.

**Body Powder:** Body dusting powders are used to absorb sweat odours & to soothe irritate skin. Conventional body powder often contains talc or amorphous silica both of which can cause lung irritation when inhaled. Studies have shown that women using talc in the genital area & on the sanitary napkins have an increased risk of ovarian cancer. Parabens which are endocrine disruptors are used as preservatives in body powders. Talcum powder is made from purified mineral called talc. Inhalation of this produces inflammatory lung disorders including lung cancer.

#### **Cleansers & Body Washes**

Profit making cleansers rely on alcohol & petroleum products to remove dirt & clean the skin. However, these ingredients also take away natural oils & cause drying. To counteract these producers may add mineral oil to make the skin feel soft. The chemicals that form foam are also added to cleansers to allow them to

spread more easily. The foam creating chemicals include sodium laurel sulphate, ammonium laurel sulphate & myreth sulphate. These chemicals are known skin irritants & may be contaminated.

Common preservatives in cleansers comprise parabens which can disrupt hormone system along with methylisothiazoline & methylchloroisothiazoline which are immune system toxins. Many also have bouquet which generally includes phthalates which have been linked to re-productive complications.

### Nail Polish

Nail products are among the most toxic cosmetics in the market nails can absorb the chemicals used in polishes, removers & cuticle creams.

Nail polish contains three most harmful ingredients. They are toluene, formaldehyde & dibutyl phthalate. These are named as "toxic trio" by the US Environmental working group. Toluene may contain up to 50% of the volume of nail polishes which is known as neurotoxin & may put pregnant women at risk of having a baby with birth faults or late growth. Breathing large amounts of toluene for a short period of time can damage kidneys, liver & the heart. Dibutyl phthalate (DBP) is an oestrogen representing plasticizer that may disrupt thyroid function & accelerate sexual development in young girls. Animal studies have found that DBP may result in birth deformities like cleft palate & undescended testicles. DBP has been also linked to low sperm count in males. Conventional nail polishes may contain other chemicals such as ethyl acetate which infuriates the respiratory system, benzophenone-1 which is an endocrine distracting chemical & triphenyl phosphate which is neurotoxic. Chronic poisoning of these toxins produces a syndrome called "PAINTER SYNDROME." It includes symptoms like walking & verbal problems, memorial loss, headache, tiredness, temper turbulences, sleep maladies.

### Nail Polish Remover

Orthodox nail polish removers contain acetone. Long term dealings to acetone may harm the liver, kidneys

& nervous system & may increase the danger of birth defects.

### Hair Colours & Hair Sprays

Hair colours & hair sprays are often used for colouring hairs & also for setting a hair style. But these products contain many harmful toxic components. A study by Harvard school of Public Health suggested that women who use hair dyes five or more times a year have twice the risk of developing ovarian cancer. Darker more permanent dyes pose a greater risk. Studies have shown that using permanent hair dyes regularly over a long period of time is associated with an increased risk of bladder cancer, non-Hodgkin's lymphoma & multiple myeloma. Use of permanent hair dyes could be linked to 20% of all cases of non-Hodgkin's lymphoma in women. Also, women using hair dyes at least once a month doubled their risk of bladder cancer

### Deodorants & Antiperspirants

Deodorants & antiperspirants both fight body odour. Deodorants work by inhibiting the growth of bacteria that cause odour. Antiperspirants actually stop perspiration by blocking the sweat ducts. Most conventional antiperspirants contain aluminium compounds such as aluminium trichlorohydrate as active agent. These aluminium compounds are toxic to the nervous system. Also, these compounds interfere with oestrogen & play role in rising incidence of breast cancer. Deodorant & anti-perspirant contain antibacterial agent triclosan which is suspected of disrupting the endocrine system & has been shown to harm the thyroid system in animal studies. Talc is also an ingredient in some deodorants & antiperspirants. It is used in some aerosol products, it may cause lung irritation. Isobutene a gas which can be contaminated with carcinogenic butadiene is often used as a propellant in aerosol sprays. Aerosol sprays break chemicals in to minute particles can be more deeply inhaled than larger particles & this may increase their harmful effects

### Hair Removal

LASER treatments are also used to reduce the amount & thickness of hair. LASER treatments can cause



blistering, discoloration, swelling, redness & scarring. Sunlight should be avoided while skin heals. A major concern with laser hair removal is the use of skin numbing anaesthetics, which are sometimes applied before LASER treatment. According to the US food & drug administration's office of cosmetics, these products can cause serious side effects including death if they are not applied properly.

### Scrubs

Scrubs contain exfoliating ingredients that remove dead skin. They are also used to unclog pores & moisturize the skin. Many conventional scrubs use micro beads which are actually fine granules of polyethylene plastic & are listed as "poly- acrylamide" on the list of ingredients conventional scrubs also contain a variety of chemicals of concern including potentially carcinogenic coal tar colours, harsh alcohols & detergents, the surfactant TEA that can be contaminated with cancer causing nitrosamines, the skin irritant sodium lauryl sulphate & the antibacterial triclosan. They are also likely to contain harmful preservatives like hormone disrupting parabens, methylisothiazolone & methylchloroisothiazilone both of which are immune system toxins

### Shaving Creams

Conventional shaving creams are usually based on water & a combination of synthetic chemicals. These include chemicals that can be contaminated with traces of carcinogenic residues like TEA, which can be contaminated with nitrosamines & PEG-90 a binding agent that can be contaminated with ethylenedioxide a known carcinogen. Propylene glycol, which acts as a moisture carrying ingredient in many skin products is used in shaving creams. It is known skin irritant. Isobutene & Isopentane are the two most popular gases used as propellants in aerosol shaving creams. Out of these two isobutene is most widely used which can be contaminated with the carcinogen butadiene. Shaving creams are often preserved with hormone disrupting parabens or BHA which are classified as "reasonably anticipated to be a carcinogen" by the US National Toxicology programme. Potentially toxic fragrance & FD & C colours are common additives in shaving cream.

**After Shave:** After shaves are designed to soothe irritated skin. They are usually based just on water & denatured alcohol, but are heavily fragranced. Many individual ingredients in fragrances are irritant & some have been associated with neurotoxicity & cancer. Diethyl phthalate used to prolong the scent of products. It is suspected of interfering with endocrine system & causing reproductive problems.

### Sun Protection

Sun protections are used to protect against sunburn & skin cancer. Sunscreens work in two different ways. Chemical sunscreens work by absorbing ultraviolet rays before they reach the skin's surface. Mineral blocks work by physically blocking the sun's rays from reaching the skin. The most common ingredients in chemical sunscreens are oxybenzone, cinnamates & retinyl palmitate. Out of these oxybenzone disrupts the body's hormones. It penetrates the skin & enters the bloodstream & increases sensitivity to the sun. cinnamates which are often used in waterproof sunscreens also concern. They also disrupt the body's hormones, cause allergies & may be toxic to the immune system. Retinyl palmitate a synthetic form of vitamin A is another popular sunscreen ingredient. According to US Food & Drug Administration study, retinyl palmitate is suspected of increasing skin cancer risk when skin is exposed to sunlight.

### DISCUSSION

The toxicity is nothing but the degree which a substance can harm human beings or animals. Chronic toxicity refers to the ability of a toxic substance to cause harmful effects over an extended period, usually upon repeated or continuous exposure. After exposure to the body some of the ingredients of this cosmetic substance does not get completely eliminated from the body & in due course of time, this repeated accumulation leads to cumulative toxicity. The clinical features developed due to the prolonged exposure of cosmetics are similar to the *Dushivisa*. According to *Acharya Sushrut Dushivisa* produces indigestion, Anorexia, Eruption of circular patches on the skin, urticaria, Mental Confusion, *Dhatukashya*, Oedema on the face & extremities, Ascites, Vomiting, Diarrhea,

Discolouration, fainting, Intermittent high-grade fever & unquenchable thirst

Some poisons produce insanity, abdominal distension, *Shukra Kshaya*, muffled voice while other causes *Kustha* & respective disorders of various type.<sup>[11]</sup> The long-term use of above discussed cosmetics produces various toxic effects & complications. They causes respiratory irritation, nervous disturbances, contact dermatitis, allergies, damage of skin DNA, skin cancer, asthma, ovarian cancer, endocrine disruptions, developmental problems, disturbance of hormone system, birth defects like cleft palate, undescended testis or delayed development, thyroid function disorders, early sexual development in young girls, low sperm count in males, walking & speech problems, memory loss, mood disturbances, sleep disorders, damage of liver, kidneys, nervous system, hair loss, bladder cancer, non-Hodgkin's lymphoma, breast cancer, temper turbulences, sleep maladies.

## CONCLUSION

*Dushivisha* can be correlated with cumulative toxicity. *Dushivisha* is not acute condition its effect seen gradually on the body if it is accumulated in the body frequently. It definitely produces the toxic effect in the body. *Dushivisha* shows various types of toxic symptoms & disorders on different systems of the body which mainly includes skin, G.I tract, nervous system & many more. Cosmetics can be embraced under the cumulative type of toxicity. Long term use of cosmetics gives rise to hazardous toxic effect & multiple system disorders. So, we can correlate the chronic toxicity of the cosmetics with the *Dushivisha*. Thus, in today's day to day life we must use cosmetics very cautiously so as to avoid their lethal & harmful toxic effect on the body

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## A review on Pain Management through *Panchakarma*

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### ABSTRACT

Pain can be described as any physical or mental suffering or discomfort caused by illness or injury. No matter however mild the pain is anywhere in the body it lands person in state of discomfort and affects day to day activities. Ayurveda describes pain as the premonitory sign as well as symptoms of many diseases under different terminologies viz. *Vedana, shool, ruja*. According to *Acharya Sushruta* - "Vatat Rute Nasti Ruja" i.e. the root cause of all types of pain is *Vata Dosha*. In spite of recent advances in pain treatment including anaesthesia, its' management still remains challenged. In a world where everyone is looking for means and medicines to minimize and kill pain Ayurveda can be a ray of hope to understand its actual concept and provide new direction for its management. According to the cause, nature and duration of the pain, Ayurveda offers a wide range of *Panchakarma* therapies to manage and heal pain. Treatment modalities offered in Ayurveda such as *Agnikarma, Jalaukaavcharan* etc. offer immediate pain relief without much untoward effects. It is hence mandatory to explore the concept of Pain and its practical utility requiring establishment in pain care reconnoitred in *Ayurveda*. Critical review of the previously available classical references and facts about pain, its management through conceptual study of vitiation of *Vatadosha* responsible for pain with chief therapeutic procedures such as *Snehan, Swedan, Agnikarma, Jalaukaavcharan, Vedhankarma, Lepankarma & Bastikarma* utilized in *Ayurveda* with a modern lookout could find a way to address this grief.

**Key words:** *Shoola, Vata Dosha, Panchakarma, Ayurveda*

### INTRODUCTION

Manifestation of Pain has varied lengths & breadths and hence, it calls upon to understand this word in depth which is so commonly used in day-to-day practice. The International Association for the Study of Pain defines pain as an unpleasant sensory and emotional experience connected to actual or potential

tissue damage, or expressed in terms of such harm. Due to these factors, the Ministry of AYUSH in India has emphasised this worrying issue and declared that the theme of the Second National *Ayurveda* Day will be "Pain Management with Ayurveda."

Despite highly developed scientific studies, pain continues to be the leading cause of disability for a vast number of persons worldwide. It is possible to explain pain in terms of a symptom or a complication of another condition. Ayurvedic classics like the *Sushrut Samhita* define pain as a distinct concept called *Shool*, which primarily denotes colic.<sup>[1]</sup> According to Ayurvedic scriptures, the main cause of pain is *Vata Dosha*, which is categorised as *Vataj, Pittaj, and Kaphaj Shool*. As *Vata Dosha* is responsible for every movement and action in the body, the hindrance in *Vata* flow leads to the pain. As *Vata* also allows the other *Pitta* and *Kapha* humors to function in the body, therefore *Vata* should flow easily in the body without any obstruction. The obstruction in *Vata* flow causes pain. Diet having

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similar properties causes aggravation of *Vata Dosha* due to which *Vata* gets situated in one suitable part of the body and attains growth and leads to the manifestation of symptoms caused by aggravated *Vata Dosha*. Some of the physical activities<sup>[2]</sup> causing aggravation of *Vata Dosha* are *Ativyavaya* (excessive sexual indulgence), *Prajagara* (remaining awake at night in excess), *Vishamat Upachara* (inappropriate *Panchkarma*/ other therapies), *Ati Dosha Sravana* (excess of *Panchkarma* therapies), *Ati Asruk Sravana* (excess *Raktmokshan* or excess bleeding), *Ati Plavana* (excessive swimming), *Ati Langhana* (excessive fasting), *Atyadhva* (walking for long distance), *Ativyayama* (physical activities or exercise in excess), *Dhatu Samkshayaat* (depletion of body tissues, loss of *Dhatu*s), *Chinta Shoka Karshana* (weakening due to excess stress, grief and worries), *Roga Ati Karshana* (Excessive emaciation because of affliction of disease), *Dukhshaya* (sleeping over uncomfortable beds and sitting), *Vega Vidharana* (suppression of natural urges), *Ama* (product of improper digestion and metabolism), *Marmaghata* (injuries to *Marmas*), riding over an elephant, camel, horses, or fast moving vehicles.

**Table 1: Evidence of some characteristic pain in different diseases is also found in the classical texts.**

| Disease                     | Symptoms                                  |
|-----------------------------|---|
| <i>Twakagata Vata</i>       | <i>Parwa Ruka</i>                         |
| <i>Raktagata Vata</i>       | <i>Teevra Ruja</i>                        |
| <i>Majja Asthigata Vata</i> | <i>Satata Ruka</i>                        |
| <i>Siragata Vata</i>        | <i>Sarva Sharer Manda Ruka</i>            |
| <i>Sandhigata Vata</i>      | <i>Prasaran Akunchan Pravritta Vedana</i> |
| <i>Kaphagata Vata</i>       | <i>Sarva Sharir Shola</i>                 |
| <i>Majjavritta Vata</i>     | <i>Sarva Sharir Shola</i>                 |
| <i>Aamvata</i>              | <i>Vrischik Danshavat Vedana</i>          |
| <i>Vataj Gulma</i>          | <i>Toda</i>                               |

|                           |                      |
|---------------------------|----------------------|
| <i>Kitibha</i>            | <i>Teevra Vedana</i> |
| <i>Kakanak Kushtha</i>    | <i>Teevra Vedana</i> |
| <i>Koshthashrita Vata</i> | <i>Parshwashoola</i> |
| <i>Gudagata Vata</i>      | <i>Udarshoola</i>    |

An integrated approach towards Pain Management should possibly answer the grief involved in treating this Symptom of varying degrees. Formulation of this article attempts to club the scattered information available in both the school of thoughts. Hence, looking into Pain & its manifestation through the eyes of Modern science correspondingly opens a new array for the management of Pain holistically. This article focuses on the treatment principles & science behind related treatment modalities in *Ayurveda* thereby throwing a new focus upon the subject. To discuss the subject in length, keeping modern perspective of probable mode of action of the Therapeutic Management Strategies of Pain as per *Ayurveda* which include treatment modalities like *Snehan* (external Oleation), *Swedan* (Sweat Inducing Fomentation), *Agnikarma* (Intentional Heat burn Therapy), *Jalaukaavcharan* (Hirudotherapy), *Vedhankarma* (Therapeutic body piercing), *Lepankarma* (application of medicated paste), *Bastikarma* (administration of medicated enema) have been discussed briefly. Miscellaneous added *Upakramas* (modalities) and formulations used in pain management have been given a quick overview and have been refrained from elaboration. Hope, this article will be a ready reckoner for the *Ayurveda* scholars exploring this topic in their research to understand the treatment principles of *Ayurveda* with a modern perspective.

## METHODOLOGY

In this conceptual review article, information from contemporary texts of *Ayurveda* and a gist of Modern texts in view of Anatomy, Physiology, Biochemistry, Pharmacology & Medicine have been documented to understand treatment approach of *Ayurveda* from the eyes of modern concept.

## LITERATURE REVIEW

Understanding Concept of Pain & its Management as per Ayurveda through Modern Perspective

### Definition & Nature of Pain in Ayurveda

In Ayurvedic texts, various terms such as, *Ruk*, *Ruja*, *Vedana* & *Shool* are commonly used for pain, however, '*Shool*' is more appropriate term amongst all which means - a condition with state of discomfort to body & mind. Thereby, the definition of *Shool* can be stated as experience similar to driving a nail into the body of the person.<sup>3</sup> It has been further elaborated that out of *Tridoshas*, vitiated '*Vata*' is the main causative factor responsible for all painful conditions.<sup>[4]</sup> This vitiation of *Vata* occurs in two ways, viz. *Dhatukshya Janya Vata Prakop* (increased catabolism) and *Margavarodh Janya Vata Prakop* (channel obstruction).<sup>[5]</sup> Furthermore, the '*Ruksha*' (Dryness) and '*Chala*' (Vibrations) *Gunas* (characters) of *Vata* are mainly involved in the manifestation of pain.

### Management of Pain in Ayurveda

Pain management in Ayurveda has a holistic view which incorporates several therapeutic procedures and behavioural modifications under the light of basic principles narrated in Ayurveda. Hence, prescription writing for pain in Ayurveda is varied as Ayurveda considers pain as subjective phenomenon which includes therapy to body and mind both.

### Therapeutic procedures for Pain Management in Ayurveda

#### 1. *Snehana*

In Ayurveda, *Sneha* is the best *Vatashamaka* and has been said for *Vata* and *Kapha Dosha*. *Snehan* implies oleation of the body and is described as one of the important *Purvakarma* (precursor) to *Panchkarma* as *Vata Dosha* (*Dhatukshayjanya*) gets pacified by *Sneha* (oleation). *Vata* bears properties opposite to that of *Sneha*. *Sneha* with its antagonist properties pacifies *Vata Dosha*. Oil used in *Abhyanga* enters the body through *Romakupa*, *Siramukha* and *Dhamani*.

*Snehana* is classified as *Abhyantar Snehana* (Internal oleation) and *Bahya Snehan* (Outer oleation). To

understand the pacification of pain by *Bahya Snehan*, we need to understand the role of *Til Tail* (Sesame Oil) and Neuro-hormonal effects within the body due to *Bahya Snehan*. *Til Tail* is considered the best among *Sthavar Sneha* (Oil derived from Plant source), and also used as base for preparations of various medicated oil, as sesame seeds has strong vitamin E activity and helps in regulation of eicosanoids that cause inflammation (production of good eicosanoids from omega 3 essential fatty acids which inhibits inflammation).<sup>[6]</sup> Neuro-hormonal effects due to *Bahya Snehan* has been established, stating that massage increases levels of Dopamine, increases availability of serotonin, may elevate epinephrine (adrenaline) and release of endorphins. All these neuro-hormones alter brain chemistry which in turn reduces response to pain sensation.<sup>7</sup> Modern science also says that absorption through the skin is increased by suspending the drug in oily medium and rubbing it into the skin. *Acharya Dalhana* says that *Sneha* gets absorbed and reaches to different *Dhatu* levels curing the disease of that *Dhatu*.

#### 2. *Swedan*

*Swedan* implies hot fomentation which is also the precursor procedure to *Panchkarma* which helps in inducing sweating to the patient. This procedure is done to curb the *Vata Dosha* vitiated due to increase in its *Sheeta* property. The role of *Swedan* is best understood with Transient Receptor Potential Channels. These receptors are mainly found in nociceptive neurons of peripheral nervous system. Upon further literary search, it is known that TRPV1 channels are responsible for perception of heat and pain both thereby, facilitating the role of *Swedan* in management of pain.<sup>[8],[9]</sup>

#### 3. *Agnikarma*

*Agnikarma* (Intentional Heat burn therapy) is one of the most effective para surgical procedure mentioned for the management of pain which is done with the help of *Shalaka* (metal probe). This unique procedure helps in relieving pain in various painful conditions chiefly of Musculoskeletal pain like *Parshnishool* (heel pain - Calcaneal spur), *Sandhigatavata* (Osteoarthritis), *Avabahuk* (Frozen shoulder); According to Ayurveda,

due to *Ushna Guna* produced during helps in pacification of *Vata-Kapha Dosha* and helps in increasing the *Dhatvagni* thereby reducing pain. Mechanism of action of *Agnikarma* can be understood with the help of afferent spinothalamic tract. As stated earlier, the ascending neurons are the pathway for conduction of Pain (lateral spinothalamic tract - A $\delta$  & C Fibres), Pressure (ventral spinothalamic tract – Ruffini endings), Temperature (lateral spinothalamic tract). When perception of pressure and temperature factor is increased, pain perception is reduced which helps us to understand the role of *Agnikarma* in relief of pain. Moreover, another hypothesis suggests that the released heat could have caused irritation on the superficial sensory nerve endings thereby relieving pain from the concept of ‘counter irritation’. It has also been suggested that pain may be possibly caused as a result of the accumulation of metabolic waste products in the tissues, and an increased flow of blood (vasodilatation due to heat) in the region is the possible mechanism that is responsible to remove these substances and relieve pain. Another possibility is that the pain releasing mechanism is associated with muscle relaxation.<sup>[10]</sup>

#### 4. *Jalaukaavcharan*

*Jalaukaavcharan* (Hirudotherapy) is one of the therapeutic procedures of *Raktamokshan* (Bloodletting). This therapy of pain relief involves application of *Nirvish Jalauka* (Nonpoisonous Leeches – *Hirudo medicinalis*) for removal of vitiated blood at the site of pain.<sup>[11]</sup> It is hypothesized that the strong sensory stimulus caused by the pain and burning sensation of the leech bite can alleviate the symptoms of the patient through the “gate theory”. Moreover, review of components of Medicinal Leech saliva reports Hirudin which inhibits blood coagulation by binding to thrombin, Calin inhibits collagenmediated platelet aggregation, Destabilase dissolves fibrin, Hirustasin inhibits kallikrein, trypsin, neutrophytic cathepsin G, Bdelins acts as anti-inflammatory and inhibits trypsin, Eglins acts as anti-inflammatory and inhibit activity of cathepsin G, Carboxypeptidase A inhibitors increases the inflow of blood at the bite site,

Histamine like substance, acetylcholine acts as vasodilator and Anesthetic substance which causes anesthesia at the bite site.<sup>[12],[13]</sup>

#### 5. *Vidhakarma*

Also known as *Vedhan* is one of the eight *Shastrakarma* (surgical measures) mentioned in *Sushrut Samhita*.<sup>[14]</sup> This is a sterile procedure which includes piercing the points with special hollow needles considering the anatomy of *Marma* (vital points) as per Ayurveda. The piercing leads to painful mechanical stimulus which causes release of endorphins thereby, causing immediate pain relief. Another procedure called as *Vidhaagni* (combination of *Vedhankarma* and *Agnikarma*) is also practiced in painful conditions with varied results.

#### 6. *Lepankarma*

*Lepankarma* is application of medicated paste on skin. Classical texts describe the utility of *Lepa* in treatment of *Vatrakta*. *Sushruta* has mentioned *Lepankarma* in *Twakgat Vata* (vitiated *Vata* in skin) as reference cited in *Vranshoth Chikitsa* (inflammatory condition), *Mansagata Vata* (vitiated *Vata* in muscles) and *Snayuroga* (Diseases related ligaments).<sup>[15],[16]</sup>

Mode of action of *Lepankarma* can be explained with the help of Transdermal absorption of drugs. Epidermis behaves as a lipid barrier whereas; dermis is freely permeable to solutes. Inflammation increases cutaneous blood flow and also enhances absorption. Moreover, thermoreceptors in the skin have cold receptors (thin myelinated A $\delta$  fibres) and warm receptors (unmyelinated C fibres) which help in understanding the regulation of *Pralepa* and *Pradeha* respectively. Probable role of *Pralepa* can be explained with the mechanism of transduction of cold thermoreceptors as for example Menthol sensation is perceived via TRPM8 channel; whereas role of *Pradeha* can be explained with TRPV1 channels and furthermore certain Warm receptors also being sensitive to painful stimuli function as nociceptors and thus, mediate action of herbs with hot consistency.<sup>[17],[18],[19]</sup>

## 7. Bastikarma

It is one of the chief therapeutic procedures of *Panchakarma* in which the drugs are administered into the rectum of the patient. It is multidimensional treatment procedure offering wide range of clinical benefits in different diseases due to its synergistic effects. Sensation of Pain is attributed to vitiated *Vata Dosh* and in order to correct this *Doshic* imbalance *Basti* is the chief treatment of choice as origin of *Vata Dosh* is from *Pakwashay* and hence, described *Ardhachikitsa* (as treatment of choice for numerous diseases) in *Charak Samhita*.<sup>[20]</sup>

Probable mode of action of *Basti* and mediation in Pain management is that the rectum has rich blood and lymph supply and the drugs can cross the rectal mucosa like other lipid membrane. The unionized and lipid soluble substances are readily absorbed from the rectal mucosa. This is because short chain fatty acids are more water soluble and allows direct diffusion from epithelial cells into the capillary blood of the villi. It is proposed that *Basti* has a feature to regulate sympathetic activity, thereby, balancing the autonomic nervous system. Hypothalamus Pituitary-Adrenal axis (HPA) gets activated with the visceral afferent stimulation, involving the release of neurotransmitters from adrenal gland called cortisol, a neuroendocrine hormone, acts as a potent anti-inflammatory systemically.<sup>[21],[22],[23]</sup>

### Miscellaneous *Upakramas* (Modalities) for Pain Management

In addition to several therapeutic procedures discussed in length in this article, as per the location or site of pain, the specific *Upakramas* (modalities) are helpful in pain management. For pain in *Urdhwajatrugata* (supraclavicular) area, specific *Upakramas* like *Shirodhara* (Pouring of medicated oil over forehead), *Abhyang* (Massage therapy), *Pichu* (Application of medicated cotton swab) and other *Kriyakalpa* (procedures) like *Anjan* (application of medicated kohlirium), *Netratarpan* (Eye care with medicated oil), *Karnapurana* (Ear therapy with medicated oils), *Karnadhupan* (Ear therapy with medicated smoke), & *Kawal - Gandush* (holding of

medicated oil in mouth) are done as per the pain scale of the patient. In *Urasthan* (pain in chest region) *Bahya Snehan-Swedan*, *Sthanik Basti* like *Hridbasti* (external oleation at cardiac region in cardiac pain) and *Prushtabasti* (external oleation in pain at scapular region) are done. Another commonly cited example for Pain management in chest region due to *Shwas Roga* (Bronchial Asthama) application of oil mixed with *Saindhav Lavan* (salt) on *Urasthana*. As stated earlier, *Snehan*, *Snehapan* (Internal oleation, ingestion of Castor oil), *Anuloman* (Purgatives), *Abhyang*, *Virechan* (Induced purgation), *Vatanuloman* (Anti flatulent) *Dravya* (drugs) are used in *Udargata* (abdominal) region. In *Shakha* (extremities) modalities like *Abhyang*, *Sthanik Basti* (local external oleation), *Bastikarma* as mentioned earlier are prescribed as per the painful ailment.

## DISCUSSION

Signals are received by the cell from its environment which can be correlated with *Chala Guna* (vibrations) of *Vata Dosh*, rightly called to be *Sarveidriyanamudyojaka* and *Sarveindriyaarthanaambhivodha* (the one who carries sensory signals & the one who perceives afferent stimulation). Perception of pain and causation of inflammation are mediated by G-Protein Coupled Receptors (GPCRs).<sup>[25]</sup> Ligands (biomolecule) attach to the GPCRs and cause conformation of GPCRs leading to transmission of signals to the nucleus, thereby, governing the functions of the cell. *Dhatukshaya* (catabolic process of metabolic pathway) leads to *Vataprakopa* (increase in *Chala Guna* - vibrations) which leads to abnormal signal initiation (increased signals or defective signal termination) causing defect in GPCRs in turn, leading to over signalling within the cell. This over signalling causes inflammation within the cell. *Margaavrodh* (decreased signal initiation) that is defect in transmission of signals (obstruction in passage of signals) via GPCRs causes less perception of signals by the cell thereby, disrupting cell functioning leading to accumulation of metabolite toxins within the cell again leading to inflammation. This article, comprehends the role of Receptor proteins such as nociceptors, thermoreceptors in *Lepankarma*,



Transient Receptor Potential channels in *Swedan* & *Lepankarma*, Explanation of role of *Agnikarma* in pain management with the help Physiological functions of Ascending Spino-thalamic tract & localized counter irritation mechanism, Gate theory in *Jalaukaavcharan* with anaesthetic activity of saliva of Medicinal leech), role of neurotransmitters in *Snehankarma*, release of Endorphins in *Vidhankarma*, role of Autonomic nervous system and HPA axis in *Bastikarma* and explanation of Descending modulation (Placebo effect of Touch in Pain) serve the purpose of revalidating the basic concepts of *Ayurveda* in a diverse way. Besides, production of good eicosanoids thereby, reducing inflammation overlays methods of understanding action of certain herbs in management of pain.

## CONCLUSION

In a nutshell, this article is an attempt to explore the concept of Pain in classical texts of *Ayurveda* in light of modern science. Re-exploring of therapeutic pain management strategies which are validated & effective treatment in *Ayurveda* of *Snehan*, *Swedan*, *Agnikarma*, *Jalaukaavcharan*, *Vedhankarma*, *Lepankarma*, *Bastikarma* are discussed to help one to understand the modulation of pain in light of modern concepts. Many other facets of vitiation *Vata Dosha* & Pain as for example treatment of *Vatavyadhi* (disorders due to vitiated *Vata Dosha*) chiefly are out of purview of this article. The management of Pain itself is still under research persistently as it is a subjective parameter with different threshold for different individuals. Current article is an attempt to cover the maximum aspects of Pain treatment & throw an emphasis on probable mode of action of the chief therapeutic procedures utilized in pain treatment in *Ayurveda* but as the symptom being subjective; it depends on the patient, site, extent and stage of the disease and hence doesn't offer the most appropriate modality for pain relief.<sup>[29]</sup> Main aim of the treatment is to pacify vitiated *Vata Dosha*. *Ayurvedic* pain management therapies are safe and natural ways that help in the management of different kinds of pain. Increase in the pain threshold and reduction of the cause of pain is a whole new approach towards pain. To conclude, it is a Herculean task to cover entire concept of Pain management in

*Ayurveda*. There are treatment modalities in *Ayurveda* which needs therapeutic validation leaving a scope for future research in pain management through *Ayurveda*.<sup>[26],[27],[28]</sup>

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## AN EFFECT OF COPPER TOXICITY IN RELEVANCE TO PUBLIC HEALTH

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### ABSTRACT

Copper is an essential trace mineral that is vitally important for physical and mental health. Generally, copper is not poisonous in its metallic state but some of its salts are powerful inhibitors of endogenous enzymes present in our body. The poisonous compound of copper is  $\text{CuSO}_4$ , copper carbonate, and copper sub-acetate. The incidence of copper toxicity is very common nowadays. Inhalation, consumption of food and water, and dermal contact with air, water, and soil that contains copper were some exposures medium for copper toxicity. After consumption, copper first starts depositing in the liver thereby disabling the liver to detoxify elevated copper levels in the body thus adversely affecting the nervous system, reproductive system, adrenal function, connective tissue, learning ability in newborn babies, etc. If a large amount is taken at once, it will cause severe vomiting, and abdominal pain, and purging afterward produces headache, and in fatal cases, convulsions or paralysis may occur, which result in death. Chronic poisoning may develop through ingesting small amounts of copper daily, as in cooked or pickled articles, for a length of time. This review article provides an overview of copper toxicity: acute and chronic poisoning, general symptoms, mode of administration, medico-legal and forensic aspects possible detection methods, and treatment, etc

**Keywords:** Copper poisoning, Heavy metal toxicity, Chronic poisoning, Copper sulphate, Medicolegal aspects.

## INTRODUCTION

Copper (*tamba*) as a metal is not poisonous. In the human body, the copper content is about 100-150 mg which is present as an integral and functional moiety of proteins and enzyme systems including catalase, cytochrome C oxidase, dopamine  $\beta$ -hydroxylase, and serum ceruloplasmin. However, as the body cannot synthesize copper, the human diet must supply regular amounts for absorption<sup>1</sup>. Copper is a reddish-brown nonferrous mineral that has been used for thousands of years by many cultures. The name for the metal comes from *Kyprios*, the Ancient Greek name for Cyprus, an island that had highly productive copper mines in the ancient world. Its atomic number is 29, placing it among the transition metals. This metal is a good conductor of both electricity and heat, and that's why copper can be found in numerous electronic appliances. It is also used to

make cooking pots. This metal is also relatively corrosion resistant. For this reason, it's often mixed with other metals to form alloys such as bronze and brass. The properties of this metal closely resembled silver and gold. Modern life has a number of copper applications, ranging from coins to pigments, and demand for this metal remains high, especially in industrialized nations. Consumers interact with it in various forms in their daily today life. This can lead to serious environmental problems, especially when mining companies engage in unsound practices. The chemicals used to extract the metal can be toxic, as can the discarded elements and run off associated with its purification. Many countries take to attempt to regulate their copper industries and the problems associated with it<sup>2</sup>

## TOXIC SALTS OF COPPER<sup>3</sup>

| S.N. | Chemical Name        | Common Name              | Features                 |
|------|----------------------|--------------------------|--------------------------|
| 01   | Copper sulphate      | Blue vitriol, Nila tutia | Crystalline blue powder  |
| 02   | Copper subacetate    | Verdigris, Zangal        | Crystalline green powder |
| 03   | Copper acetoarsenite | Paris Green              | Emerald green powder     |
| 04   | Copper arsenite      | Scheele's Green          | Greenish powder          |
| 05   | Copper carbonate     | Mountain Green           | Crystalline green powder |

## USES<sup>4</sup>

- Manufacturing electrical goods, vessels, alloys, and ~~it~~ it is used as a jacket in the bullet.
- Manufacturing pigment, insect repellants, ~~in~~ and pesticides.
- Largely used in the art industry.
- CuSO<sub>4</sub> has also been used as cattle poison and for ~~ind~~ abortion.
- To impart rich green color to preserved and tinned ~~pas~~ and other green vegetables.

## SOURCES OF COPPER<sup>5</sup>

### A. Environmental Copper exposure

- **Copper Water Pipes:** Copper plumbing was hailed as a great advance in the 1940s and today the majority of homes in India have copper plumbing. Especially in areas with acidic water, copper can be leached from pipes, leaving in se-

vere cases, a greenish ring on bathroom fixtures. Water coolers and icemakers in refrigerators also use copper tubing. Water that sits in these units can contain dangerously high levels of copper.

- **Copper Cookware:** Copper tea kettles and other copper cookware can be a source of copper toxicity if used frequently over a period of time.
- **Drinking Water Contaminated with Copper:** Some areas of India have high amounts of naturally occurring copper in their water supply. Also, copper sulfate is added to some municipal drinking water supplies to kill yeast and fungi.
- **Birth Control Pills and Copper Intrauterine Devices:** One of the side effects of the pill is that it tends to raise copper levels in the body. This is due to the close association between the hormone estrogen and copper levels. Several hundred milligrams of copper a year can easily

be absorbed from a copper IUD. Many women still use the Copper-T intrauterine birth control device, although it has been taken off the market. The only intrauterine birth control device sold today, however, is a copper-T. These devices can be very harmful to women prone to high copper levels.

- **Vitamin and Mineral Supplements:** Copper is frequently added to vitamin supplements, particularly prenatal vitamins. Although this is a benefit for some people, it can be harmful to many other women.
- **Fungicides for Swimming Pools and Foods:** Copper sulfate is added to swimming pools and may be sprayed on fruits and vegetables to retard the growth of algae and fungus.
- **Vegetarianism and Other High Copper Diets:** Many foods contain a high amount of copper. In particular, vegetarian proteins such as soybeans, nuts, seeds, tofu, avocados, and grains are high in copper content. Fast food hamburgers and other popular foods are soy-based. Soybean protein is coming into wider usage, due to its low cholesterol level and lower cost. Other high copper foods are organ meats, shellfish, wheat germ and bran, yeast, corn oil, margarine, and mushrooms.
- **Occupational Exposure:** Plumbers, welders, machinists, and others who work with copper are at risk for copper toxicity.
- **Dental Appliances:** Copper is used in dental alloys in fillings, crowns, and other appliances.

**B. Adrenal Gland Exhaustion and Copper Toxicity:** Diminished adrenal activity is perhaps the single most important physiological reason for copper problems today. The reason is that adrenal activity is ~~needed~~ to stimulate the production of ceruloplasmin, the primary copper-binding protein. When adrenal activity is insufficient, ceruloplasmin synthesis in the liver declines. Unbound copper begins to accumulate in various tissues and organs, producing copper toxicity.

**C. Zinc Deficiency and Copper Toxicity:** A widespread zinc deficiency in our population is another

critical cause of a copper imbalance. Zinc and copper normally exist in a delicate balance. Zinc is a primary copper antagonist. When zinc is deficient, copper tends to accumulate in various storage organs.

**D. Congenital Copper Imbalance:** Mothers deficient in zinc, or high in copper, transmit these imbalances to their children through the placenta. Untold numbers of children today are born with a copper imbalance. Often, they suffer from learning problems, developmental disabilities, chronic infections, and other problems.

**E. The Copper Personality:** The copper personality refers to the observation that certain individuals tend to accumulate copper, perhaps as a physical or psychological mechanism that is adaptive for these individuals.

#### Toxicokinetics<sup>6,7</sup>

- **Absorption:** Copper is absorbed through the skin, GIT, lungs, and mucous membranes.
- **Distribution:** Normally copper is bound in the blood to ceruloplasmin (95%) and albumin. Organs with a high copper content include the liver, brain, heart, and kidneys. However, excess copper can accumulate in almost every organ of the body.
- **Metabolism:** The main site of metabolism is the liver. In the hepatocyte, copper may either be incorporated into enzymes or form a metallothionein-copper complex in the biliary system.
- **Elimination:** It is excreted through bile and traces are found in saliva and milk. Renal excretion is negligible.

#### Mode of Action<sup>8</sup>

- Copper inhibits the sulfhydryl groups on enzymes in important antioxidant systems including G-6-PD and glutathione reductase, reducing their free radical scavenging activities.
- Intravascular hemolysis is caused by the inhibition of G-6-PD.
- Copper increases the permeability of cell membranes by inhibiting the  $Na^+/K^+$  ATPase pump.
- Copper intoxication can cause rhabdomyolysis, as it damages human skeletal muscle cells.

### **Copper Toxicity Relevance to Public Health**<sup>9</sup>

- **Acne:** Frequently associated with elevated copper levels or a low imbalanced zinc/copper ratio.
- **Alopecia:** Copper toxicity causes an excessive breakdown of all protein structures, including hair and nails.
- **Anemia:** A high copper/molybdenum ratio may contribute to iron deficiency anemias and possibly cause iron storage disease.
- **Anxiety:** Anxiety states are frequently associated with elevated hair copper levels. This may be due to excessive production of stimulatory neurotransmitters which include catecholamines, epinephrine, norepinephrine, serotonin, and dopamine.
- **Arthritis:** Copper levels in the synovial fluid of patients with rheumatoid arthritis are three or more times as high as normal.
- **Autism:** Both of these metals (copper and iron) are Stimulants for the brain and might produce hyperactivity and/or autism.
- **Candida Albicans Infections:** Copper is a stimulant to oxidative or aerobic metabolism. A copper bio- unavailability, deficiency, or imbalance, often results in a tendency toward yeast infections.
- **Cholesterol:** When copper levels in the blood rise, fat levels decrease. Any contaminant that depresses copper and zinc, such as cadmium in the case of zinc, may cause elevated levels of lipids.
- **Cystic Fibrosis:** Unusually large amounts of copper have been found in the fingernails of infants with cystic fibrosis.
- **Depression:** Mental depression is frequently associated with elevated tissue copper levels. An elevated copper level reduces tissue manganese levels which may result in depression.
- **Diabetes:** is frequently associated with elevated tissue copper levels. Excess copper frequently reduces zinc and manganese levels, thereby interfering with glucose metabolism.
- **Fractures:** Bone fractures are frequently associated with an elevated copper level.
- **Headaches and Migraine:** Elevated copper levels are frequently associated with migraine headaches.
- **Heart Attacks:** A high tissue copper level, by causing a zinc deficiency, predisposes one to hypertension,

heart attacks, and strokes.

**Hypothyroidism:** An elevated copper tissue level is frequently associated with hypothyroidism, particularly when the zinc/copper ratio is greater than 10.00/1. The ideal zinc/copper ratio is 8.00/1.

**Kidney Disorders:** Kidney dysfunction is frequently associated with a zinc/copper ratio of less than 5.00/1.

**Libido (Decreased):** A high tissue copper level or a low zinc/copper ratio is frequently associated with a decreased libido.

**Tooth Decay:** High levels of lead, copper, zinc, and chromium in the body tissues may tend to increase the tooth's susceptibility to decay.

**UTI:** Elevated copper levels are frequently associated with urinary tract infections.

### **Clinical Features**<sup>10</sup>

#### **1. Acute Poisoning**

**By Ingestion:** Metallic taste, increased salivation, colicky abdominal pain, nausea, vomiting- vomitus is bluish or greenish in color, diarrhea, myalgia, pancreatitis, methemoglobinemia, hemolysis, jaundice, oliguria, renal failure, convulsions, delirium, and coma.

**Inhalation:** of copper fumes or dust causes Respiratory tract irritation, cough, conjunctivitis, palpebral edema, and sinus irritation, Nasal mucous membrane may show atrophy with perforation and metal fume fever.

**Exposure of skin:** to copper compounds may cause irritant contact dermatitis, and severe exposure may cause a greenish-blue discoloration of the skin.

#### **2. Chronic Poisoning**

- Anaemia.
- Abdominal pain.
- Peripheral neuritis.
- Degeneration and atrophy of muscles.
- The greenish line on dental margins of gum (Clapton's line).
- Vineyard sprayer's lung disease: Copper sulphate is used as an insecticide spray in vineyards. During spraying, chronic inhalation of copper sulphate causes this disease.
- Hair shows greenish discoloration.
- Wilson's disease.

- Chalcosis lentis: chronic poisoning may cause deposition of copper in the cornea or lens turning them greenish brown.

#### **Fatal Dose**<sup>11,12</sup>

- Copper subacetate: 15 gm.
- Copper sulphate: 20 gm (0.15-0.3 gm/kg).

#### **Fatal Period**<sup>13,14</sup>

- 18–24 h, but it may extend to 1–3 days.

#### **Laboratory Diagnosis**<sup>15,16,17</sup>

- **Serum caeruloplasmin level:** a value of 35 mg % or less at 24 hours is associated with serious toxicity.
- **Blood copper level:** if this is elevated beyond 1.5 mcg/100 ml, there is a likelihood of serious toxicity.
- **Ammonium hydroxide:** gives a greenish-blue precipitate, which is soluble in excess and forms a blue solution.
- **Rubeanic acid test:** a drop of the neutral test solution on the filter paper is exposed to ammonia. Add a drop of 1% alcoholic solution of rubeanic acid. Spot becomes olive green due to the presence of copper.
- Neutron activation analysis and atomic absorption spectroscopy can detect copper. Merocyanine dye allows copper to be detected using fluorescence spectroscopy.
- **Hair Analysis:** Hair analysis is a rapid, simple screening test that can reveal both direct and hidden copper imbalances. A copper level exceeding 2.50 mg% is considered elevated.

#### **Management**<sup>18,19,20</sup>

- **Emetics:** No need to use emetics as vomiting occurs 5–10 min after ingestion.
- **Gastric lavage** with 1% potassium ferrocyanide, which acts as an antidote by forming cupric ferrocyanide (insoluble). If not available, plain water can be used.
- **Demulcents:** Egg white or milk and Sucralfate may help to relieve the symptoms of mucosal injury.
- **Activated charcoal:** Contraindicated.
- Castor oil is given to remove poison from the intestines.
- Patients with methemoglobinemia should be given methylene blue (the dose is 1–2 mg/kg of 1% solution IV over 5 min).
- **The most critical steps:** before chelation therapy is started are (a) Supportive care (b) fluid and electrolyte

correction and (c) normalization of vital signs.

**Chelating agents:** D-penicillamine given in usual doses is very effective. The hydrophilic dithiol chelators DMSA and DMPS are more efficient and suitable alternatives. EDTA or BAL in usual doses is another alternative.

- Allay pain by injecting morphine, and use diuretics, if urine is suppressed.
- Hypotension is treated with fluids, dopamine, and noradrenaline.
- For severe cases associated with anorexia and hematuria, hydrocortisone 50-100 mg IM thrice daily is recommended. However, the routine use of steroids is doubtful.

Hemodialysis is ineffective but may be indicated in patients with renal failure secondary to copper poisoning.

**Liver transplantation:** in life-threatening hepatic failure.

#### **Postmortem Findings**<sup>21,22</sup>

The skin may be yellow due to jaundice.

Greenish-blue froth from the mouth and nostrils.

The mucous membrane of the mouth and tongue may have a bluish or greenish-blue tinge.

Internally, some discoloration is present in the mucous membrane of the esophagus and stomach. Caustic burns of the esophagus, and superficial and deep ulcers in the stomach and small intestine may be seen.

- **Stomach:** Gastric mucosa is congested with desquamation and hemorrhages at places.

- **Small intestine:** Mucosa (upper part) may show necrosis.

**Liver:** Soft and fatty. It shows centrilobular necrosis and biliary stasis.

**Kidneys:** It may show acute proximal tubular necrosis. Hemoglobin casts may be seen in the tubules.

#### **Medicolegal Aspects**<sup>23,24</sup>

Suicidal cases are common.

- Accidental poisoning results from eating food contaminated with verdigris (formed from the action of vegetable acids on copper cooking vessels).
- Toxicity may develop from the copper absorbed systemically from the wire used in certain intrauterine contraceptive devices, or from the tubing used in he-

modialysis equipment.

- Rarely, it is used for homicide because of its color and metallic taste.
- Children may swallow copper sulfate crystals attracted by their color.
- Rarely, it is used as cattle poison.
- $\text{CuSO}_4$  was used as an antidote for phosphorus poisoning and in wound debridement.

## CONCLUSION

Copper toxicity is an important contributor to at least one ~~hurd~~ different signs and symptoms, and disease conditions in public health. Copper toxicity can lead to severe and life-threatening multi-organ dysfunction. In severe cases, early supportive measures are essential in addition to antidotes such as methylene blue in methemoglobinemia and chelating agents such as DMPS to improve the survival of severely poisoned victims. By understanding how copper imbalance comes about and how it causes metabolic dysfunctions, we can prevent many disease conditions in the community. Awareness of copper toxicity is an essential step to the correction and prevention of some of today's most prevalent health problems.

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**A review on Ayurvedic management on venomous snake bite**
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**ABSTRACT**

Snake-bites are well-known medical emergencies in many parts of the world, especially in rural areas. Agricultural workers and children are the most affected. In India, snake bites takes a heavy toll of human lives. India is reported to have the highest number of snake bites (81,000) and deaths (11,000) per year. Estimates of death due to snake bite range widely from 1,300-50,000; hence there is a utmost need for the attention on snake bite treatment. The current annual need for the treatment of snake-bite envenoming amounts to 10 million vials of antivenins. Unfortunately, the present worldwide production capacity is well below these needs and frequently leads to side effects. In view of limited presence of modern medical avenues in far flung areas, such are source needs to be harnessed, as herbals are cheap, acceptable and often at the disposal of victims. *Ayurveda* has its own way of approach in the management of snake

bite poison, which has co-parlance with the concepts of current science. In the present article, an attempt is made to highlight the importance of classical remedial measures and special emphasis which helps in the management of snake bite poison.

**Keywords:** Snakebite, *Ayurveda*, *Sarpa Visha*, *Visha Chikitsa*

**INTRODUCTION**

There are nearly 3150 species of snakes in the world and around 600 species are venomous<sup>1</sup>. In India, out of the 216 species of snakes, 60 are considered poisonous<sup>2</sup>. It is documented that there are 54, 00,000 snake bites with 2, 50,000 envenomation and around 1,25,000 fatalities annually in the world. India is reported to have the highest number of snake bites (81,000) and deaths (11,000) per year<sup>3</sup>. Estimates of death due to snake bite range widely from 1,300- 50,000. A high mortality of 50,000 deaths each year has also been published<sup>4</sup>. Majority deaths are caused by cobra, krait and vipers Fatality due to snake bite is due to wide species variation,

shortage of anti-snake venom (ASV), poor compliance with treatment protocols, lack of public education and clear policy to deal with the problem. The reason being lack of experience in handling such cases and non-compliance with the existing guidelines. Snake bite is a common medical emergency, where timely treatment can reduce morbidity and mortality and save precious human lives. Though National Protocol on Snake Bite Management formulated by the Ministry of Health & Family Welfare, Government of India is in place besides the WHO Guidelines<sup>5</sup>. The modern health care facilities are not well equipped. Thus, increasing the high mortality rate and loss of crucial golden lives of humans.

#### **Types of Sarpa Damsha:**

##### **According to Sushruta<sup>6</sup>**

1. *Sarpita*-deep punctured
2. *Radita*- less venom injected
3. *Nirvisha*- Non poisonous

##### **According to Vagbhata<sup>7</sup>**

1. *Tundahata*-stained by Saliva
2. *Vyalidha*-one or two bite marks & no bleeding
3. *Vyalupta*-one or two bite marks & bleeding
4. *Dashtaka*-three marks accompanied with tearing of muscles
5. *Dashtanipidita*-four biting marks

**Causes for Snakebite:** *Acharyas* have explained 8 reasons for *Sarpa Damsha*. They are *Bhaya*, *Krodha*, *Aaharartha*,

*Padasparsha*, *Ativishat*, *Vairadhya*, *Papakarma*, *Deva-rishi- yama kopa*<sup>8</sup>.

##### **Lakshana<sup>9,10</sup>**

***Darvikara Sarpa:*** *Shyavata Of Mukha, Netra, Nakha, Mutra, Purisha And Tvak, Shiro Gourava, Sheeta Jwara, Nidra Nasha, Vijrimba, Sandigdhatva Of Vak (Irrelevant Speech) , Acheshta, Lalasrava And Phenagama, Kantha Guruguraya, Shushka Udgara And Other Lakshna Of Vata*

***Mandali Sarpa:*** *Saushma, Shosha, Peeta lohita, Pruthu, visarpita, daha, ushna, kleda, kotha, vishiryatey, Peetata of mukha, danta etc, Trishna, Shrama, Bhrama, Daha, Murcha , Jwara, tiktaasyata , Urdwa & Adho marga raktha agama, Sheeta icha , Dhumako , Mada, Other Lakshna of Pitta .*

***Rajimantha Sarpa:*** Bite site –*Snigdha, Sthira, Pichila, Shopha, Raktha- Sandra, Shita & Pandu, Shiroyatha, Aruchi, Chardhi , Aalasya, Hrrillasa, Madhurasyata Kantey Ghuru- Ghuru, Kruchra- Uchvasa & Nishvasa, Nidra, Kasa, Panduta Of Nakha Etc, Angaguruta And Stamba , Srava from Nasa, Akshi, Mukha, Romaharsha, Shwasa, Tama, other Lakshna Of Kapha*

***Chikitsa:*** Snake bite can be treated on the basis of 3 treatment modalities like

1. *Satwavajaya*
2. *Daivavyapashraya*
3. *Yukthivyapashraya*

*Acharya Charaka* has mentioned “*Chatur-vimshati Upakramas*” (24 treatment modalities) in all cases of poisonings. Based on the probable purpose of the treatment, these *Upakramas* can be applied.

**Table 2- Chaturvimshati Upakramas<sup>12</sup>**

| Upakrama               | Eliminative therapy | Symptomatic therapy    | Counteracting measures | Pacifying measures  |
|------------------------|---------------------|------------------------|------------------------|---------------------|
| <i>ArishtaBandhana</i> | <i>RaktaMokshan</i> | <i>Hrudayavaranam</i>  | <i>Mantra</i>          | <i>Anjana</i>       |
| <i>Utkartanam</i>      | <i>Vamana</i>       | <i>SajnaSamsthapan</i> | <i>Aushadha</i>        | <i>Lepa</i>         |
| <i>Nishpeedanam</i>    | <i>Virechan</i>     | <i>MrutaSanjeevan</i>  | <i>Prativisha</i>      | <i>Dhuma</i>        |
| <i>Cushanam</i>        | <i>Nasyam</i>       |                        |                        | <i>Leham</i>        |
| <i>Agni</i>            |                     |                        |                        | <i>Upadhanam</i>    |
| <i>Parishekam</i>      |                     |                        |                        | <i>Pradhamanam</i>  |
| <i>Avagaham</i>        |                     |                        |                        | <i>Pratisaranam</i> |

**Mantra:** Mantra are considered as foremost and par excellence Upakrama among others, which nullifies the poison<sup>13</sup>. Charaka further say that, chanting Mantra is a specific rhythm that builds confidence in victim and helps in relieving anxiety. They stimulate sympathetic nervous system. Strengthen the peripheral blood vessels, which helps in maintaining the normal blood flow to the vital organs and it awakens the body's natural healing mechanisms<sup>14</sup>.

**Arishta Bhandana (Ligature):** Arishta means unfavorable/indication of death. Bandhana means to stop. When the intensity of the poison increases, it starts to combine with the blood and gets spread all over the body. Thus to prevent or stop the spreading of poison, the physician has to opt the bandhan. Material: *Plota* (cloth), *Charmanta*, *MruduValka* or any soft material. It should be tied 4 *Anguli* above the site of bite. Neither too tight nor too loose

**Utkartanam (Incision):** Poison does not advance after incision of bite like a tree after cutting its root i.e. spreading of poison can be stopped.

**Achushana(Sucking):**The physician should suck the poison filling his mouth before with *Mruth*, *Bhasma*, *Agada Or Gomaya*. This method should be adopted especially on fleshy part

**Nishpeedanam(Compression):** Expelling of the poison by squeezing the area of bite where the incision is not advisable. It is just like destroying of the seed before sprouting. It should not be done if bite is on vital part (*Mrutyu*) and joints (*Angavikala*).

**Avagaha(Immersion/dipping):** It means the affected part in a medicated *Kwatha/Taila*.

**Agni (Cauterisation):** It is Cauterising the site of bite with *Suvarna*, *Loha* etc and even burning faggot (wooden). It is mainly indicated in *Twak* and *Mamsagata Visha*. It is contraindicated in *Mandali Sarpa*.

**Rakthamokshna(Blood-letting):** It is done in case where bite site has become *Vivarna*, *Kathina*, *Shuna*, *And Ruja Yuktha*. If it has spread to distance area *Siravyadha* should be done. It is contraindicated in *Bala*, *Vridhha*, *Garbhini*.

**Selection of vein:** The Veins around the site of bite. In case of spread, veins at the end of *Shakha/* in *Lalata*. If vein are not available/visible due to *Shotha* than should go for *Shrunga / Jaluka*. And if blood does not come, *Pragharshana* should be done with *Churna* of *Trikatu*, *Gruhadhuma*, *Rajani*, *Panchalavana*, *Gorechana*, *Vartaka*.

**Features of Visha Raktha:** *Puti Gandha*, *Chata-Chata Shabdha* when put on fire.

**Parisheka (Sprinkling):** Should be done after *Rakthamokshana* with *Chandana* and *Ushira*.

**Vamana (Emesis):** During the first phase the ingested poison should be eliminated by emesis, which means if the poison is in the stomach emesis is indicated.

**Indication:** *Amashaya*, *Kapha Prakopa*, *Damsha* in *Hemantha Ritu* and if the bite is above the umbilical region. *Kapha Prakopa* due to *Hridayavarana* procedure accumulates *Kapha* in *Hridaya* causing *Gaurava*, *Praseka* and *Hrillsa*.

**Precaution:** Avoid using *Kanji*, *Kulatha*, *Taila*, *Madhya* etc so that *Kapha* does not spread to whole body.

**Virechana (Purgation):** It is done at the 2<sup>nd</sup> stage, when *Visha* moves to the *Pakvashaya*. **Indication:** *Koshta Daha* and *Ruja*, *Adhmana*, *Mutrasangha*, *Purishsangha*, *Mutrakruccha*, *Pitha Vikara*. If bite is below umbilical region. After *Virechana*, *Agadapana* should be done.

**Nasya (nasal medication):** It should be done when *Visha* move to *Shira Pradesha* with, *Mula Swarasa* of *Bhandujiva*, *Bha-rangi*, *Asita* And *Surasa*. Or with *Churna* of *Pippali*, *Hingu*, *Vrichikali*, *Manashila*, *Shirisha Bija*, *Apamarga*, *Lavana*, blown into the nose, restores consciousness.

**Indication:** *Shiro Gaurava-Vedana*, *Alasya*, *Hanusthambha*, *Galagraha*, *Manyasthmba*

**Hridayavarana (protection of heart):** Poison by its penetration property weakens the heart, so in order to protect it, the patient should be made to drink *Ghrita*, *Madhu*, *Majja*, *Dugdha*, *Shudha Gairika*, *Gomayarasa* and *Bhasma*, *Pakwaikshu Rasa*, *Kakanishpidya Rasa*, *Chaga Rakta* etc

**Sangyasamsthapan (Resuscitation):** This is a very important procedure which plays a vital role in regaining the conscious state of an unconscious person. It follows, in case of *Sangyanasha*, *Vivruthakshi*, *Griva Bhagnatikshna Pradhamana Nasya* should be done. *Siravyadha* in *shakha* and *lalata*. *Krutakakapada Vrana* on *shira pradesha* than keep *Charma/ Mamsa* or *Charma Vrikshakashaya/ Kalka Lepa* and also small drums (*Dundubhis*) smeared with *Agadalepa* should be sounded around patient is also followed. After regain of consciousness *Vamana-Virechana* should be done.

**Mrutasanjeevan (Revival):** This was originated by Lord Brahma before the origination of *Amruta*. *Sprikka*, *Plava*, *Sthouneya* etc. are taken in same quantity & in fine powder form to prepare pill named *Mritasanjivana agad*. *Mritsanjivana agad* is used in the form of *Nasya*, *Lepa*, *Dharana*, *Dhumagrahan* etc.

**Aushadha (Medication):** Using of different *aushadha* in different condition/complication.

**Prativisha (antidote):** It should be given after 5<sup>th</sup> *Vega* and before 7<sup>th</sup> *Vega* when *Mantra* and *Aushadha* fails to cure. It is administered after *Suryodaya*, and in *Hemanta* & *Pravruth Ritu* and in

*Grishma* only in case of emergency. It should not be administered in *Varsha Ritu* and *Durdina*. Should be given in the dose of 4-6-8 *Yava* in case of *Sarpavisha*.

**Anjana (collyrium):** *Devadaru, Shunti, Maricha, Pippali, Karavira Patra, Karanja, Nimba Pushpa, Tulsi, Ajamutra* is applied as collyrium which destroys the poison present in eyes.

**Indication:** *Shunakshi, Atinidra, Vivarna, Vilochana.*

**Lepa (paste):** *Sheeta lepa* should be done. It pacifies the poison like ceasing of the fire by sprinkling of water

**Indication:** *Mada, Murcha, Vishada, Hridrava.*

**Dhuma (Smoking):** Helps to clear off all blocked *Srotas* due to which there will be *Shwasavarodha. Tagara, Kushta, Ghrita, Sarpa Shirass, Shirisha Pushpa.* This alleviates all types of poison and edema and also check the entry of snakes in that place.

**Lehyam (Linctus):** It is generally used as *Anupana*. It is given as a Combination of *Madhu+ Ghrita*

**Upadhana karma (medication on incised scalp):** This procedure includes incision on scalp resembling *Kakapada* and 1 *Bilva* quantity of paste of *Charmakasha* or *Mamsa* of *Aja, Go, Mahisha, Kukkuta* is applied over incision, which absorbs the poison present in the body. **Pradhamana**

**(snuffing):** It is followed after *Upadhana Karma Pradhamana* should be done with *Katabi, Katuka and Katphala Churna*

**Pratisarana (Rubbing of agada churna):** Done with *Churna* of *Trikatu, Gruhadhuma, Haridra, Pancha Lavana, Brihati.*

[Yukthivyapashraya:](#)

The treatment modalities emphasized in *Ayurveda* have a great significance and are valuable particularly in the remote areas, where there is a lack of medical facilities. It has been specified by *Charaka* that “without entering in the blood stream, poison cannot damage the tissues”<sup>15</sup>. Similar concepts have been expressed by *Vagbhata*, who says that “poison cannot damage the tissues without entering into the blood. Even an atom of poison can spread all over the body along with blood and can damage the system”<sup>16</sup>. Considering these, priority has been given towards preventing the entry of poison in to the systemic circulation.

#### **DISCUSSION:**

*Visha Chikitsa* has been explained since *Vedas*. By knowing the importances of *Visha Chikitsa* for humans *Acharyas* have included this as one among *Ashtanga Ayurveda* i.e. Eight Folds of *Ayurveda*. Many medicines have been proved to have anti poisoning effect. These drugs can be given with various mode of administration like *Anjana* (collyrium), *Nasya* (Nasal drop), *Kakapada* (scalp incision) etc.

#### **CONCLUSION:**

There are various logistic, marketing and economic issues with the production and supply of ASV. The other drawbacks with ASV therapy are the adverse reactions ranging from early reactions (pruritus, urticaria) to potentially fatal anaphylaxis. Few cases may also develop serum sickness. When we compare both *Ayurveda* and Modern Medicine with respect to this aspect, we find that all these principles which are suggested by modern medicine are already described in *Ayurvedic Samhitas* before thousands of years. Modalities followed in *Ayurveda* are based on scientific approach, it's the time

need to apply see the realism of this treatment. This will definitely help to prove the *Ayurveda* in emergency services also. Training of treating physicians and knowledge of protocols to deal with Snakebite cases.

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## Prevalence of Anemia in Pregnant Women – An Observational Survey Study

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### Abstract:

*In today's era the lifestyle of people is changed drastically. People don't follow regular eating habits in day to day life. Due to this they become viable for various nutritional disorders. Anemia is one such condition. Anemia is a decrease in the total amount of red blood cells (RBCs) or hemoglobin in the blood or a lowered ability of the blood to carry oxygen. It is one of the most important health problems throughout the world. Nutritional anemia is one of India's major public health problems. The prevalence of anemia ranges from 33% to 89% among pregnant women and is more than 60% among adolescent girls. In Adolescence age there is more prevalence of Iron deficiency anemia. So purpose of selection of this topic was to know whether the pregnant women in age group above 18 years are Anemic. At the end of study it was found that 80 % pregnant women suffer from anemia. Prevalence of anemia in pregnant women was more in 2<sup>nd</sup> and 3<sup>rd</sup> trimester of pregnancy. So proper regular screening, guidance and treatment should be given to the pregnant women.*

**Key Words:** Anemia, Pregnant Women.

### Introduction:

**P**regnancy is a physiological condition in a woman's life. It is a natural phenomenon hence does not require any treatment. Treatment is done only if there is any pathological condition or disease. In today's era the lifestyle of people is changed drastically. People don't follow regular eating habits in day to day life. Due to this they become viable for various nutritional disorders. Anemia is one such condition. Anemia is a decrease in the total amount of red blood cells (RBCs) or hemoglobin in the blood or a lowered ability of the blood to carry oxygen<sup>1</sup>. It is one of the most important health problems throughout the world. It is defined as reduced hemoglobin concentration in blood below the normal range for the age & sex of the individual<sup>2</sup>. Nutritional anemia is one of India's major public health problems. The prevalence of anemia ranges from 33% to 89% among pregnant women and is more than 60% among adolescent girls. The World Health Organization (WHO) defines adolescence as the period of life between 11 to 19 years<sup>3</sup>. These are most formative years in terms of Physical, intellectual, emotional, psychological, behavioral development. In

Adolescence age there is more prevalence of Iron deficiency anemia.

### Purpose of Selection of this Topic:

Anemia in pregnancy is a global health problem. Various risk groups are prone to anemia and it leads to long term consequences. Among that pregnant women are more vulnerable and neglected as far as their nutrition and health are concerned. So the purpose of selection of this topic was to know whether the pregnant women of age above 18 years are Anemic. So that proper guidance and treatment can be given to the affected participants.

### Aim And Objectives:

1. Estimate prevalence of anemia in pregnant women.
2. Estimate prevalence of anemia according to the trimester of pregnancy.

### Review of Literature:

Anemia is defined as reduced hemoglobin concentration in blood below the normal range for the age & sex of the individual<sup>2</sup>. Pathophysiology of Anemia is as follows Hemoglobin count decreases; it decreases the oxygen carrying capacity of the blood. This initiates compensatory physiological adaptations

i.e. increased release of oxygen from Hemoglobin, Increased blood flow to the tissue, Maintenance of blood volume and Redistribution of blood flow to maintain cerebral blood supply. Symptoms are Tiredness, weakness, shortness of breath, Easy fatigability, generalized muscular weakness, Lethargy and Headache.

**Tests used for determine Anemia:**

- Hb count
- RBC count
- Hematocrit (PCV)
- Absolute value (MCV, MCH, MCHC).

Various tests are performed for various types of anemia:

- Iron deficiency anemia – MCV, MCH, MCHC are decreased.
- Thalassemia – MCV, MCH, MCHC are decreased
- Anemia due to acute blood loss & hemolytic anemia – MCV, MCH, MCHC within normal limits.
- Megaloblastic anemia – MCV increased above normal range.<sup>2</sup>

**Material And Methods:**

**Inclusion Criteria**

1. Age from 18 years
2. Pregnant Women.

**Exclusion Criteria**

1. Age below 18 years.

**Study Design – An observational study**

This is an observational study to determine the prevalence of Anemia in pregnant women. Complete blood count, blood test investigation was performed of all the participants to determine the hemoglobin values. According to the hemoglobin values they were categorized as Healthy, Mild Anemic, Moderate Anemic and Severe Anemic.

According to the hemoglobin values, data was collected percentage calculation was done with reference to the values and this information is presented in the form of tables and Figures.

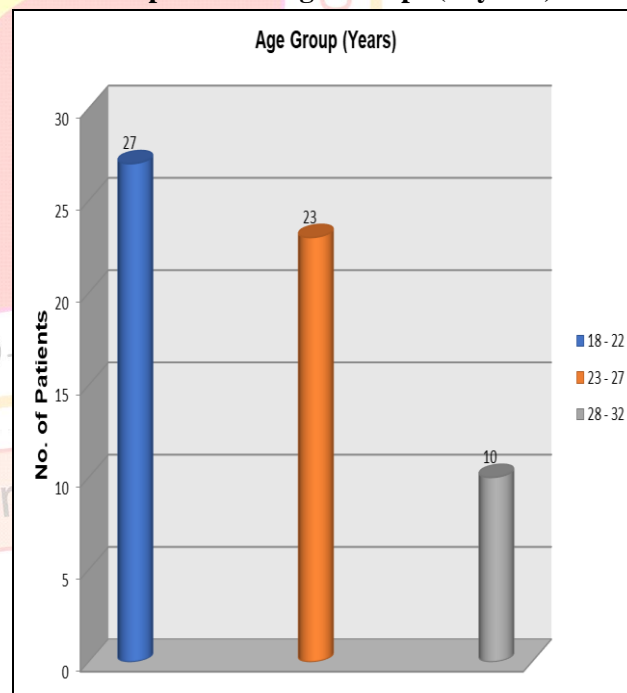
**Observations And Result**

**Table no. 1 – Age groups (in years) wise distribution**

| Age Groups (in years) | No. of Pregnant Women | Percentage   |
|-----------------------|-----------------------|--------------|
| 18 – 22               | 27                    | 45.00%       |
| 23 – 27               | 23                    | 38.33%       |
| 28 – 32               | 10                    | 16.67%       |
| <b>Total</b>          | <b>60</b>             | <b>100 %</b> |

The above table shows that - majority of the pregnant women i.e. **45 %** were observed of age group 18 – 22 years, followed by **38.33 %** pregnant women were of age group 23 – 27 years, and **10 %** pregnant women were of age group 28 – 32 years.

**Graph no. 1 – Age Groups (in years)**



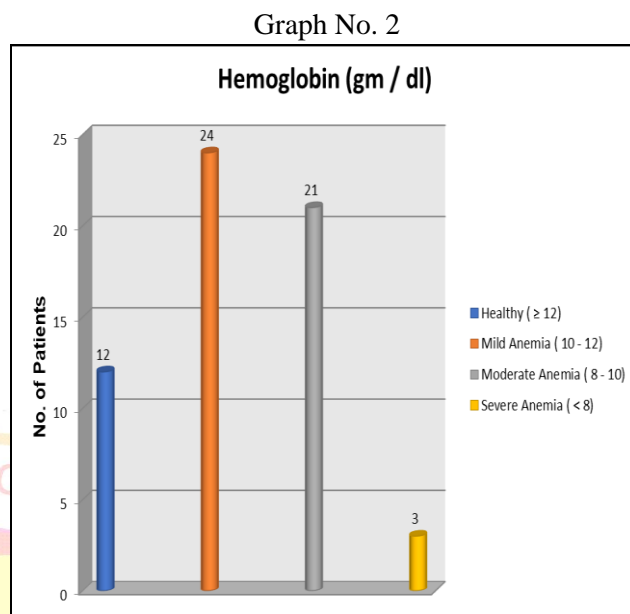
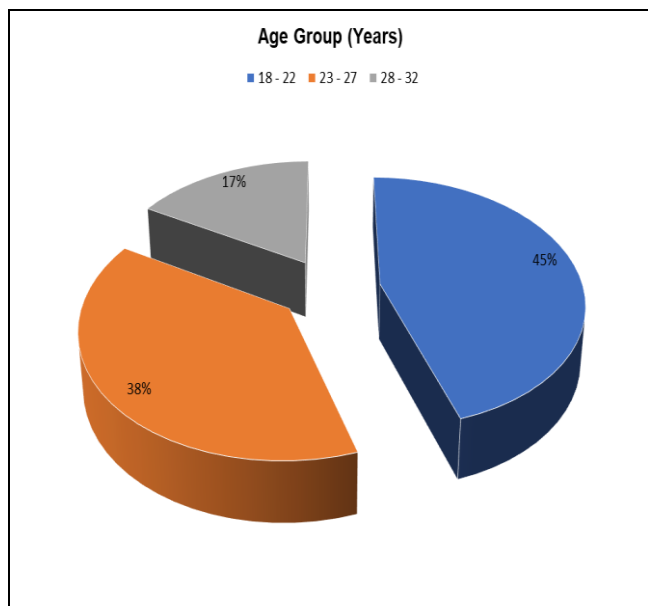


Table no. 2 – Hemoglobin percentage (gm / dl) wise distribution

| Hemoglobin (gm/dl)       | No. of Pregnant Women | Percentage   |
|--------------------------|-----------------------|--------------|
| Healthy (≥ 12)           | 12                    | 20.00%       |
| Mild Anemia (10 – 12)    | 24                    | 40.00%       |
| Moderate Anemia (8 – 10) | 21                    | 35.00%       |
| Severe Anemia (< 8)      | 03                    | 05.00%       |
| <b>Total</b>             | <b>60</b>             | <b>100 %</b> |

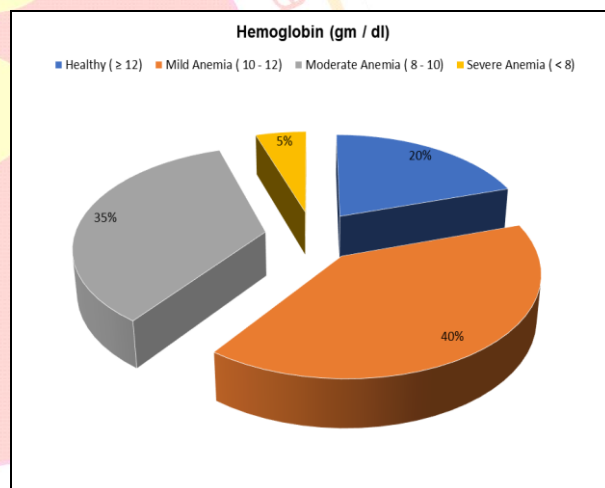


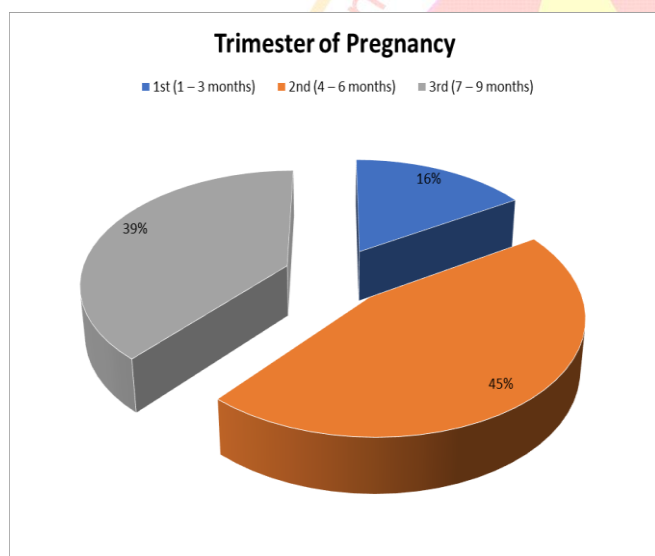
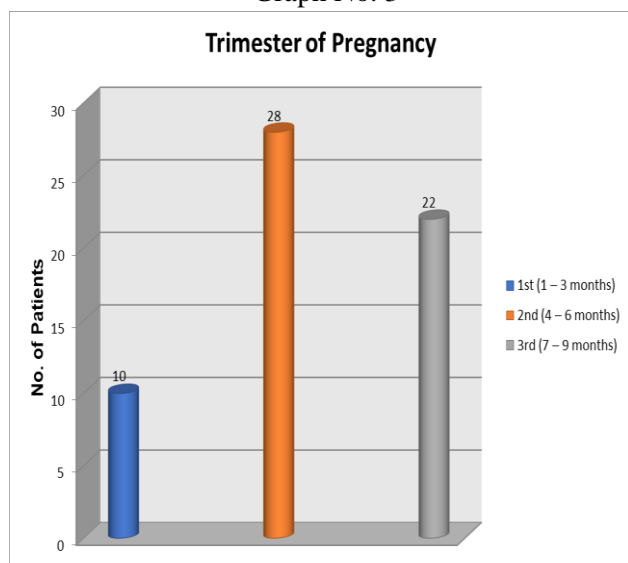
Table no. 3 – Trimester of Pregnancy wise distribution

| Trimester of Pregnancy         | No. of Pregnant Women | Percentage   |
|--------------------------------|-----------------------|--------------|
| 1 <sup>st</sup> (1 – 3 months) | 10                    | 16.67%       |
| 2 <sup>nd</sup> (4 – 6 months) | 28                    | 46.67%       |
| 3 <sup>rd</sup> (7 – 9 months) | 22                    | 36.67%       |
| <b>Total</b>                   | <b>60</b>             | <b>100 %</b> |

The above table shows that - majority of the pregnant women i.e. **40 %** were observed with hemoglobin levels in Mild Anemia (10 – 12) range, followed by **35 %** pregnant women were observed with hemoglobin levels in Moderate Anemia (8 – 10) range, **20 %** pregnant women were observed with hemoglobin levels in Healthy (≥ 12), and **5 %** pregnant women were observed with hemoglobin levels Severe Anemia (< 8).

The above table shows that – majority of the pregnant women i.e. **46.67 %** were in 2<sup>nd</sup> trimester (4 – 6 months) of pregnancy, followed by **36.67 %** pregnant women were in 3<sup>rd</sup> trimester (7 – 9 months) of pregnancy, **16.67 %** pregnant women were in 1<sup>st</sup> trimester (1 – 3 months) of pregnancy.

Graph No. 3



**Discussion:**

Anemia is a global health problem. It has various effects on health of an individual. It results in stunted growth, reduced attention, memory loss, poor performance, reduced immunity and increased infection rate. Delay in onset of Menarche and menstrual irregularities. Normal values of hemoglobin are above 14 gm/dl in males & above 12 gm/dl in females. Hemoglobin values between 12 – 14 gm/dl is considered as mild anemia, between 10 – 12 gm/dl is considered as moderate anemia and below 10 gm/dl is considered as severe anemia in males. Hemoglobin values between 10 – 12 gm/dl is considered as mild anemia, between 8 – 10 gm/dl is considered as moderate anemia and below 8 gm/dl is

considered as severe anemia in females. Signs of anemia are as follows -

- Pallor – seen in mucous membrane of conjunctiva & skin.
- Cardiovascular system – tachycardia, cardiomegaly, dyspnea on exertion, congestive heart failure.
- Central nervous system – faintness, giddiness, headache, drowsiness, tingling sensation of hands & feet.
- Reproductive system – Amenorrhea, Menorrhagia.
- Urinary system – mild proteinuria.
- Gastrointestinal system – anorexia, flatulence, nausea, constipation, weight loss.
- Retinal hemorrhage.

Pathological causes of anemia are

- Due to blood loss – Acute post hemorrhagic anemia.
- Impaired RBCs formation – Cytoplasmic malnutrition – Iron deficiency due to haem synthesis & Thalassemia due deficient globin synthesis. Malnutrition defect – Megaloblastic anemia due to Vitamin B12 deficiency & folic acid deficiency.
- Morphological – Microcytic hypochromic, Normocytic normochromic & Macrocytic.<sup>4</sup>

**Conclusion:**

The purpose of selection of this topic was to know whether the pregnant women in age above 18 years are healthy and don't suffer from Anemia. Blood of 60 pregnant women was tested by conducting complete blood count investigation and hemoglobin values were noted. It was found that 48 out of 60 pregnant women were found anemic i.e. **80 %** pregnant women were Anemic. 24 out of 60 pregnant women were found to be Mild anemic. i.e. **40%**, 21 out of 60 pregnant women were found to be Moderate anemic. i.e. **35%**, 3 out of 60 pregnant women were found to be Severe anemic. i.e. **5%**, and only 12 out of 60 pregnant women were Healthy. Anemia in adolescence age can be prevented by proper education & guidance. Anemic persons must be encouraged to take iron rich diet, continuous screening of women who are at risk of Iron

deficiency anemia – heavy menstrual bleeding, worm infestation, low iron diet should be screened for anemia annually & appropriate treatment regimen can be started for its correction.

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**“Concept of Vatarakta – An Article Review”**

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**ABSTRACT:**

Health is a condition of full physical, mental, and social well-being in addition to not having any disease or infirmity. Only one's diet and way of living have an impact on their health. A chronic disease typically develops as a result of a disordered metabolism brought on by unwholesome food practises and lifestyle decisions. Shodhana, Shamana, and Pathya-Apathya measurements are several studies on the therapeutic procedures of Ayurveda for Vatarakta.

**Keywords – Vatarakta, Shodhana, Shamana, Pathya-Apathya**

## **INTRODUCTION:**

In order to comprehend the Vatarakta diet, lifestyle changes, and therapy modalities, researcher conducted study on the subject by reading two publications.

People are now more vulnerable to a wide range of diseases as a result of their poor eating habits and altered lifestyles. These problems may lead to functional impairment or crippling conditions like Vatarakta. Gouty arthritis, also known as vatarakta, is a chronic illness where the metabolism is thrown off by following unwholesome dietary and lifestyle habits. The concept of Pathya (wholesome) and Apathya (unwholesome) was developed by Acharyas to incorporate it in their methods for treating ailments in addition to their recommendations for leading a healthy lifestyle.<sup>(1)</sup>

Ayurveda suggests a number of methods for treating this ailment, including massage therapy, Basti, and Raktamokshana. Additionally, ayurvedic medicines including Chandraprabhavati, Gudaharitaki, Pippali, Vataraktantaka Rasa, Vishweshwara Rasa, and Sarweshwara Rasa are used to treat vatarakta.<sup>(2)</sup>

## **Review of Literature –**

1. Ahamad F, Gupta R, Ahirwar H, Graduate Scholar P, Professor A. A Review on Vatarakta with special reference to Pathya-Apathya in Vatarakta. Explains healthy and unhealthy foods, as well as the Vatarakta referenced Pathya-Apathya and its uses for therapeutic purposes. Acharyas created the idea of Pathya (wholesome) and Apathya (unwholesome) to apply it to both their prescriptions for living a healthy lifestyle and their ways for curing illnesses.

## **‘SHORT COMMUNICATION: CONCEPT OF VATARAKTA – AN ARTICLE REVIEW’**

2. Gupta A, Sharma S. Concept of Gouty Arthritis (Vatarakta) in Ayurveda. Journal of Health Sciences Journal. Explains the causes, symptoms, types of Vatarakta, diagnosis, and treatment, including Shodhana and Shamana therapies. Massage therapy, Basti, and Raktamokshana are just a few of the treatments recommended by Ayurveda for this illness. Additionally, ayurvedic medications including Chandraprabhavati, Gudaharitaki, Pippali, Vataraktantaka Rasa, Vishweshwara Rasa, and Sarweshwara Rasa are used to treat vatarakta.

### **AUTHOR’S CONTRIBUTION –**

The Author has brief extended Acharyas idea of Pathya (wholesome) and Apathya (unwholesome) as a part of the treatment of ailments in addition to being a part of a regime of healthy living. Patients must adhere to the healthy eating pattern known as Pathya because it is imperative that they consume food that will preserve their Dhatu in a healthy state and prevent them from becoming further vitiated by Doshas.

The second author has provided an explanation of the therapeutic methods according to contemporary medicine, Ayurveda, Pathya, and Apathya, as well as how they can be beneficial if we have a better understanding of them.

### **CONCLUSION -**

Both studies, in my opinion, have provided a broad perspective on treatment techniques and a clear explanation of the idea. I'm reading these publications to look for any therapy approaches, both with and without intervention, that can help us comprehend how deeply our Acharyas have considered the specific conditions.



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# Prospective clinical study to evaluate efficacy of *Vasantkusumakar Rasa* (Herbomineral preparation) on Psychological health of patients of *Madhumeha* (Diabetes Mellitus)

## Research Article

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## Abstract

Diabetes Mellitus although a modern terminology it has been known to mankind since long through ancient *Ayurvedic* treatises with name *Prameha* (Diabetes). As the incidence & prevalence of DM with complications along with its ill effects on psychological health is growing rapid. Due to Consistent stress blood sugar control becomes difficult. So, to search a drug which may improve psychological health is need of an hour. *Vasantkusumakar Rasa* is one of such drugs mentioned in *Ayurveda* compendia as treatment protocol of *Prameha* (Diabetes) also the one which is reputed for its rejuvenating property. This Herbomineral composition is also known to improve psychological health. Its efficacy to improve psychological state in patients of DM i.e. *Madhumeha* (DM) is evaluated in this study. Herbomineral compound i.e. *Vasantkusumakar Ras* 125mg two times a day with Luke warm water before meal for one month to 37 patients in experimental group as a add on therapy in continuation to their standard medicines. In control group 31 patients were continued their regular standard protocol medicines for DM. To study the effect of drug following parameters were analyzed on 0th day and on 30<sup>th</sup> day of study. Parameters included for study are Blood sugar level, Symptoms of *Madhumeha* (DM), *Manas Bhav* (Psychological traits) and psychiatric rating scale. These parameters show significant improvement in experimental group but no such effect was found in Control group.

**Key Words:** *Madhumeha*, Diabetes Mellitus, *Vasantkusumakar Ras*, *Manas Bhava*, Brief Psychiatric Rating Scale, Stress.

## Introduction

Diabetes is known to mankind since long. It is described in brief in *Vedas*. It is counted among the five major diseases responsible for morbidity and mortality. In US alone every one in four patients attending the physician are of Diabetes Mellitus. Diabetes Mellitus is responsible for I.H.D., E.S.R.D., and non traumatic amputation of limbs.(1)

At least 171 million people worldwide have diabetes; this figure is likely to be more than double by 2030. Around 3.2 million deaths every year are attributable to complications of diabetes; six deaths every minute. The top 10 countries, in numbers of sufferers, are India, China, USA, Indonesia, Japan, Pakistan, Russia, Brazil, Italy and Bangladesh. The disease has varied wide aspect of its origin, progression

and development. Today's knowledge about the disease has increased to a great extent but it is not even the half way of total understanding. It is so because it has multi factor involvement and hence more work has to be done in the details of the diseases and the treatment.(2)

People with diabetes are 2 to 3 times more likely to have depression than people without diabetes. Only 25% to 50% of people with diabetes who have depression get diagnosed and treated. But treatment—therapy, medicine, or both—is usually very effective. And without treatment, depression often gets worse, not better.(3)

When you have type 2 Diabetes, stress may make your blood sugar go up and become more difficult to control – and you may need to take higher doses of your diabetes medications or insulin.(4)

In *Charak Prameha Nidan*(5) & *Chikitsa* and *Sushruta Prameha Nidan*(6), *krodha* (anger) is among one of the etiological factors in *Paittika Prameha* and *Shoka* (grief), *Bhaya* (fear), *Udvega* (anxiety) and *Chinta* (worry) for the *Vatika Prameha* (*Madhumeha* is among *Vatika Prameha*), which leads to derailment of glucose metabolism. According to *Sushruta Ajiranadhikar*(7) and *Charak Trividhakushiya Viman* (8), disturbed state of psyche (*Manas*- Mind) is not able

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to digest the food even if taken in normal quantity and leads to formation of *Ama* (Toxins or Free Radicals). The above description is related with the gastric digestion, but it is said that the *Jathargni* (Digestion power) only nourishes the *Dhatvagni* and *Bhootagni*. So, the disturbed psychological state also disturbs the *Dhatvagni* and *Bhootagni*. In anxiety and stress prone individuals the pathology starts from the vitiation of *Agni* (Digestive fire) leading to *Amotpatti* and that *Ama* when settles in *Basti* (Urinary Bladder) leads to *Prameha* as mentioned in chapter *Grahani Roga*(9).

While managing the disease following factors are needed to be taken into consideration: Psychological state of the patient, *Dhatu agni*, *Ojo dushti*. According to *Ayurveda* a drug must be one that can effect on all the factors of the disease. In this study formulation named as *Vasantkusumakar Ras* described in *Yogratanakara-Prameha Chkitsadhyaya* is selected. This herbomineral preparation is known to improve mental health by relaxing and nourishing the nervous system.(10)

The present study has been undertaken with the objectives to evaluate the efficacy of *Vasantkusumakar Ras* on psychological health in diabetes mellitus.

#### Aims and Objectives

- To assess the effect of *Vasantkusumakar Ras* on psychological health in DM.
- To assess the effect of *Vasantkusumakar Ras* on Blood sugar level in DM.

#### Materials and Methods

A detailed Case record form is prepared to note down all the details about disease and the patient. The patients suffering from salient feature of diabetes mellitus inclusive impaired glucose tolerance and established cases of diabetes mellitus are selected approaching to OPD.

**Study Design:** - Prospective clinical randomized control study.

**Sample size:** It has been observed not all patients suffering from DM have got Psychological effect. So total 68 Patients were randomly selected suffering from DM and with Psychological impact. The study was carried out and reported adhering to CONSORT statement.

#### Inclusion Criteria

- Patients of uncontrolled DM (Blood sugar level Fasting or PP or both below 250 mg/dl) with psychological symptoms like Depression, Stress, Anxiety etc.
- Patients suffering from DM for more than 5 years and on OHA.
- Age of Individual above 40 years of both Sex (Male or female)

#### Exclusion Criteria

- Patient complicated with any cardiac problem.
- Patients with diabetic nephropathy.

#### Data Collection

All the patients were selected randomly and distributed in two groups. Patients with uncontrolled diabetes mellitus were not stopped from whatever drugs (oral hypoglycemic) they were taking,

- Group I: The patients are given Tab. *Vasantkusumakar Ras* 125mg two times a day with Luke warm water before meal for one month.
- Group II: Control Group Patients are managed by giving placebo tablets 1BD with luke warm water for one month.

#### Blinding

Patients from both groups were masked (single blind technique) for the identity of anti diabetic trial ayurvedic medicine or placebo which so ever they were receiving.

#### Study Parameters

- Blood sugar level Fasting and Post Prandial
- *Manas Bhava* (Psychological Traits as per *Charak Samhita*) - Gradation of *Manasa pariksha bhavas*: In *Charaka Samhita*, 22 *Manasika Bhavas* and their methods of examination are mentioned.(11) Here, in this study an attempt is made to provide the objectivity by scoring each *Bhavas* (trait). The role of psychological factors affecting the disease is assessed on the basis of abovementioned *Ayurvedic* description and brief psychiatry rating scale.(12)
- Examination of Mental health by Brief Psychiatry rating scale.
- General symptoms of *Madhumeha* (DM) as per *Ayurveda*. - *Prabhuta Mutrata* (Polyuria), *Avil Mutrata* (Turbid Urine), *Trushyadhikya* (Polydypsia), *Galatalushosa* (dryness of mouth), *Prabhuta Kshudha* (polyphagia), *Shithilangata* (Fatigue), *Angagandha* (bad odour), *Kara-pad Daha* (burning sensation in hand and leg) *Kara-pad Suptata* (tingling/ numbness in hand and leg), *Madhurasya* (sweetness in mouth) (13)

After recruiting a patient a detailed case record form is filled up on 0 day and on 30<sup>th</sup> day i.e. before and after completion of treatment. Data was collected and processed using appropriate statistical methods.

#### Contents of Herbomineral preparation - *Vasantkusumakar Rasa*

The drug described in *Yog Ratnakara- Prameha Chkitsadhyaya* containing *Swarna Bhasma* Gold 2 parts, *Rajat Bhasma*. Silver 2 parts, *Vang Bhasma*. Tin 3 parts, *Nag Bhasma* Lead 3 parts, *Kantak* (*Kanta Loha*) *Bhasma*. Iron 3 parts, *Abhrak Bhasma* Mica 4 parts, *Praval* (*Bhasma*) Coral 4 parts, *Mauktik* (*Bhasma*) Pearl 4 parts, *Godugdha milk* Cow milk Q.S. (for *Bhavana*), *Ikshu ras* (Sugarcane juice)/juice Stem *Saccharum officinarum* L. Q.S. (for *Bhavana*), *Vasa rasa* (juice Leaf *Adhatoda vasica* Nees. Q.S.), *Laksha rasa* (juice exudate *Laccifer lacca* Q.S.), *Udicya* (*Sugandha balaka rasa* juice Root *Andropogon vetiveria* L. Q.S.), *Rambha kanda* (*kadali kanda rasa* Stem *Musa paradisiacal* Q.S.), *Sata Patra prasunaka rasa* (*Gulab pushpa svarasa*) - (Flower ext *Nelumbium speciosum* Willd. Q.S.),

*Malatikusumodaka* Flower (*Jasminum grandiflorum* L.), *Mrigamada* (*Kasturi* Exudate Musk) prepared in tablet form of 125 mg each.(14)

### Assessment of Safety

Safety was assessed by clinical review of all safety parameters, including the adverse event reporting, as applicable, Vital signs including allergic reactions etc., All Adverse Events data were listed per subject including severity grading, relationship with investigational product and relationship of the adverse event to other causality, action taken and outcome of the adverse event. Any clinically significant changes in laboratory parameters were reported.

### Statistical Analysis

Patients data collected as per case record form before and after completion of study. Symptoms of *Madhumeha* (Diabetes Mellitus) & *Manas Bhava* as per Ayurvedic texts are considered as subjective parameters to assess the effect of treatment. Effect of treatment on Symptoms of *Madhumeha* (Diabetes Mellitus) & *Manas Bhavas* are graded on four points scale. 0- Absent Score, 1-Mild, 2- Moderate & 3- Severe. The Brief Psychiatric Rating Scale (BPRS) is a rating scale which a clinician or researcher may use to measure psychiatric symptoms such as depression, anxiety, hallucinations and unusual behaviour. The scale is one of the oldest, most widely used scales to measure

psychotic symptoms and was first published in 1962. The BPRS consists of 18 items measuring the following factors: anxiety, emotional withdrawal, conceptual disorganization, guilt feelings, tension, mannerisms and posturing, grandiosity, depressive moods, hostility, suspiciousness, hallucinatory behavior, motor hyperactivity, uncooperativeness, unusual thought content, blunted affect, somatic concern, excitement, and disorientation. It uses a seven-item Likert scale with the following values: 1 = not present, 2 = very mild, 3 = mild, 4 = moderate, 5 = moderately severe, 6 = severe, 7 = extremely severe. The test is administered in tandem with a series of interviews conducted by at least two clinicians to ensure inter rater reliability of the assessment.(15) Data collected from subjective parameters is analyzed with paired t test to draw results.

### Observations and Results

Total 68 patients registered in two groups, out of them 52 patients completed the course and 16 patients left against medical advice.

Demographic details - There was a total of 33 (63%) male patients and 19 (37%) female patients in the study. The average age of 52 patients in the study was  $51.47 \pm 8.04$ . Maximum number of patients (43.33%) were in the age group of 50 to 60 years followed by (26.66%) between the age group of 40-50 years.

**Table 1: Number of Patients registered in trial**

| Group      | Group I | Group II | Total |
|------------|---------|----------|-------|
| Completed  | 30      | 22       | 52    |
| LAMA       | 7       | 9        | 16    |
| Registered | 37      | 31       | 68    |

**Table 2: Effect of Treatment on Symptoms of *Madhumeha* (DM) (Group I)(16)**

| Sr. No. | Symptoms   | BT   | AT   | % Relief | SD    | SE    | t     | P      |
|---------|--|------|------|----------|-------|-------|-------|--------|
| 1       | <i>Prabhuta Mutrata</i> (Polyuria)                         | 2.27 | 1.18 | 48%      | 0.701 | 0.211 | 5.169 | <0.001 |
| 2       | <i>Avil Mutrata</i> (Turbid Urine)                         | 0.54 | 0.27 | 50.01%   | 0.467 | 0.141 | 1.938 | <0.1   |
| 3       | <i>Trushyadhikya</i> (Polydypsia)                          | 1.45 | 0.45 | 68.75%   | 0.633 | 0.169 | 5.249 | <0.001 |
| 4       | <i>Gatalushosa</i> (dryness of mouth)                      | 1.27 | 0.54 | 57.14%   | 0.786 | 0.237 | 3.071 | <0.05  |
| 5       | <i>Prabhuta Kshudha</i> (polyphagia)                       | 0.54 | 0.27 | 50.01%   | 0.467 | 0.141 | 1.938 | <0.1   |
| 6       | <i>Shithilangata</i> (Fatigue)                             | 1.45 | 0.90 | 37.50%   | 0.522 | 0.157 | 0.288 | NS     |
| 7       | <i>Angagandha</i> (bad odour)                              | 0.18 | 0.09 | 50%      | 0.302 | 0.091 | 1.000 | NS     |
| 8       | <i>Karpad Daha</i> (burning sensation in hand and leg)     | 0.63 | 0.09 | 85.72    | 0.688 | 0.207 | 2.635 | <0.05  |
| 9       | <i>Karpad Suptata</i> (tingling/ numbness in hand and leg) | 0.72 | 0.27 | 62.51    | 0.688 | 0.207 | 2.194 | <0.1   |
| 10      | <i>Madhurasyata</i> (sweetness in mouth)                   | 0.27 | 0.09 | 66.67%   | 0.405 | 0.122 | 1.490 | <0.1   |

In Group I patients, at 5 % level of significance and degrees of freedom 29, significant result was observed from the treatment group, in most of Symptoms of *Madhumeha* (DM) relative to the Control Group.

**Table 3: Effect of Treatment on Symptoms of Madhumeha (DM) (Group II)(17)**

| Sr. No. | Symptoms  | BT   | AT   | % Relief | SD    | SE    | t     | P     |
|---------|---|------|------|----------|-------|-------|-------|-------|
| 1       | Prabhuta Mutrata (Polyuria)                         | 1.37 | 0.5  | 63.64%   | 0.640 | 0.227 | 3.776 | <0.01 |
| 2       | Avil Mutrata (Turbid)                               | 0.12 | 0.12 | 0.0%     | 0     | -     | -     | -     |
| 3       | Trushyadhikya                                       | 1.5  | 1    | 33.33%   | 0.534 | 0.189 | 2.261 | <0.05 |
| 4       | Galtalushosa (dryness of mouth)                     | 1    | 0.37 | 62.50%   | 0.517 | 0.183 | 3.105 | <0.01 |
| 5       | Prabhuta Kshudha (polyphagia)                       | 0.75 | 0.5  | 33.33%   | 0.462 | 0.164 | 1.524 | NS    |
| 6       | Shithilangata (Fatigue)                             | 0.75 | 0.25 | 66.67%   | 0.755 | 2.680 | 0.185 | NS    |
| 7       | Angagandha (bad odour)                              | 0    | 0    | -        | -     | -     | -     | -     |
| 8       | Karpad Daha (burning sensation in hand and leg)     | 1.25 | 0.5  | 60.00%   | 0.885 | 0.314 | 2.388 | <0.05 |
| 9       | Karpad Suptata (tingling/ numbness in hand and leg) | 1    | 0.5  | 50.00%   | 0.534 | 0.189 | 2.645 | <0.05 |
| 10      | Madhurasyata (sweetness in mouth)                   | 0    | 0    | -        | -     | -     | -     | -     |

In control group patients, at 5 % level of significance and degrees of freedom 21, results are not that significant in Symptoms as patients were receiving Placebo treatment.

**Table 4: Effect of Treatment on Manas Bhavas (Group I)(18)**

| Sr. No. | Symptoms             | BT   | AT   | % Relief | SD   | SE   | t    | P       |
|---------|----------------------|------|------|----------|------|------|------|---------|
| 1       | Mana (Prestige)      | 0.82 | 0.55 | 32.93%   | 0.47 | 0.14 | 1.94 | <0.1    |
| 2       | Raga (Hatred)        | 1.45 | 0.91 | 37.24%   | 0.52 | 0.16 | 3.47 | <0.01   |
| 3       | Krodha (Anger)       | 1.73 | 1.09 | 36.99%   | 0.5  | 0.15 | 4.19 | <0.01   |
| 4       | Dwesh (Hate)         | 0.82 | 0.55 | 32.93%   | 0.47 | 0.14 | 1.94 | <0.1    |
| 5       | Moha (Temptation)    | 0.45 | 0.09 | 80.00%   | 0.5  | 0.15 | 2.39 | <0.05   |
| 6       | Shoka (Sorrow)       | 1.18 | 0.55 | 53.39%   | 0.92 | 0.28 | 2.29 | <0.05   |
| 7       | Upadha (Fame)        | 1.55 | 0.91 | 41.29%   | 0.67 | 0.2  | 3.13 | <0.05   |
| 8       | Chinta (Tensions)    | 1.73 | 0.91 | 47.40%   | 0.4  | 0.12 | 6.72 | <0.001  |
| 9       | Vishad (Sorrow)      | 0.73 | 0.27 | 63.01%   | 0.52 | 0.16 | 2.89 | <0.05   |
| 10      | Bhaya (Fear)         | 0.27 | 0    | 100.00%  | 9.65 | 2.91 | 1    | NS      |
| 11      | Harsha (Excitement)  | 0.73 | 1    | 36.99%   | 0.47 | 0.14 | 1.94 | <0.1    |
| 12      | Preeti (Love)        | 0.45 | 0.64 | 42.22%   | 0.4  | 0.12 | 1.49 | NS      |
| 13      | Dhairya (Daring)     | 0.27 | 0.91 | 237.04%  | 0.5  | 0.15 | 4.19 | <0.01   |
| 14      | Veerya (Brave)       | 0.27 | 0.73 | 170.37%  | 0.5  | 0.15 | 2.39 | <0.5 NS |
| 15      | Avasthan (Mind set)  | 1.82 | 2.45 | 34.62%   | 0.81 | 0.24 | 2.61 | <0.5 NS |
| 16      | Shraddha (Belief)    | 0.73 | 1.09 | 49.32%   | 0.5  | 0.15 | 2.39 | <0.5 NS |
| 17      | Medha (Intelligence) | 1    | 1.36 | 36.00%   | 0.5  | 0.15 | 2.39 | <0.5 NS |
| 18      | Dhruti (Fortitude)   | 0.91 | 1    | 9.89%    | 0.54 | 0.16 | 0.56 | NS      |

In Group I patients, at 5 % level of significance and degrees of freedom 29, some significant results are observed from the treatment in most of Negative Manas Bhava & results are not significant in positive Manas Bhava.

**Table 5: Effect of Treatment on Manas Bhavas (Group II)(19)**

| Sr. No. | Symptoms          | BT   | AT   | % Relief | SD   | SE   | t    | P      |
|---------|-------------------|------|------|----------|------|------|------|--------|
| 1       | Mana (Prestige)   | 0.50 | 0.38 | 24.00%   | 0.35 | 0.13 | 1.00 | NS     |
| 2       | Raga (Hatred)     | 0.50 | 0.13 | 74.00%   | 0.52 | 0.18 | 2.04 | <0.1   |
| 3       | Krodha (Anger)    | 1.25 | 0.75 | 40.00%   | 0.53 | 0.19 | 2.64 | <0.05  |
| 4       | Dwesh (Hate)      | 1.50 | 0.75 | 50.00%   | 0.71 | 0.25 | 2.07 | <0.1   |
| 5       | Moha (Temptation) | 0.88 | 0.75 | 14.77%   | 0.35 | 0.13 | 1.00 | NS     |
| 6       | Shoka (Sorrow)    | 0.63 | 0.13 | 79.37%   | 0.76 | 0.27 | 0.80 | NS     |
| 7       | Upadha (Fame)     | 1.38 | 0.63 | 54.35%   | 0.71 | 0.25 | 2.99 | <0.05  |
| 8       | Chinta (Tensions) | 1.25 | 0.63 | 49.60%   | 0.52 | 0.18 | 3.41 | <0.01  |
| 9       | Vishad (Sorrow)   | 1.63 | 0.50 | 69.33%   | 0.35 | 0.13 | 8.97 | <0.001 |
| 10      | Bhaya (Fear)      | 1.13 | 0.63 | 44.25%   | 0.53 | 0.19 | 2.64 | <0.5   |

|    |                      |      |      |         |      |      |       |      |
|----|----------------------|------|------|---------|------|------|-------|------|
| 11 | Harsha (Excitement)  | 0.75 | 1.13 | 50.67%  | 0.52 | 0.18 | -2.04 | <0.5 |
| 12 | Preeti (Love)        | 0.63 | 0.75 | 19.05%  | 0.35 | 0.13 | -1.00 | <0.5 |
| 13 | Dhairya (Daring)     | 0.63 | 1.13 | 79.37%  | 0.53 | 0.19 | -2.64 | <0.5 |
| 14 | Veerya (Brave)       | 0.25 | 0.75 | 200.00% | 0.76 | 0.27 | -1.87 | NS   |
| 15 | Avasthan (Mind set)  | 2.25 | 2.38 | 5.78%   | 0.35 | 0.13 | -1.00 | <0.1 |
| 16 | Shraddha (Belief)    | 1.00 | 1.38 | 38.00%  | 0.74 | 0.26 | -1.42 | NS   |
| 17 | Medha (Intelligence) | 0.88 | 1.75 | 98.86%  | 0.64 | 0.23 | -3.85 | <0.5 |
| 18 | Dhruvi (Fortitude)   | 1.13 | 1.25 | 10.62%  | 0.35 | 0.13 | -1.00 | NS   |

In Control group patients, at 5 % level of significance and degrees of freedom 21, results are not significant in both types of Negative & Positive *Manas bhavas* as patients were receiving Placebo treatment.

**Table 6: Effect on Brief Psychiatric Rating Scale (Group I)(20)**

| Sr. No. | Symptoms                   | BT   | AT   | % Relief | SD   | SE   | t    | P      |
|---------|----------------------------|------|------|----------|------|------|------|--------|
| 1       | Somatic concern            | 3.55 | 1.45 | 58.98%   | 0.70 | 0.21 | 9.91 | <0.001 |
| 2       | Anxiety                    | 4.36 | 2.09 | 52.08%   | 0.90 | 0.27 | 3.32 | <0.01  |
| 3       | Emotional withdrawal       | 1.45 | 0.64 | 56.25%   | 0.87 | 0.26 | 3.11 | <0.01  |
| 4       | Conceptual disorganisation | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 5       | Guilt feelings             | 0.27 | 0.09 | 66.67%   | 0.60 | 0.18 | 1.00 | NS     |
| 6       | Tension                    | 2.82 | 1.27 | 54.84%   | 1.37 | 0.41 | 3.75 | <0.01  |
| 7       | Mannerisms and Positioning | 0.45 | 0.09 | 80.00%   | 0.81 | 0.24 | 1.49 | NS     |
| 8       | Grandiosity                | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 9       | Hostility                  | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 10      | Suspiciousness             | 0.18 | 0.18 | 0.00     | 0.00 | 0.00 | 0.00 | -      |
| 11      | Hallucinatory behaviors    | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 12      | Motor retardation          | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 13      | Unco –operativeness        | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 14      | Unusual thought content    | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 15      | Blunted affect             | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 16      | Excitement                 | 0.00 | 0.00 | -        | -    | -    | -    | -      |

In Group I patients, at 5 % level of significance and degrees of freedom 29, some significant results are observed from the treatment group, in mental factors relative to the Control Group.

**Table 7: Effect on Brief Psychiatric Rating Scale (Group II)(21)**

| Sr. No. | Symptoms                   | BT   | AT   | % Relief | SD   | SE   | t    | P      |
|---------|----------------------------|------|------|----------|------|------|------|--------|
| 1       | Somatic concern            | 3.38 | 1.25 | 62.96%   | 0.64 | 0.23 | 9.35 | <0.001 |
| 2       | Anxiety                    | 4.13 | 1.38 | 66.67%   | 1.17 | 0.41 | 6.66 | <0.001 |
| 3       | Emotional withdrawal       | 0.63 | 0.25 | 60.00%   | 0.74 | 0.26 | 1.42 | NS     |
| 4       | Conceptual disorganisation | 0.50 | 0.25 | 50.00%   | 0.46 | 0.16 | 1.52 | NS     |
| 5       | Guilt feelings             | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 6       | Tension                    | 1.38 | 0.50 | 63.64%   | 0.83 | 0.30 | 2.96 | <0.05  |
| 7       | Mannerisms and Positioning | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 8       | Grandiosity                | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 9       | Hostility                  | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 10      | Suspiciousness             | 0.25 | 0.00 | 100.00%  | 0.71 | 0.25 | 1.00 | NS     |
| 11      | Hallucinatory behaviors    | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 12      | Motor retardation          | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 13      | Unco –operativeness        | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 14      | Unusual thought content    | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 15      | Blunted affect             | 0.00 | 0.00 | -        | -    | -    | -    | -      |
| 16      | Excitement                 | 0.00 | 0.00 | -        | -    | -    | -    | -      |

In Control group patients, at 5 % level of significance and degrees of freedom 21, results are not significant in mental factors as patients were receiving Placebo treatment.

**Table 8: Effect of treatment on Blood Sugar Level (Group I)**

| Parameter | BT     | AT     | % Result | SD    | SE    | t     | P  |
|-----------|--------|--------|----------|-------|-------|-------|----|
| FBS       | 204.5  | 198.75 | 2.81%    | 30.97 | 10.98 | 0.523 | NS |
| PPBS      | 293.75 | 284.75 | 3.06%    | 51.76 | 18.35 | 0.490 | NS |

In Group I, it is observed that Fasting Blood sugar decreased by 2.81%-NS; PPBS decreased by 3.06%-NS but seemed not significant.

**Table 9: Effect of treatment on Blood Sugar Level (Group II)**

| Parameter | BT     | AT     | % Result | SD     | SE     | t     | P  |
|-----------|--------|--------|----------|--------|--------|-------|----|
| FBS       | 189.48 | 207.09 | 9.29%    | 60.927 | 18.351 | 0.916 | NS |
| PPBS      | 280.9  | 287.82 | 2.46%    | 87.092 | 26.23  | 0.004 | NS |

In Group II, it is observed that Fasting Blood sugar increased by 9.29%-NS, PPBS increased by 2.46%-NS but seemed not significant.

## Discussion

Out of total 10 Symptoms of *Madhumeha* (DM), it has been observed that in Group I, 8 symptoms showed significant improvement & in Group II none of Symptoms showed any improvement.

In case of total 18 *Manas Bhavas* (Psychological traits), 9 out of 10 Negative *Manas Bhavas* (Psychological traits) shown significant improvement and none of 8 positive *Manas Bhavas* (Psychological traits) showed any improvement in group I. And in Group II, none of symptoms i.e., negative or positive *Manas bhavas* (Psychological traits) showed any improvement.

In case of Brief Psychiatric Rating Scale, 4 out of 16 symptoms showed significant improvement in Group I and in Group II only 3 symptoms showed some significant changes which are almost negligible.

Effect of treatment on Blood Sugar Level both in Group I & Group II almost showed no significant results.

It has been observed that alteration in the brain function may change blood sugar. Electrical stimulation of Vento lateral hypothalamus (VLH) which is Vagal centre causes decrease in blood sugar and an increase in plasma insulin whereas electrical stimulant of Vento medial hypothalamus (VMH) which is a sympathetic centre causes a decrease in plasma insulin. According to Woods and Porte (1974) pancreas receive a generous supply of nerve fibers which enters the gland through its arteries, namely parasympathetic from Vagus, sympathetic and visceral afferent fibers. The Islets of langerhans receive a rich supply through these nerves. Adrenaline inhibits the secretion of insulin whereas it stimulates the glucagon secretion. Thus it is very clear that autonomic nervous system plays an important role in the secretion of insulin and glucagon.(22)

Analysis of the data shows the disturbance in the *Mansika Bhavas* (Psychological traits) up to a great extent. These disturbed psychic factors work like stressor causing excessive stimulation of sympathetic nervous system leading to decreased insulin secretion. Moreover, glucagon secretion also increases during various types of stress ultimately increasing the blood sugar. Symptoms common to both diabetes mellitus and sympathetic over activity include raised blood sugar levels, decreased glucose tolerance, increased lipolysis, glycogenolysis and ketosis. It can be said that reversal of increased catecholamines content may be an

important step towards its full control. Hence better management of the disturbed *Mansika Bhavas* (Psychological traits) in different therapeutic groups by administering mental health promoting drug having effect on neuroendocrine system has additive effect in controlling somatic symptoms of DM.

The drug formulation having *Kashaya (Astringent) Pradhana Madhur (sweet) Rasa (Taste), Sheet Veerya* and *Snigdha Guna*, helps in eliminating vitiated *Vat Pitta Dosha* with *Balya* (improves strength) effect, *Medhya* (improves psychological function) effect.

On the basis of this study it could be suggested that the formulation with ingredients possessing *Rasayana, Balya* effects along with mental health promoting effect will be useful in disintegrating the pathophysiology of disease. Moreover, if the drug combination has blood sugar lowering and insulin promoting action then it will be having additive effects.

None of the patients showed worsening in their overall condition. These findings suggest that *Vasantkusumakar Ras* safely & effectively improves Psychological health in patients suffering from DM. None of the patients showed poor tolerability to *Vasantkusumakar Ras*.

## Conclusion

It has been observed that the drug showed more significant results in trial group relative to the control group with respect to the symptoms of *Madhumeha* (Diabetes Mellitus). Also the drug showed more significant improvement in negative *Manas Bhava* in trial group relative to the control group and in case of Brief Psychiatric Rating Scale, symptoms showed some significant improvement in trial group relative to the control group. Therefore we can conclude that the trial drug is effective to control symptoms of *Madhumeha* (Diabetes Mellitus) as well as effective to improve psychological health of patients suffering from DM.

Effect of treatment on Blood Sugar Level both in trial group & control group almost showed no significant results.

In this study we observed improvement in symptoms in treated group therefore we conclude that the drug by correcting the *Dosha* improves QOL of patients suffering from DM. Also achieve additive effect to improve psychological health of patients.

The results of the present study are drawn from patients registered for chronic DM of more than 5 years with a treatment plan of one month. If the patients have less chronicity and longer duration of treatment then perhaps better results could be achieved.

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## Review Article

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**IMPORTANCE OF MADHU IN AYURVEDA WITH SPECIAL REFERENCE TO HONEY: A REVIEW**

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**ABSTRACT**

Madhu (Honey) is described in Ayurveda classical text in detail. It is necessary to study all this information comparatively and critically for the proper use of Honey. Synonyms, origin, type, properties and therapeutic as well as nutritional use of Honey are described in Ayurveda text in detail. Data is collected from Brihatrayi and other Ayurveda texts and presented in different tables. The explanation is given about various descriptions in different Ayurveda texts. The present study aims to review information about madhu in different Ayurveda texts and clarify its importance. After the study, it is clear that Honey is an important natural helpful substance for a healthy and diseased person.

**Keywords:** Madhu, Ayurveda, Honey**INTRODUCTION**

Various properties and uses of Madhu (Honey) are described in Ayurveda. Honey is important as food as well as medicine. Also, it has religious significance.<sup>1</sup>

“Honey is the sweet liquid prepared by bees for their use but robbed by a man. Many bee varieties are different in size, colour, and habitat. Some dwell in forests and build their home (hives) attached to the branches of tall trees; some build them inside the crevices of the trees; they are also seen attached to the roofs of tall buildings, inside the cracks of the walls etc. Generally, large and medium-sized brown-coloured bees build big combs (hives), while small-sized, slightly blackish bees build their home inside the crevices and hollows of trees and buildings. The bees go from flower to flower, dip their sharp proboscis into them, suck the sweet liquid (nectar), and store them in a special sac inside their mouth. After returning to their hive in the evening, they bring out the sweet nectar and deposit it inside the small chambers of the comb. Thus, they build a ready food store for use in the rainy season. Man, lured by its sweetness, drives away the Bees forcibly and collects the Honey, not caring even the poisonous solid sting of the enraged bees. Nowadays, beekeeping has come into vogue; wooden hives are provided to them inside the gardens, and honey collected periodically without harming the bees or being harmed by them.

Honey is a very sweet, thick liquid, varying in colour from dark brown to light yellow. The sweetness and thickness also vary depending upon the region, type of flowers bees feed on, season and the variety of the bees. Honey is a mixture of nectar and pollen of flowers.<sup>2</sup>

Data were collected for the present study from different Ayurvedic Samhita, commentaries and textbooks, Articles published in various journals and from a few search engines. Collected data was presented in multiple tables according to different Acharyas and discussed.

**The etymology of madhu:** Madhu is derived from “Manyat iti madhu”, meaning sweet, delicious and pleasant.<sup>3</sup>

**Synonyms of madhu in Ayurveda:** Madhu, Makshika, Madhvika, Kshaudra saragh, makshikavant, Varativant, Bhringavant, Pushparasodbhav.<sup>4</sup>

**Scientific classification of Honeybee:** ‘Honeybee’ belongs to Animal Kingdom, Phylum- Arthropoda, Class- Insecta, Order- Hymenoptera, Family- Apidae, Genus- Apis, Species- Mellifera, cerana with Binomial name- *Apis mellifera*, *Apis cerana* etc.<sup>1</sup>

**Table 1: Properties of madhu according to different acharyas**<sup>5-11</sup>

|           | Charaka Samhita<br>Sutrasthan 27/245 | Sushruta Samhita<br>Sutrasthan 45/132 | Ashtanga Samgraha<br>Sutrasthan 6/92,95 | Ashtanga Hridaya<br>Sutrasthan 5/52 | Bhavaprakasa Nighantu<br>Madhu Varga 2-5 |
|-----------|--------------------------------------|---------------------------------------|---|-------------------------------------|--|
| Rasa      | Madhur<br>Kashaya                    | Madhur                                | Madhur<br>Kashaya                       | Madhur<br>Kashaya                   | Madhur                                   |
| Anurasa   |                                      | Kashaya                               |   |                                     |  |
| Guna      | Guru<br>Ruksha                       | Laghu,<br>Ruksha,<br>Picchil          | Guru<br>Ruksha                          | Ruksha                              | Laghu, Ruksha,<br>Vishad, Sukshma        |
| Virya     | Sheeta                               | Sheeta                                | Sheeta                                  | Sheeta                              | Sheeta                                   |
| Dosghanta | Vata karak,<br>Kapha Pitta nashak    | Tridosh nashak                        | Vata karak,<br>Kapha Pitta nashak       | Vata karak,<br>Kapha Pitta nashak   | Alpa vatlam,<br>Kapha Pitta nashak       |

**Properties of pakva apakva madhu:** Pakva honey (ripen) mitigates tridosh, while apakva Honey vitiates tridosh and tastes sour. Here pakva and apakva depend upon time. This means if Honey is used after, it remains for some duration.<sup>12</sup>

**The unique property of madhu:** Honey is one of the best yogvahi substances explained in Ayurved, i.e., without changing its properties, it carries and enhances the properties of the drug added to it.<sup>13</sup>

**Properties of fresh (nav) and old (puran) Honey:** Fresh Honey is brihaniya means which nourishes the body, does not decrease Kapha very much and has sara (laxative) properties. Old Honey reduces fat and obesity, constipating and highly scraping.<sup>14</sup>

Honey used after one year is called old (puran); before that, it is considered fresh (nav).<sup>15</sup>

**Explanation about action on dosha according to different Acharyas:** Acharya Sushruta describes Honey as tridosh shamak, but Acharya Charaka and Acharya Vagbhata describe it as increasing Vata and decreasing Kapha Pitta. Commentator Acharya Hemadri explained that when Vata vitiated along with Pitta, or Kapha or madhu is used with Vata shamak dravya; it works as tridosh shamak. Otherwise, when there is only Vata vitiating and if madhu is used without mixing any other dravya, it increases Vata.<sup>16</sup>

Also, Acharya Charaka mentioned Honey as a guru (heavy), and Acharya Sushruta described laghu (light). Here madhu has guru guna, but its vipak has laghu property. Guru guna means it requires more time for digestion. Laghu vipak means it obstructs stool and urine after digestion and increases Vata.

Table 2: Varieties of madhu according to different acharyas<sup>17-20</sup>

|           | Charaka Samhita<br>Sutrasthan 27/243 | Sushruta Samhita<br>Sutrasthan 45/133 | Ashtanga Samgraha<br>Sutrasthan 6/98 | Bhavaprakasa Nighantu<br>Madhu varga 6 |
|-----------|--------------------------------------|---------------------------------------|--------------------------------------|--|
| Varieties | 4                                    | 8                                     | 4                                    | 8                                      |
| Pauttika  | +                                    | +                                     | +                                    | +                                      |
| Bhramara  | +                                    | +                                     | +                                    | +                                      |
| Kshaudra  | +                                    | +                                     | +                                    | +                                      |
| Makshika  | +                                    | +                                     | +                                    | +                                      |
| Chhatra   | -                                    | +                                     | -                                    | +                                      |
| Aarghya   | -                                    | +                                     | -                                    | +                                      |
| Auddalaka | -                                    | +                                     | -                                    | +                                      |
| Dala      | -                                    | +                                     | -                                    | +                                      |

Table 3: Description of madhu according to types<sup>21-33</sup>

| Varieties | Honeybee  | Honey properties and uses   |
|-----------|---|---|
| Pauttika  | Small black bee resembles mosquito and builds their home inside hollows of trees.                           | Ghee-like colour, especially ruksh (dry) and ushna (hot) aggravates Vata, Rakta and Pitta; chedi (cuts tissues); produces heartburn and intoxication.                       |
| Bhramara  | Popular common bees have white colour and medium size   | Guru (not easily digested) because of its picchil (slimy) and ati swadu (excessively sweet) properties. Rakta- Pitta shamak.  |
| Kshaudra  | Small brown bee   | Brownish colour, especially Sheet (cold), laghu (easy to digest) and lekhan (sacrificing); especially useful in Prameh disease.   |
| Makshika  | Brown in colour and big   | Oil-like colour; laghu (easy to digest), ruksha, best qualities, useful in Asthma, Kamala, Arsha, Kshata and Kasa disease.  |
| Chhatra   | The brown colour makes umbrella-shaped hives in forests.  | Brown, yellow; madhur vipak, guru (heavy to digest), sheeta (cold) and picchil (slimy); useful in Raktapitta, Shwitra, Prameha, and Krumi disease.                          |
| Aarghya   | These bees make Honey from Madhuka ( <i>Madhuca indica</i> ) trees, which have sharp mouths and are yellow. | White in colour; kashaya (astringent), katu vipak (pungent after digestion); eliminates vitiating kapha and pitta dosha. balya (strengthening) and beneficial for the eyes. |
| Auddalaka | Small brown bees which store Honey inside ant hills   | Yellowish brown, kashaya (astringent) and amla rasa (sour); katu (pungent) vipaka (after digestion); aggravates Pitta; useful in Kushta and to improve swara (voice)        |
| Dala      | Drops of honey fall from the flower on the surface of the leaf  | Pink in colour; ruksha (dry), sweet, sour and astringent in taste, useful in vomiting and Prameh.   |

### General therapeutic uses of Honey

Honey, in general, is the aggravator of vata, an alleviator of Raktapitta and Kapha. It promotes healing.<sup>34</sup>

Honey is good for the eyes. It breaks up the solidified material inside the body.

It is indicated in thirst, Kapha, poisonous disorders, hiccoughs, and bleeding disorders. Cures Prameha, skin disorders, worm infestations, vomiting, Shwas (Dyspnea), Kasa (cough), and Atisar (Diahorea). Cleans and heals the wounds and unifies fractures.<sup>35</sup>

Honey kindles digestion is good for colour and voice, bestows softness to the body, is good for the heart, is aphrodisiac, unites fractures, cleanses and heals wounds, is suitable for vision, cleanses the eyes, enters in minute channels, useful in diarrhoea,

vomiting, thirst worms and poison; bestows happiness and mitigates all the three doshas.<sup>36</sup>

When we review Ayurveda Brihatrayi (Greater trio), it is noticed that many compound medicine of Ayurveda has Honey as an ingredient.

**Precaution for honey consumption:** Honey should not be used after heating as the poisonous bees have collected it from flowers with different tastes, qualities and potencies.<sup>37</sup>

Hence the person dominated by pitta, mixed with hot substances in the summer season and the area where the temperature is so high should not use Honey as it can kill them quickly, similar to poison.

But the Honey can be used after heating in therapeutic procedures like emesis and medicated enemata with decoctions as it comes out of the body quickly without digestion.

## CONCLUSION

Detail description of Honey is present in classical Ayurveda text. Honey is an important natural helpful substance for a healthy and diseased person. Honey is the best yogvahi drug. Honey is mainly helpful in treating Kapha dosha vitiation. Different types of Honey are explained in Ayurved with their properties. Honey is an important ingredient of many Ayurveda medicine compounds.

Honey is useful separately as a single drug and in combination with different medicine used internally and externally.

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**AYURVEDIC MANAGEMENT OF MAJJAGATVATA AND TINNITUS-A SINGLE CASE STUDY**

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**ABSTRACT**

Tinnitus is an auditory sensation within the ears or head in the absence of any relevant external stimulus to cause it.<sup>[1]</sup> In the present case a 56 years old patient diagnosed with tinnitus along with *dosha samprapti* heading towards *majjavaha* and *shabdavaha strotro dushti* was treated with ayurvedic therapeutic modalities as explained in *shiroroga* and *majjavaha strotas chikitsa siddhanta*.

**KEYWORDS:** Tinnitus (*Karna-kshweda*), *Majjagatvaat*, Type-1 Vascular loop, *Shirodhara*, *Nasya*, *Yoga basti*.

**INTRODUCTION**

According to modern science tinnitus is an abnormal sound or noise in the ear.

Characteristic features of tinnitus are as follows<sup>[2]</sup>:-

- Origin of this sound is within the patient.
- Usually it is unilateral but may affect both ears.
- Varies in pitch and loudness.
- Variously described by the patient as roaring, hissing, swishing, rustling or clicking type of noise.

- Types:
  - Subjective tinnitus (heard by the patient alone)
  - Objective tinnitus (heard even by the examiner with the help of stethoscope)
    - Pulsatile tinnitus
    - Non Pulsatile tinnitus

According to Ayurveda Tinnitus is described as *Karna-naada* and *Karna-kshweda*. The below mentioned Table no. 1 gives a detailed information about the both.

**Table no 1: Comparative aspects of Karna naada and Karna kshweda according to Ayurveda.**

|   |                                 | <i>Karna naada</i>                                      | <i>Karna kshweda</i>  |
|---|---------------------------------|---|---|
| <b>Classical textual references by:</b> | Acharya Vagbhata <sup>[3]</sup> | ✓   | ✗   |
|   | Acharya Sushruta <sup>[4]</sup> | ✓   | ✓   |
|   | Madhav Nidan <sup>[5]</sup>     | ✓   | ✓   |
| <b>Dosha Involvement:</b>               | <i>Vaata</i>                    | ✓   | ✓   |
|   | <i>Pitta</i>                    | ✗   | ✓   |
|   | <i>Kapha</i>                    | ✗   | ✓   |
| <b>Dushya Involvement:</b>              | <i>Rakta</i>                    | ✗   | ✓   |
| <b>Etiological Factors:</b>             |                                 | Not Specific<br>General cause of <i>vaata prakopa</i> . | <i>Atishrama, dhatukshaya, Ruksha bhojanam, Kashaya bhojanam.</i> |
| <b>Sounds heard:</b>                    |                                 | <i>Bheri, Mridanga, Shankha</i> etc.                    | <i>Venughoshvat</i> sound.  |

**In the present case patients CT-Brain revealed**

- Mild cerebral atrophy (Fazekas Type 2)
- Type 1 vascular loop abutting VII and VIII nerve complex.

- Mild mucosal thickening involving ethmoid sinus.

*Majjagatatva*: Chronic ischemic changes in frontoparietal and periventricular region and mild cerebral atrophy.

*Majjakshaya* according to *praudhavastha* → *Karnakshweda lakshana*.

*Majjashukrasamuthanam aushadham swadutiktakam*  
*Annam vyavay vyayamau shudhi kale cha matraya* ||<sup>[6]</sup>  
 -Cha. Su 28/28

According to *Charak sutrasthan* 28, *vaat* and *kaphaprapakopaka hetu sevanam* leads to *rasadushti*, with due course of time vitiated *doshas* along with *rasa, rakta* creates *sthansanshraya* in *majjavaha strotas*.

Thus the *samprapti* could be summed up as *Rasadushti-Majjagatvaat* with *karnaroga* i.e *karnakshweda*.

**Prevalance of tinnitus**<sup>[7]</sup>

Prevalance range of tinnitus in U.S population is 8% - 25.3%, whereas in other nations it has found to be ranging from 4.6% - 30%. In India tinnitus affects 7% of population and has been associated with a range of physical and emotional disorders.

**Rationale**

The problem of tinnitus in India is also as alarming and as severe as in western countries; but there is dearth of studies in India related to tinnitus and its management. This study will help professionals to understand tinnitus and its Ayurvedic management in a more satisfactory manner.

**MATERIALS AND METHODS**

Materials: Materials used are as mentioned in table no. 4- Table no. 9

Methods: Single Case Study.

**AIMS AND OBJECTIVES**

- To study basic clinical approach through ayurveda in *karnaroga* treatment with special reference to *karnakshweda*.
- To treat patient through Panchakarma.

**CAUSES**

- **According to modern science**<sup>[8]</sup>
  - **Otologic causes**:- Impacted wax
  - Fluid in middle ear
  - Acute and Chronic Otitis Media
  - Meniere’s disease
  - Otosclerosis
  - Abnormally patent Eustachian tube
  - Ototoxic drugs
- **Non Otologic causes**
  - Blood vessel disorder
  - Drugs
  - Epilepsy
  - Nervous system disorder.

**CAUSE FOUND IN PATIENT:** Blood Vessel disorder and Nervous system disorder.

**According to Ayurveda:** *Atishrama, dhatukshaya*, intake of more and more *ruksha* and *kashaya ras pradhan aahar, Sheet Sevanam* after *Shirovirechana*.<sup>[9]</sup>

**CAUSES FOUND IN PATIENT**

**Aahar hetu:** Curd, Milkshakes, puffed rice (*murmura*), flattened rice(*poha*), *paryushit anna sevanam*

**Vihar hetu:** *Avyayam, akalbhajanam*, day sleeping (*divaswaap*)

**Kalaj hetu:** *Praudhavastha*.

**Manas hetu:** *Chinta* (psychological distress), Over thinking.

**SIGNS AND SYMPTOMS**

The pattern of sign and symptoms can be quite different from person to person. The most frequent first symptom in present case is ‘*Karnakshweda*’ viz tinnitus associated with occasional headache and recurrent rhinorrhea. Knee joint pain, delayed digestion, ultered bowel habits were other symptoms found in the patient.

**SAMPRAPTI GHATAK**

**Table no.2: Samprapti Ghataka.**

|    |                |   |
|----|----------------|---|
| 1. | <b>DOSHA</b>   | <i>Vaata- Prana, Udana, Samana.</i>                           |
|    |                | <i>Pitta- Pachaka, Sadhaka.</i>                               |
|    |                | <i>Kapha- Avalambak, Kledak, Tarpak</i>                       |
| 2. | <b>DUSHYA</b>  | <i>Rasa Dhatu, Rakta Dhatu, Asthi dhatu</i>                   |
| 3. | <b>STROTAS</b> | <i>Rasavaha strotas, Asthivaha strotas, Majjavaha strotas</i> |

**SAMPRAPTI VIVECHANAM**



**Flow Chart No.1: Samprapti vivechanam.**

**DIAGNOSIS****Diagnostic scan-CT brain plain revealed**

- Mild cerebral atrophy with chronic ischemic changes in bilateral fronto-parietal and periventricular white matter (fazekas type 2~ as white matter scale-beginning confluency of lesions).
- Mild mucosal thickening involving ethmoid sinus.
- Type 1 vascular loop in right cerebro pontine angle abutting ipsilateral vii/viii Nerve complex.

**X ray cervical spine revealed**

- Osteoarthritis and *asthikshaya* (Osteopenia) therefore the patient was treated with the help of *asthimajjagat vyadhi samanya chikitsa siddhanta* which has yielded into significant improvement in post treatment status of patient.

**CASE REPORT**

A female patient aged 56 years with no history of any major past illness from Nigdi,Pune(Maharashtra State) with OPD No. 2381 approached CSMSS Ayurved

Hospital,Aurangabad. on 11 February 2022. Her chief complaints were tinnitus (*karnanaad*), headache, knee joint pain, recurrent rhinorrhea, delayed digestion, altered bowel habits. During history taking patient narrated about the history of *Jwara* and *Pratishyaya* two years ago and ever since then patient suffered from *Shirashool*. Later gradually patient could hear abnormal ear sounds in left ear (*Vaama karnanaada*).Patient had taken ayurvedic as well as allopathic treatment but had no relief thus with the above mentioned complaints patient got enrolled to *Panchakarma* OPD on 11 feb 2022 at 9:30 am.

Patient got admitted in the IPD of CSMSS Ayurved Hospital on 11 february 2022 at 11 am with IPD no.84.

Patient X-ray cervical spine revealed degenerative changes thus patient was treated according to *Majjagatvata* and *karna naad* with '*Pachan*' and *vataghna chikitsa*.

**INTERVENTION****Treatment protocol at glance****Table no. 3: Complete treatment protocol at a glance.**

| Phases  | <i>Purvakarma</i>                                 | <i>Pradhankarma</i>      | <i>Shaman chikitsa</i>  |
|---------|---|--------------------------|---|
| Phase 1 | <i>Sarvanga snehana</i> + <i>sarvanga swedana</i> | <i>Shirodhara</i>        | Aampachak vati, Avipattikar churna, Dashmooladi vatagna kwath, Rasnadi guggulu. |
| Phase 2 | <i>Sarvanga snehana</i> + <i>sarvanga swedana</i> | <i>Pratimarsha Nasya</i> | Aampachak vati, Rasnadi guggulu, Tab.chandrakala Ras, Avipattikar churna.       |
| Phase 3 | <i>Sarvanga snehana</i> + <i>sarvanga swedana</i> | <i>Yoga basti krama</i>  | Rasnadi guggulu.  |

**PHASE 1**

- **PANCHAKARMA CHIKITSA**

**Table no. 4: Details of Panchakarma Chikitsa given to the patient in phase 1 of treatment protocol.**

| Sr.no. | THERAPY                 | DATE                           | DRAVYA NAME   | DURATION  |
|--------|-------------------------|--------------------------------|---|---|
| 1      | <i>Sarvanga snehana</i> | 12/02/2022<br>To<br>18/02/2022 | <i>Abhyang tailam</i>                                 | 30 mins <sup>[11]</sup>                                   |
| 2      | <i>Sarvanga swedana</i> |                                | <i>Peti sweda</i> with <i>Dashmool kwath</i> .        | Until <i>samyak swinna lakshanotpatti</i> <sup>[12]</sup> |
| 3      | <i>Shirodhara</i>       |                                | <i>Til tailam</i> + <i>Chandanbalalakshadi tailam</i> | 45 mins   |

- **SHAMAN CHIKITSA**

**Table no.5: Details of Shaman chikitsa given to the patient in phase 1 of treatment protocol.**

| Sr.no | DRUG                       | DOSE     | ANUPANA        | DURATION |
|-------|----------------------------|----------|----------------|----------|
| 1     | Aampachak vati(200 mg)     | 2 BD     | Lukewarm water | 7 days   |
| 2     | Avipattikar churna         | 1 gm HS  | Lukewarm water |          |
| 3     | Dashmooladi vataghna kwath | 30 ml BD | Lukewarm water |          |
| 4     | Rasnadi Guggulu(250 mg)    | 2 BD     | Lukewarm water |          |

During the treatment, on examination patients vitals were normal. Nasal as well as ear examination showed no such abnormality externally. Bone conduction test for ear examination was normal. After *shirodhara* patient was given lukewarm water for drinking. After a few hours of

*shirodhara* patient felt *shirolaghava* once *dosha-stravan* was observed through *nasa*. After 4<sup>th</sup> day of *shirodhara* patient was seen *upashayanugami* (mild cure).

After 7<sup>th</sup> day of *shirodhara* patient was discharged with continuation of *shaman chikitsa* for the next 3 days and

the patient was called upon after 3 days for *nasya*.

## PHASE 2

- **PANCHAKARMA CHIKITSA: Pratimarsha Nasya.**

**Table no. 6: Details of Panchakarma treatment given to the patient in phase 2 of treatment protocol.**

| Sr. no.  | 1   | 2          | 3          | 4          | 5          | 6          | 7         |
|----------|---|------------|------------|------------|------------|------------|-----------|
| Date     | 23/02/2022  | 24/02/2022 | 25/02/2022 | 26/02/2022 | 27/02/2022 | 28/02/2022 | 1/03/2022 |
| Time     | 8:30 am   | 8:30 am    | 9:00 am    | 8:30 am    | 8:30 am    | 9:00 am    | 8:30 am   |
| Dravya   | <i>Dashmooladi Tailam- Dashmool,bala,maasha,til tailam.</i> <sup>[13]</sup> |            |            |            |            |            |           |
| Quantity | 3-4 bindu.  |            |            |            |            |            |           |

- *Nasyottar parikshan* revealed *shirolaghav*.

- **SHAMAN CHIKITSA**

**Table no.7: Details of Shaman Chikitsa given to the patient in phase 2 of treatment protocol.**

| Sr. no. | DRUG                    | DOSE    | ANUPANA        | DURATION |
|---------|-------------------------|---------|----------------|----------|
| 1       | Aampachak vati(200 mg)  | 2 BD    | Lukewarm water | 7 Days   |
| 2       | Rasnadi Guggula(250 mg) | 2 BD    | Lukewarm water | 7 Days   |
| 3       | Tab Chandrakala Ras     | 2 BD    | Lukewarm water | 7 Days   |
| 4       | Avipattikar churna      | 1 gm HS | Lukewarm water | 7 Days   |

## PHASE 3

- **Panchakarma chikitsa**

*Yoga basti (\*A- Anuvasana basti-Til tailam, N- Niruha basti-Dashmool kwath)*

**Table no. 8: Details of Panchakarma chikitsa given to the patient in phase 3 of treatment protocol**

| Number of basti | 1          | 2          | 3          | 4          | 5          | 6          | 7          | 8          |
|-----------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Type of basti   | A          | N          | A          | N          | A          | N          | A          | A          |
| Date            | 05/03/2022 | 06/03/2022 | 07/03/2022 | 08/03/2022 | 09/03/2022 | 10/03/2022 | 11/03/2022 | 12/03/2022 |

- **Shaman chikitsa**

**Table no. 9: Details of Shaman chikitsa given to the patient in phase 3 of treatment protocol.**

| Sr.No. | DRUG                     | DOSE | ANUPANA        | DURATION |
|--------|--------------------------|------|----------------|----------|
| 1.     | Rasnadi Guggulu (250 mg) | 2 BD | Lukewarm water | 8 days   |

- **PATHYA-APATHYA**

*Pathya:* Normal light diet.

*Apathya:* *Paryushit anna, viruddhahar, akal bhojanam, day sleeping, chinta* etc.

## DISCUSSION

In the present case diagnosed with *majjagatvata (kaphavrutta vaat)* and *karna-kshweda*, according to Phase 1 of the treatment protocol *shirodhara* was performed for *pachana* and *vilayan* of *shirogat* vitiated *doshas*. Moreover the *shaman chikitsa* helped in *pachana* and *anuloman* of *sarvadehik doshas*. Thus Phase 1 yielded significant relief in symptoms of patient.

*Karna-kshweda* being an *urdhva jatrugata roga, pratimarsha nasya* with *dashmoola tailam* was performed in Phase 2 of treatment protocol.

In Phase 3 of treatment protocol *yoga basti krama* was performed for 8 days with *Anuvasana* and *Niruha basti* alternatively for the *shodhana* of remaining *koshtagat doshas*. (*Mulsthana dosh Shodhanam*).

Below mentioned Table No. 10 and Table No. 11 gives us a precise idea about the relief in the symptoms in the patient according to the phases of treatment.

## Karnakshweda

**Table No. 10: Gradation of symptoms of Karnakshweda.**<sup>[14]</sup>

|   |                            |   |
|---|----------------------------|---|
| 1 | Absent                     | 0 |
| 2 | Occasional & Tolerable     | 1 |
| 3 | Occasional & Non tolerable | 2 |
| 4 | Constant & Nontolerable    | 3 |



**Table No.11: Gradation of symptoms of karnakshweda before and after treatment in the present case.**

| Symptom  | Phases Of treatment | Before Treatment | After Treatment |
|----------|---------------------|------------------|-----------------|
| TINNITUS | Phase 1             | 3                | 2               |
|          | Phase 2             | 2                | 1               |
|          | Phase 3             | 1                | 0               |

### ➤ CONCLUSION

The above mentioned combination of *sarvanga snehana-swedana, shirodhara, pratimarsha nasya* and *yoga basti* along with oral medications has given positive results in the patient of *majjagatvat* and *tinnitus(Karna-kshweda)*. All the above treatment protocol would have decreased the abultion of facial and vestibulo-cochlear(auditory) nerve complex of *majjavahastrotas* by the *shaman* of *kapha* and *vaata dosha* thereby reducing the symptoms and improving the health of the patient.

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**Book Review****“Bhela Samhita”****Dr. Chinmay Tandale****Dr. Alkananda Kulkarni****Mr. Akshay Chougule****Introduction -**

Bringing reputable old Sanskrit literature to the expert notice of non-Sanskrit-knowing contemporary is a specialised scholarly endeavour with multiple benefits. But only if everything is done carefully.

A purported, early Ayurvedic work of this kind, the fragmentary Bhela-samhita, predates the Caraka Samhita, which has been redacted. As a result, it immediately takes on a significant historical value. The current effort is a ground-breaking one that has made the most corrections to the text by utilising all of the editions' strengths.

The Bhela Samhita, authored by Bhela Caryā, is one of the earliest Samhitas that dates back to Agnivesa's time. Bhela Caryā was one of Punarvasu Atreya's six students. Bhela held the second-highest ranking, behind Agnivesa, among Punarvasu Atreya's six disciples. Therefore, it should

## ***'Book Review: The Bhela Samhita***

come as no surprise that Agnivesa wrote the first treatise, Agniveatantra, based on the advice of his master and including the conclusions reached throughout many sage conferences. Following a similar format, Bhela also wrote a treatise called the Bhelatantra, which later became the Bhelasamhita. The Carakasamhita, a developed and annotated version of the Agniveatantra, held the top spot as other treatises withered under the weight of time and also because their subject matter was nearly identical and their presentation was less spectacular than the former. Vagbhata's assertion demonstrates that, even during his lifetime, the treatises of Bhela and others had lost favour (5-6 cent. A.D). Nevertheless, Bhela is cited by numerous writers and commentators up to the mediaeval era, demonstrating that the work was still in print at that time despite certain textual changes

In his list of manuscripts, Burnell describes it as item 107 73. First discovered in the palace library in Tanjore was a palm leaf copy of the Bhela Samhita, which was written in Telugu script but penned in Sanskrit. The original edition of this ancient treatise's rare manuscript appeared in Volume VI of the Journal of Department of Letters, which was initially published by the Calcutta University in 1921. After being unfinished in certain areas, this important work is not known to have been edited or reduced from the original tantra into a smaller Samhita, which has the advantage that it has maintained its individuality despite languishing for many years. The Nidana Sthana, Vimana Sthana, Sarirasthana, Indriyasthana, Cikitsasthana, Kalpasthana, and Siddhisthana sections of the Bhela Samhita are divided into these sections: "Nidana Sthana," "Vimana Sthana," "Sarirasthana," "Indriyasthana," "Cikitsasthana," and "Siddhis Again, Bhela is unique in explaining how many symptoms appear in Dhatus as a result of pitta vitiation, disordered pregnancy with its distinctive outcome, and defining numerous disorders as Karmaja and other

## ***'Book Review: The Bhela Samhita***

such things. Therefore, as a result of his creative genius, Bhela has advanced his own ideas and shed light on certain flora and fauna, customs, illness frequency, natural history, etc., suggesting additions and changes. His writing has frequently been criticised for being overly generic and vague. In actuality, it should be regarded as a unique work that was primarily created for practitioners and included some attention on neurology.

### Summary:

This exceptional old work was initially published in 1921 by the Calcutta University. In 1959, the Chaukhamba Bharati Academy in Varanasi once more released the book. Editor Sri Girija Dayal Shukla worked on the text. According to Mr. Ghananand Pant, Bhela belonged to Rajasthan's Marubhumi (barren area) because camel milk and grains cultivated in dry and waterless regions are frequently referenced in the text when discussing dietetics and other topics. A frequent occurrence of non-Paninian forms in the Bhela Samhita text places him earlier than Panini, who dates from the 7th century B.C.

In his writings, Panini alludes to Jatukarna, Parasara, and other Gargadigana characters instead of Bhela. Since Bhela is a fellow disciple of Agnivesa, Jatukarna, Parasara, and others, this reference also applies to Bhela. Bhelacarya presented his text with an equal number of sthanas and adhyayas as those in Agnivesa's samhita, and the fact that many of these adhyaya even share the same nomenclature leads us to believe that Bhela Samhita is at least as old as Burnell creates Bhela, who yearns for the former Gandhara region. Asvagosha names Atreya as a contributor to a medical treatise, which suggests that Atreya's writings were well-liked in the first century B.C. The Bower

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manuscript or Navanitakam quotes from the work of Bhela. Therefore, Bhela should have lived between second century A.D., and sixth century B.C.

Panini refers to Jatukarna, Parasara, and other Gargadigana names rather than Bhela in his writings. Given that Bhela is a fellow pupil of Agnivesa, Jatukarna, Parasara, etc. This allusion also applies to Bhela because Rajarshi Nagnajit, a contemporary of Bhela who is listed in the Bhela Samhita, is referenced in the Shatapatha Brahmana and the Aitereya Brahmana. As a result, it can be deduced that Atreya and his pupil Bhela lived at or before the time of the Aranyakas, Brahmanas, sutra, and Mahabharata.

Hoernle notes that the "Amatisara" equations are quoted indirectly from the Bhela Samhita rather than directly from the Susruta Samhita in the Bower manuscript. This assumes the existence of the Susruta Samhita because it not only mentions the Samhita by name but also teaches about Susruta's beliefs surrounding the gulma sickness. Even though Agnivesa and Bhela were both followers of the same people, Agnivesa's composition is more detailed and rich, whereas Bhela's is much more condensed.

According to Burnell, Bhela Samhita owes Vagbhata a great deal. According to some verses known as Bhela, Jvara Samuchaya is thought to be a thousand years old. Some poems from Bhela are referenced and quoted by Yogaratna Samucchaya in the Chandrata. We may learn a lot about the region where the Bhela Samhita was widely read and used as authority by focusing on other Sanskrit medical manuscripts and printed materials.

## ***'Book Review: The Bhela Samhita***

When talking about Jatharagni, Bhela explains that it is found in the Surya mandala, which is in the umbilical region's somamandala. Additionally, he measures this Jatharagni. He claims that Kayachikitsa is the name of the doctor who treats these digestive burning issues.

Alocaka pitta is one of the five forms of pitta that are categorised throughout the Samhitas. The two divisions made by Bhela are Chakshu vaisesika and Buddhivaisesika.

It is not mentioned in the Caraka Samhita, but the final chapter of the Kashyapa Samhita, titled "Deshasatmyadhyaya," discusses this topic. Bhela describes the diseases that are most frequently seen in various regions of the nation due to local customs, diets, etc. in the chapter Janapada Vibhaktiya.

Bhela values daiva vyapasraya chikitsa highly. He views various illnesses as karmaja. Unlike the others, Bhela Carya divides the 18 Kusthas into two groups, nine of which are Dosaja Kusthas and the remaining nine are Karmaja Kusthas. It also includes Visaja Kusta and Switra Kusthas.

To improve tolerance, Bhelacarya advises applying ghee to the mouth before performing the prayogika dhumapana. He stands out by suggesting that after meals, you dry your hands by holding them over a fire (S.U. 6/45). None of the other Ayurvedic acaryas mention udgara when they discuss the three phases of digestion as three avasthapaka. The three various types of udgara that occur during digestion are mentioned by Bhelacarya. Once more, Bhela is clear in elaborating on the many symptoms that emerged in Dhatus as a result of Pitta morbidity. S.U. 25/25.

The three myrobalanic components of Triphala are administered in a different order and sequence according to Bhela Samhita. When discussing matrasitiya, Bhela recommends taking amalaki

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before meals, haritaki after meals, and vibhitaki after digestion. He also provides pharmacological justification for this arrangement. Regarding the effects of water consumed before, during, or after meals, there again seems to be a conflict between Bhela and subsequent samhitas. Similar to how other acaryas forbade contact with and use of cold water, Bhelacarya encourages its use while describing kutisweda to lessen the exhalation caused by sudation S.U. 2/30. Likewise, while the preceptor forbade mixing fish and milk for consumption, Bhela does so—with the exception of chilichima fish.

Although there are several references to Bhela in the books listed below, including Hemadri Vyakhya on A.H.Si1. 7/55 and A.H. Sutra 7/65, Chakrapani Vyakhya on Cha. Ch. 3/275, Tatwacandrika, and Chikitsa Kalikavivrutti Dalhana commentary on S.Su. 33-29, the same references are not present in the manuscript that is currently being edited, giving However, this Bhela Samhita is being disregarded for the reasons listed below. 1. The text frequently has errors of a grammatical nature and uses non-Panamanian forms. 2. The philosophical foundations are inadequate for listing theories. Along with generally supporting the Agnivesa Samhita's common structural shape, Bhela also advanced a number of novel concepts that occasionally ran counter to significant notions. Thus, new concepts and comments that seem to contradict one another might be interpreted as evidence of improvements and additions as a result of his brilliant talent.

### **Analysis:**

The Bhela samhita follows a similar structure to that of the Carakasamhita in terms of planning and arranging of the subject matter, but the former is somewhat less thorough. However, there are many concepts shared by the Suruta samhita and the Bhelasamhita's current form. In addition to this, it features a few odd concepts that give the work individuality. Alocak ägni's bifurcation, the

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placement of the chakras in the pigataka, hrdaya, and nabhi, and the visual representation of the jahatragni as a lamp inside a gourd-shell floating on water (representing the roles of vāta, pitta, and kapha in digestion) are some of the concepts that seem more novel and developed. It is solely Bhela's responsibility for framing the definition of Kayacikitasaka that is currently frequently cited.

### **Conclusion:**

In my research, I found that, unlike Agnivesa Samhita, Bhela Samhita did not gain fame, popularity, or propagation in the succeeding ages. However, up until recently, it has not been redacted or the author has never written a commentary on it, which has the advantage of indirectly preserving its originality. The gathering and examination of these dispersed manuscripts should now be the focus of a focused study by a number of persons and institutions.



**Book Review****“THE POWER OF THE SUBCONSCIOUS MIND”****Dr. Tandale Chinmay Atmaram****Dr. Alkananda Kulkarni****Author:**

Joseph Murphy I became completely engrossed in the Irish novelist when I learned that he had visited India. He studied Indian sagas extensively while he was in India in order to learn Hinduism. In America, he even established a Hindu-inspired church. After its initial release in 1963, the book "The Power Of Your Subconscious Mind" quickly rose to international bestseller status. [https://en.m.wikipedia.org/wiki/Joseph\\_Murphy\\_](https://en.m.wikipedia.org/wiki/Joseph_Murphy_) if you want to learn more about him (author)

**The book's perspective**

I think a writer writes a book with the reader in mind when they do so. The writer must make sure that readers can relate to the subject matter effortlessly. The book "The Power of your Subconscious Mind" is of the kind that makes it simple to comprehend its message. The book's idea is clear right away. But I did notice that the writer's use of unfriendly language bothered me. Although it occasionally makes the language difficult to read, it is not completely unintelligible. Even yet, I didn't find it problematic that the majority of readers in today's generation choose to read works that are accessible. This is the only issue I can identify with this book; however, other people might not. And I sincerely hope that everyone will read this book in order to learn how to use power.

## ***'Book Review: The Power of Subconscious Mind***

### **Introduction –**

*“Your subconscious mind is the cache of your memoir, beliefs, life experiences and life traumas.”*

The first time I read this line, I realise how lucky I am, that I took the decision to read this book. This book clears the concept of The Power of Subconscious Mind which itself is the title of the book.

I really like this book but at the same time, I have some issues with this book. Let us discuss the book in detail.

Our behaviour is greatly influenced by the wealth of knowledge stored in our subconscious. I agree with the author that our subconscious controls our bodies because I have always experienced same with myself. Our lives are significantly affected by the subconscious, which mostly operates through patterns that are known to us. Whether you choose to act on your subconscious, it is always at work. For instance, our beings instantly get happier and cheerier when we programme our subconscious mind to associate positive situations.

### **Summary:**

The book aims to illustrate how a single subconscious idea has the potential to fundamentally alter both your personality and your way of living. It discusses how repeating the same prayer day and night can heal an illness and how your subconscious mind works nonstop to keep your body's essential systems under good control. breathing is one example. Our breathing and lung function during sleep are controlled by the subconscious. The subconscious mind is in charge of all of the body's wondrously intricate processes, including breathing. However, our subconscious interferes with our biological systems when we are angry or anxious, making it difficult for us to breathe.

### **Analysis:**

## ***'Book Review: The Power of Subconscious Mind***

The author explained that humanity had devised a number of efficient ways to access the enormous potential of the subconscious mind and use it for therapeutic reasons even in ancient times.

Every religion believes that if we put our faith in God, everything will work out as it should. Faith is a very powerful force in every religion. But have you ever questioned what faith is really all about? What ability does it possess to cause events to unfold properly? Why does it come up so frequently in our religions? Why do medical professionals only advise patients to have faith while trying to treat a certain condition?

Despite the fact that I personally am not particularly religious, I think that faith may be used as a channel for communicating with your subconscious and continuously telling it what you and your body want. Miracles, in my opinion, are simply your subconscious's way of demonstrating its immense power over your life to those who do not believe in them.

### **Conclusion:**

To sum up, this book is an incredible tool for empowering readers to recognise the inner strength they possess. We simply need to quietly think about what we want and picture it materialising starting right now. Our deeper mind contains limitless intelligence and ability. The author claims that your subconscious will accept your designs and manifest all of those things.



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## Importance of *Garbhasanskar*: A review

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### Abstract

A good nutritional status maintained by the mother during pregnancy help to grow strong, healthy placenta, which determines the birth weight and future health of baby in adult life. Similarly positive emotions like love, joy, gratitude and healthy thought by parent brings the growth of the unborn child in the womb of the mother. Whereas negative thoughts, depression and stress injures the unborn child. Hence the concept of Sanskar (good thought) imparted right from prenatal stage i.e. when the child is in the womb of mother is important. It has been documented that the activity of the mother during pregnancy in the form of prayer (good rational thoughts), Manshakti (positive emotion), conversation with foetus (talk) or expressing feeling (touch) is not only recognized by unborn baby but it has positive effects on physical and mental health. Thus, such mental and physical activity performed by parents with the intension of creating a positive environment and obtaining a growth of the baby is called Garbhasanskar so in this article we describe importance of Garbhasanskar.

**Keywords:** Garbhasanskar, Striroga Prasutitantra, foetus

### 1. Introduction

The meaning of garbhasanskar is educating the foetus in the womb. In Indian culture and especially in Hinduism it is believed that education of material, traditional and spiritual values starts right from the time the foetus is formed in the womb. Science has proved that baby in the womb can learn from initial stages. Mother's bond with the child starts right from the time of conception. It is not after the child is born. The baby listens to the mother and feels her feelings even when it is developing in the womb. This is why it is important to transfer positive thoughts, positive energies and the emotions to the baby (and to the pregnant woman herself). The mother can shape up baby's first impressions by listening to good music, reading material that stimulates positive thinking, meditating, doing yoga and much more [1].

In the fetus, the cell nurtured by the nutrients received from the mother, continue to multiply. They take various shapes and pattern and start playing their own special roles, some become the skin, some become the digestive organs, and some form the muscles, some turn into bones and connective tissues. This amazing process of growth and multifaceted development climaxes into a miniature human being i.e., the body is ready for its journey into the world outside its mother's womb. However, the Nervous system takes a few months more for its further maturation after this birth. This in brief is the story of how a human being develops from conception to delivery. This admirable process takes place naturally in perfect ease and comfort provided the mother is in perfect health. Unfortunately, several misgivings and misconceptions are prevalent about natural process of childbearing and as a result, what should normally be a happy and pleasurable experience to the mother is regarded as an ordeal. Child birth is regarded as a "curse of Eve". It is considered as a necessary evil. Due to this wrong notion a fear tension pain syndrome obstructs the mind of the expectant mother and this affects the natural process of delivery. All-natural functions are enjoyable and pleasurable if in their fulfillment, nature is given full and free scope. It is unfortunate that even educated women harbor these misgivings and instances are not rare [2].

### 2. Review of Literature

**2.1 Garbha sanskar:** In Ayurveda, the word sanskar is used in a wide sense of education, training, cultivation, polishing, refinement, a purificatory ceremony to change the qualities.

#### There are 3 stages of Garbha sanskar

1. Sanskar before conception.
2. Sanskar of conception
3. Sanskar after conception.

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## 2.2 Garbhadhan sanskar

A normal reproductive tract, balanced hormonal status, mental health, healthy gametes and right age are required for conception. Age for marriage and conception Marriageable age for male is 21 years and that for the female is 12 years. The husband and wife should be 'Atulyagotriya' which means they should not belong to the same genetic-tree. Age of conception is mentioned as 25 years for male and 16 years for female. Essential factors for conception-Four factors are mentioned in Ayurveda, which are Ritu (ovulation), kshetra (uterus/reproductive system), Ambu (nourishing substances) and Beej (sperm and ovum). The proper development and functioning of these factors is necessary for Supraja nirman. 'Saumanasya agra Garbhadharnanam' is mentioned by Acharya Charak, which means a happy mood and good psychological status is agra (best) for conception [3].

## 2.3 Punsavana sanskar

It is a type of Ayurvedic genetic engineering to ensure birth of a healthy child. It mainly aims to achieve conception and to stabilize pregnancy. This is also called 'Garbharakshana sanskar' [4].

## 2.4 Simantonnayan sanskar

In this sanskar, a ritual is performed in 'fourth month of pregnancy' for purification of atmosphere, for the peace of mother and fetus. During this period of pregnancy, the woman undergoes certain hormonal changes which causes emotional imbalance. To overcome this the ritual is performed to increase her power of moral understanding and ensure birth of healthy child.

Excluding these 3 sanskars, all others are performed after birth of child.

## 2.5 Sanskar of conception

On the fourth day of menstruation, both the partners should wear white clothes and garland after taking bath. They should copulate on even days for birth of male child and on odd days for a female child. They should go to the bed – male by right leg and female by left leg while chanting the Mantra – 'Ahirasi Ayurasi' and should start copulation in a pleasant mood [5].

## 2.6 Sanskar after conception

These include the paricharyas of Ahar, Vihar and Sdavritta to be followed by the garbhini. Literature Related to Garbha Sanskar on Antenatal Mother The Sanskrit term Garbha refer fetus in the womb and Sanskar refer educating the mind. So Garbha sanskar basically refer develop the brain of the fetus. Traditionally ethnicity, it is assumed that value-based parenting start when the child is conceived relatively after the child is born that is why elders in the family speak about the significance of positive thoughts and feeling during pregnancy. Special techniques such as optimistic thinking, visualizing, music, relaxation, tender massage of the belly are used to create this communication and it is used to form baby. Easy meaning of sanskar is "Sanskaro hi gunaantaradhanam" [6] means to substitute bad traits by superior ones. Basically, we can condition as creation changes. We can recognize the thought by simple example when we put in little amount of curd in milk, milk loses its character (Prakriti) and is changed to curd which is an abnormal form (Vikriti) but additional when we mix together this curd it additional changes properties to form butter and buttermilk which are still unsteady. After heating the butter, we get a final steady

derivative i.e. ghee, which has good character enhancing with moment from this we can point up that substitution of feature depends on the kind of Sanskar restoration. Garbha means the 26 internal parts here the fetus which is growing in mother's womb. Jointly Garbha+Sanskar mean reforming, polishing and ultimate, molding and cultivating the unborn [7]. Vinayak Damodar Sawarkar great Indian Freedom fighter's mother used to read the brave stories from the Ramayana and Mahabharata so this shows that sanskar during pregnancy affect newborn. Ayurveda illustrate the theory of "Suprajajanan" or eu-maternity. This "Suprajajanan" [8] refers as conceive in Ayurveda; include the training of the couple for preparation of pregnancy, three months before to conception. Pregnancy should not be by chance, it should be by choice. The commencement is by pindashuddhi or the cleansing of the gametes (sperm and ovum). If the couple is not in a condition of mental steadiness and peace even if they are actually fit they cannot give birth to a healthy child. This mental peace and steadiness Sathwaguna of mind is directly associated to one's food habits and numerous other factors [9]. It is these nine months crucial stage when utmost efforts are to be taken for improvement of the progeny's. Today science has shown the evidence that the unborn cannot only pay attention, experience but reply by its own way. Garbha Sanskar is the way of particular efforts taken to encourage baby's senses tenderly for the utmost development of its physical and intellectual capacity [10].

## 3 Discussions

### 3.1 Masanumasik Pathya Ahara (Monthly dietary regimen) during pregnancy

Ayurveda advised that Garbhini (pregnant lady) should take sweet, liquid, nutritive diet with good quantity of milk, freshly cooked rice, meat or meat-soup, butter extracted from milk, milk cooked with Madhura group of drugs and other congenial diet. Fetus derives its nutrition from mother, what so-ever she takes the rasa derived is divided in three parts i.e. for the nourishment of the mother, for nourishment of fetus and for development of breasts / formation of breast milk [11]. The requirement of mother nutrition varies according to development of fetus and changes month wise.

### 3.2 List of Garbh Sanskar activities for pregnant women

According to Ayurved, Garbh Sanskar is one of the best ways to give birth to a healthy baby. It's all about the mother maintaining a sound state of mind, not only mentally, but physically, emotionally and spiritually as well. Ayurvedic garbh sanskar suggests certain guidelines to keep in mind for the pregnant mother. These include:

### 3.3 Healthy eating habits

The dietary regime is an essential aspect of pregnancy, as the growth of foetus depends upon the health and nutrition of the mother. According to ayurved the ahara- rasa, which is nutrition or energy obtained from the mother's diet, helps in nourishment of the mother herself, the growth of baby and preparation for formation of breast milk. A balanced diet full of vitamins and minerals is recommended to this end. The Garbh sanskar foods in pregnancy should have a balanced amount of calcium, folic acid and iron. Garbh sanskar food in pregnancy includes sattvik food which refers to freshly prepared nutrient- rich food that includes all five tastes, namely, sweet, salty, pungent, bitter and sour.

### 3.4 Positive thinking

pregnancy can make you moody and irritable. Garbh sanskar helps you manage your emotion which is good, both for the mother and the baby. You could cultivate a hobby or just do things that make you happy.

### 3.5 Practicing yoga or some form of light exercise

Garbh sanskar recommends that pregnant women take up some light form of exercise or yoga for the physical well-being of both the mother and the child. Here are the benefits of exercise: Pranayama breathing exercises help to calm and relax the body while preparing you for breath- control during child birth. Light exercise increase flexibility, improves blood circulation and reduces backaches during pregnancy. Specific Garbh sanskar yoga asanas boost the mother's chances of having a full term normal delivery with minimal labor pain.

### 3.6 Meditation

Meditation is an important aspect of Garbh sanskar and is beneficial for the body as it de- stresses the mind. It involves getting into 'zero state of mind', which can help bring peace and tranquility, and enhance concentration. Visualizing good things about the baby while you meditate is also a great way to bond and think positively, which can help both you and baby.

### 3.7 Prayer

Praying is an important part of Garbh sanskar, and is believed to be good for spiritual development of the baby. Ancient scriptures contain mantras and shlokas which are beneficial for unborn babies. The prayers that are chanted bless the baby with good health and moral values and are an essential part of spiritual beliefs.

### 3.8 Listening to music which brings peace to mind

Garbh sanskar states that a baby can respond to music while in mother's womb. In fact, ancient literature says that a baby starts hearing and responding to its surroundings from fourth month of pregnancy. This is why the mother should listen to melodious music which calms her. Soft and spiritual songs or mantras and shlokas are said to be beneficial for both the mother and the child.

### 3.9 Reading calming or spiritual books

Garbh sanskar recommends reading spiritual books, which brings about a feeling of contentment and satisfaction. In fact, garbh sanskar also stresses on the fact that reading educational books shapes the personality of the child in the womb. It is believed that reading when pregnant can help pass on the wisdom to the unborn child. Books with moral values or mythological stories are recommended, but you can always choose another book you enjoy reading.

### 3.10 Benefits of garbh sanskar during pregnancy

It is up to the mother to shape up the first impressions of the baby. Positive thinking and a positive attitude can go a long way in ensuring the mental and physical well- being of the mother, which is linked to well- being of the baby inside her womb as well. Garbh sanskar helps develop that eternal bond between the mother and her unborn child. While experts encourage practicing garbh sanskar for the well-being of the mother, there are also long- term benefits for the baby that might not immediately be recognized. Communication with the baby is 'garbh sanwaad' that contributes to the mental growth of the baby and helps to build a strong bond with the

mother. Listening to music and reading to the unborn child can later help make your baby a sound sleeper or induce better sleeping habits. Your baby might become more alert, aware and confident. The baby might also respond to stimulus better and be more active and content. The mother- baby bonding also benefits as your baby might even begin breastfeeding in better way.

### 3.11 How garbh sanskar music helps your child

Since it is believed that a foetus can respond to external stimuli, especially from the seventh month onwards, the therapeutic effect of music can play an essential role according to garbh sanskar. The nearest sound for the baby is the mother's heartbeat, and that is why it is believed that crying baby can be soothed by holding him or her close to the chest. As the child hears something familiar, it can bring about a sense of calmness. The same logic applies to music, and much like the rhythm of a beating heart, the rhythm of music has a calming effect on a baby too. Garbh sanskar believes that the sound of the veena, a string instrument, and the flute, have sounds which can soothe the mind and the soul.

Garbh sanskar finds its roots in ancient practices. It focuses on the well- being of the mother and the healthy development of the child. But more than this, garbh sanskar focuses on fostering an everlasting bond between the mother and the child. A healthy diet, positive thoughts, regular exercise and a loving bond, are the components of garbh sanskar. Practice the simple tenets of garbh sanskar and experience the peace they offer.

## 4. Conclusion

Recent observation is that the stress hormone 'cortisol' can cross the placental barrier when a pregnant woman is under a high degree of stress and dietary protein is low. High cortisol levels can effect fetal brain development, specifically memory. The objectives of Garbha Sanskar technique is to create a healthy, good looking, brilliant, cultured, peace loving and free from hereditary disorders progeny for the future. In this study objective of garbha sanskar is to reduce stress and improve coping and wellbeing of antenatal mother. Since ancient times it has been known that the child in the womb adopts impressions from its surroundings and the behavior of its mother and also starts learning things. This fact has now been confirmed by modern science.

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## ROLE OF LEKHANA BASTI IN MANEGMENT OF PCOS - A CASE STUDY

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### ABSTRACT:

Poly Cystic Ovarian Syndrome is one of the main causes of subfertility in women. It is associated with anovulation, androgen excess, obesity and subfertility. PCOS results in increased free testosterone, ovarian androgen secretion, free estradiol and estrone. According to *Ayurveda* PCOS is a disorder which involves the three *Doshas*, *Dhathus* like *Rasa*, *Raktha* and *Medas*. The *Srothas* involved in this condition are *Rasa*, *Rakta* and *Arthava vaha* which eventually manifests features such as *Anarthava* (amenorrhea), *Vandhyathwa*, *Pushpagni*, *Abeeja rtuchakra* (anovular bleeding). Here is a case report of 23 year old female who presented with irregular menstruation, rapid weight gain and hair loss. On USG she was detected to have bilateral PCO pattern. Treated with *Ayurvedic panchakarma therapy Lekhana Basti*.

**Keywords:** *Ayurveda*, Polycystic Ovarian Syndrome (PCOS), *Artava kshaya*, *Lekhana Basti*.

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## INTRODUCTION

Poly Cystic Ovarian Syndrome is a condition that has cysts on the ovaries that prevent the ovaries from performing normally. Symptoms of Poly Cystic Ovarian Syndrome include Amenorrhea or infrequent menstruation, irregular bleeding, infrequent or no ovulation, multiple immature follicles, increased levels of male hormones, male pattern baldness or thinning hair, excess facial and body hair growth, acne, oily skin or dandruff, dark coloured patches of skin specially on neck, groin, underarms, chronic pelvic pain, increased weight or obesity, diabetes, lipid abnormalities and high blood pressure<sup>1</sup>. *Aartava-kshaya*, which can be correlated with PCOS has been described as deficiency or loss of artava, artava dose not appears in time or is delayed, is scanty and dose not last for three days. Pain in vagina also can be seen. According to *Ayurveda*, *Aartava-kshaya* is a disorder involving *Pitta* and *Kapha* doshas, *Medas*, *Ambu/Rasa*, *Shukra/Artava Dhatu* and *Rasa, Rakta, Artava Vaha Srotas*<sup>2</sup>

### Factor causing PCOS

#### Insulin resistance

Insulin is a hormone utilized body for glucose absorption. Insulin resistant condition in which body cannot utilized insulin for energy production. Hence body produces more insulin causing hyperinsulinemia (*aama*) that causes burden on hypothalamic pituitary ovarian axis that lead PCOS.

**Obesity-** Obesity is prime factors for producing PCOS but lean women also suffer from PCOS. the complication arise due to obesity are Coronary artery disease, diabetes, Hypertension.

**Hereditary-** The chances of PCOS more in women who have family history of PCOS.

#### Criteria for diagnosis:

The presence of at least 3 of the following criteria:

Polycystic Ovaries on USG

Oligomenorrhea or anovulation

Clinical or bio-chemical evidence of Hyperandrogenism

Elevated LH

LH: FSH ratio > 3

Assessment criteria were based on the improvement in the score of cardinal symptoms which are irregular menstruation, duration of bleeding, dysmenorrhea, quantity of menstrual blood, excessive body hair, obesity, and skin discolouration before and after the treatment.

### CASE REPORT

A female patient, 23 years old, came to Prasutitantra and *Striroga* OPD of our Hospital on 05 march 2021 with chief complaint of Irregular Menses, Scanty Menses, rapid weight gain and hair loss and Constipation in the last 4 Years.

#### Menstrual History –

Age Of Menarche -13year

LMP:13-06-2021

Interval-60 Days

Duration-2days

Pain-moderate

Clots- present

**Treatment Given**

Drugs used in *Lekhana Basti*:3Madhu,

*Saindhava, Sneha, Kshara,*

*Prakshepaka Dravaya's (Ushakadi Gana),  
Gomutra, Triphala Qwatha.*

*Sneha: Triphala Taila*

*Triphala : Haritaki, Vibhitaki, Amlaki*

*Ushakadi Gana Dravaya's4: Ushaka, Tut-tha,  
Kasis, Hingu, Saindhava, Shilajit*

*Kshara : Yava Kshara.*

**Table Number 1 shows *Lekhana Basti* Contents & There properties**

| Drugs                       | Botanicalname                | Rasa   | Guna                | Virya      | Vipaka      | Doshghnata          | Karma                                |
|-----------------------------|------------------------------|--|---------------------|------------|-------------|---------------------|--------------------------------------|
| Amlaki <sup>5</sup>         | Ambel-lica<br>Officinalis    | Pan-<br>charasaAmlaPradhanLa<br>vana<br>Varjit | Ruksha<br>Guru      | She<br>et  | Madhu<br>ra | Tridosha-hara       | Vrishyapra-<br>jasthapana            |
| Haritaki <sup>6</sup>       | Termi-nallia<br>Chebulla     | KashayaPradhana                                | LaghuRuk<br>sh<br>a | Ush-<br>na | Madhu<br>ra | Vatashamak          | Vrishyagarbhasha<br>y<br>asotha hara |
| Vibhit-<br>aki <sup>7</sup> | Termi-nallia<br>Beleric      | Kashaya  | Ruksha<br>Laghu     | Ush-<br>na | Madhu<br>ra | Kaphashamak         | Vajikaran                            |
| Ushaka <sup>8</sup>         | DorenaAmmo<br>ni-<br>cum     | Tikta,Ka-tu                                    | Ruksha<br>Laghu     | Ush-<br>na | Katu        | KaphaVataSha<br>mak | Artava-janana                        |
| Hingu <sup>9</sup>          | FerulaNarthra<br>x           | Katu   | Laghu<br>Tik-shna   | Ush-<br>na | Katu        | KaphaVataSha<br>mak | Vajikaranaartvaja<br>nan             |
| Tuttha <sup>10</sup>        | Cu So4                       | Kashaya<br>Madhura                             | Laghu               |            |             | Kaphahara           | Lekhana<br>bhedana                   |
| Kasis <sup>11</sup>         | Fe So4                       | Tikta<br>Kashaya                               |                     | Ush-<br>na | Katu        | VataKapha<br>Hara   | Raja<br>pravartaka                   |
| Shilajit <sup>12</sup>      | Asphal-<br>tumPun-<br>jabium | Tikta  |                     | Ush-<br>na | Katu        |                     | Yogvahi                              |

|                       |  |      |          |        |  |                |  |
|-----------------------|--|------|----------|--------|--|----------------|--|
| Gomutra <sup>13</sup> |  | Katu | Tik-shan | Ush-na |  | Vatapitta Hara |  |
|-----------------------|--|------|----------|--------|--|----------------|--|

### Observation

Due to *Samprapti Vighatana Kriya* of this *Ayurveda* treatment regimen the symptoms of Poly Cystic Ovarian Syndrome get reduced. The effect of therapy show highly significant

result on all above symptoms of Poly Cystic Ovarian Syndrome. When considering irregular menstruation most of the patients had 2 - 4 months duration.

### Results

**Table 2 shows before and after treatment results**

| Sr. No | Signs                | Before treatment   | After one month     | After two month   |
|--------|----------------------|--|---------------------|---|
| 1      | Delayed Menstruation | Abnormal Menstruation  | Normal Menstruation | Normal Menstruation   |
| 2      | Acne on face         | +++  | ++                  | +   |
| 3      | Weight gaining       | 72 kg  | 68 kg               | 63 kg   |
| 4      | Thinning of hair     | ++   | +                   | +   |
| 5      | Darkening of skin    | ++   | +                   | -   |
| 6      | usg report           | Endometrial Thickness 5.6mm -Right ovary volume 17.1cc -Left ovary volume 10.7 cc - Both ovaries are bulky(R>L) -Bilateral Polycystic ovarian Diseas | -                   | -Endometrial Thickness 4 mm - Right ovary volume 10 cc -Left ovary volume 9.6 cc - Residual mild changes Pcod |

### Previous Research Done

1 AYURVEDA PERSPECTIVE ON LEKHAN BASTI W.S.R. TO ROLE IN THE MANAGEMENT OF PCOD WORLD JOURNAL OF PHARMACEUTICAL AND MEDICAL RESEARCH Deepti L. Kawale<sup>1</sup> and Sharad D. Tripathi<sup>2</sup>, <sup>1</sup>Professor, Panchakarma Department, Jupiter Ayurveda

Medical College, Shankarpur, Nagpur, India.<sup>2</sup>Reader, Shalyatantra Departments, Bhausaheb Mulak *Ayurved* Mahavidyalaya, Nagpur, India - Basti helps to relives symptoms of PCOD, the Kwatha mainly *Triphala* decoction pacifies *Vata* and *Kapha* vitiation. *Lekhan Basti* regulates menstruation,

decreases body weight, cause expansion of follicles and improves ovulation process. This therapy also helps to reduce premenstrual symptoms such as; hair loss and acne, etc. *Lekhana Basti* helps to treat Poly Cystic Ovarian Disease by improving ovarian dysfunction and menstrual irregularities, etc.

**2. A CONCEPTUAL STUDY ON EFFECT OF LEKHANA BASTI ON POLYCYSTIC OVARIAN SYNDROME**  
Lecturer, Department of Prasuti Tantra & Stree Roga Gangasheel Ayurvedic Medical College, Bareilly, Uttar Pradesh, India, International Ayurvedic Medical Journal- Treatment with the combination of both *Triphala Kwatha* and *Triphala Taila Anuvasana Basti* has additional effect on the symptoms of PCOD. It will be effective in regularizing menstruation, achieving considerable reduction in body weight, substantial growth of follicles, and thus ovulation because drugs used in combination are opposite of *vata* and *kapha*. It helps to remove *Aavarana* of *Kapha*. For the good quality of life relief on following lines must be procured ,Gradual weight loss ,Regular menstrual cycle,Cure from prolonged menses, scanty menses,Alleviation of symptoms like pre menstrual swelling, hair loss, acne,Promotion of fertility with production of healthy ovum

## DISCUSSION

Probable Mode of Action of Drugs

*Basti* works on whole body after entering into *Pakvashaya* or *Guda*. *Guda* is said as *Sharira Mula* having *Shiras* and *Dhamanies*, which spreads all over the body<sup>14</sup>. It exerts local as well as systemic effect. *Basti Dravyas* normalize *Apana Vata* making it to function normal. It also enhances the function of *Purisha*. One of the functions of *Purisha* is '*Anila Anala Dharana*', thus *Basti* leads to correction of *Agni Dushti*. At the end, *Basti* normalizes the function of *Apana Vata* leading to normal *Rajah Pravritti* and normal *Beeja Nirmana*<sup>15</sup>. Here, *Triphala Taila* and *Prakshepeka Dravyas* used for the *Basti* and the *Gunas* of *Triphala* are *Balya, Deepan, Pachan, Yonivishodhana, Artavajanana, and Beejotsarga*.

Effect on menstrual irregularities: *Amapachana, Srotoshodhana, and Vatakaphashamaka* properties of both *Triphala kwatha* and *Triphala taila* may be responsible for the efficacy. *Ushna, Tikshna, Lekhana, Pachana*, etc., properties of contents of *Lekhana Basti* are similar to *Pitta* increases *Agneya Guna* of *Pitta*, which is responsible for decreasing interval. This effect is also supported by *Vatanulomana* property of *Anuvasana Basti*. Effect on follicular growth and ovulation: This may be because of removal of *Sanga* by *Kapha-Vata Shamaka Srotoshodhana, Aama Pachana*, etc. properties of both the

drugs. After removal of Sanga created by vitiated Kapha and Ama in Artavavaha Srotas, Apana Vata functions well leading to normal Rajah Pravritti and Beeja Nirmana. It may be hypothesized that both the treatment modalities may decrease LH level thus preventing premature luteinization. Thus normal FSH level stimulates growth and development of follicle.

Effect on other symptoms: In addition to properties like Lekhana, Rruksha, Tikshana, Deepana, Pachana, etc., of Triphaladi Kwatha adds this effect of reduction in body weight by regulating Jatharagni. Thus, it checks the excessive growth and accumulation of Medodhatu and thereby causing Lakshana Upashamana of disease PCOD.

### CONCLUSION

From this case study Polycystic Ovary syndrome (PCOS) Patients can be managed by Ayurveda treatment. For proper functioning of Aartava vaha srotas balance apan vayu needed. Imbalance cause dushti (Diseases) in Aartava vaha srotas. This is single Case Study but large scale study need with more number of patients of PCOS

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## Management of Jirna Kasa (Chronic cough) in children with ayurvedic regimen a single case study

**Nikita S Korade and Karuna Ratnaparkhi**

### Abstract

*Kaumarbhritya* is one of the famous branches that deals with *vyadhis* of children and their *chikitsa*, and when it comes to *vyadhis* the most predominant system of body which is affected is *Pranavaha Srotas*. Many children's usually suffer a lot when it comes to respiratory ailments. Many children and newborn died due to *Pranavaha Srotas* dysfunction i.e. respiratory illness, so their management needs a different approach. The most important cause of death of children below 5 years of age is pneumonia causing 18% of deaths below 5 years of age, also the morbidity of respiratory illnesses is roughly 70% 1. In developed countries, up to 25% children aged less than 1 years & 18% of children aged 1 to 14 years experience Recurrent Respiratory Illness 2 Respiratory illness like common cold, difficulty in breathing, cough, wheezing is most commonly present in children. It occurs because of airway inflammation & child airway is small and narrow, making it easy for them to fill & get blocked with mucus. Poor Immunity and recurrent infections are the major concern in children. Repeated infections and recurrence of any disease may adversely affect the physical and mental growth as well. Respiratory tract illness accounts for about more than 50% of patients attending Pediatric OPD. Available treatments like mucolytic, expectorant, bronchodilators and now the use of inhalers cannot completely cure the patient and frequent use of these drugs can cause many health hazards. Wheezing is a common clinical have had one episode of wheezing by 6 yr.

**Keywords:** Jirna kasa, pranavaha srotas, ayurvedic regimen

### Introduction

In Ayurvedic classics *Kasa*, *Shwasa* and *Hikka* are three major diseases explained Under *Pranavaha Sroto-vikaras* (Respiratory Disorders). Due to their similarity in etiology, Certainly in pathology and treatment they Have been explained subsequently in classics. Chronic bronchitis (*kasa*) having major Symptoms like *Kasa* (cough) and *Shwasakricchrata* (Breathlessness), it is Included under *Pranavaha Sroto Vikaras* (Respiratory disorders). Diseases of the Respiratory system account for up to a third of deaths in most countries Early intervention is necessary in case of *Kasa* as it is a potential *Nidanarthakara Vyadhi* (disease having tendency to produce secondary diseases) to produce *Kshaya* <sup>[4]</sup>. (a disease characterized with severe emaciation). It is noted that children suffering from recurrent RTI exhibit significantly hampered growth and development (including intellectual and social up-gradation) <sup>[5]</sup>. Depending upon the duration of the symptoms the cough can be classified as acute, sub-acute or chronic if it persists for less than 3 weeks, 3 to 8 weeks or more than 8 weeks respectively. The etiology of cough is diverse and includes environmental as well as infective causes. Post nasal drip and post infectious cough are two commonest reasons for sub-acute to chronic cough <sup>[6]</sup>. The case study discussed here is of a 10 year female child, who had recurrent episodes of cough and frequently received treatment but, had temporary relief and relapses were frequent. Then he came to Ayurvedic OPD and was given an Ayurvedic regimen (i.e. *Sitopladi churna* along with *Shwaskuthar rasa*). The child had significant relief from signs and symptoms of recurrent episodes of chronic cough. The recurrence or the frequency of disease was found markedly reduced. Ayurvedic management proved to be beneficial in this case of recurrent respiratory illness.

### 2. Case Study

**2.1 Aims and Objective:** To evaluate the role of Ayurvedic Regimen in the management of recurrent (chronic) cough.

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### Material And Methods

**Study design:** Present study is a single case study conducted in the department of kaumarbhritya of CSSMS, Ayurved College, Aurangabad, and Maharashtra.

**Case report:** A 10 year old Female patient came to Kaumarbhritya OPD in CSMSS Ayurved Mahavidyalaya, Kanchanwadi, Aurangabad, and Maharashtra. With complaints of recurrent cough, sore throat, difficulty in breathing on and off and severity increases during winter season.

**History of present illness:** Patient was healthy before 1 and half year. But gradually she suffered with respiratory episodes in 1 and half year before and further that she had recurrent respiratory illness episodes start but cough worsened day by day. Recurrent episodes of –Cough, Dyspnoea, Running nose, Sore throat Associated complaints- Pallor ++

**History of past illness:** H/O Recurrent respiratory illness since last 2 years. An average of 2 to 3 episodes of Recurrent episodes of cough per month. No H/O any other major illness or any surgery.

**Drug history:** Frequent use of antibiotics, mucolytic/ bronchodilators, antihistamines drugs.

**Family History:** H/O Bronchial Asthma to Grandfather

**Birth history:** 1. Antenatal – nonspecific

### Systemic Examination

**Table 2:** Pranvaha strotas parikshan

| Darshan<br>(Inspection)-                   | Sparshan<br>(Auscultation)-                                  |
|--|--|
| Shape of chest- Normal Chest retraction-No | RS - B/L Wheezes were audible, Air entry slightly diminished |
| Movement of chest-symmetrical              |  |

CVS - S1S2 normally heard CNS - Conscious and Oriented

**Diagnosis:** Clinically on the basis of signs and symptom, CBC, Chest X-ray.

### Treatment Plan

**Table 3:** First Line Treatment - *Deepan -Pachana*

| Abhyantar Aushadhi              | Total Aushadh Matra (7)                                       | Sevankal 8  | Kalavadhi (Duration) |
|---------------------------------|---|---|----------------------|
| Lashunadi Vati + Trikatu Churna | 35 gm +<br>35 gm<br>Mix with each other in the form of churna | Pratham kal(Suryoday Jatah)<br>Sanyanbhojane Each kal given<br>3.5gm churna before meal | 10 Days              |
| Anupana                         |   | Ghrita  |                      |

### Aahar –Yojana

During *Deepan -Pachan* period only advised to take *Varan + Bhat* along with *Ghrita*.

Natal – Full Term Normal Delivery, at hospital, Baby Cried Immediately After Birth, birth wt. – 2.5 kg.

Postnatal – No H/O neonatal jaundice & seizure no H/O NICU Admission.

### General Examination

**Table 1:** Show Built and Moderate

| Built              | Moderate |
|--------------------|----------|
| General appearance | Fair     |
| Temp.              | 98.7 OF  |
| Pulse              | 98/min   |
| RR                 | 30/min   |
| Height             | 130cm    |
| Weight             | 29.8kg   |

### Physical Examination

1. Nadi - Kapahapradhan.
2. Mala -Sama mala.
3. Mutra – Samyakpravrutti.
4. Jivha – Sama.
5. Shabda – Spashta.
6. Sparsha – Samshitoshna.
7. Druk – Mild pallor.
8. Aakruti – Madhyam.

Other examination – Agni – Agnimandya Koshtha– Mrudu.

Water-warm water advised for drinking.

**Table 4:** Second Line Treatment – Ayurvedic Regimen

| Abhyantar Aushadhi                          | Total Drug Matra (7)   | Sevankala (8)   | Duration  |
|---|--|---|---|
| Yashtimadhu Churna<br>Sitopaladi Churna     | 30 gm<br>75gm<br>Mix with each other in the form of churna   | Dwitiya kala (BhojanPaschat)<br>Pancham kal (Nishi kala)<br>In the form of churna after a meal. In divided doses<br><b>Each dose =3.5gm of churna (total 7 gm in a day)</b> | 15 Days<br>Repeated cycle for 3 times with a gap of 7 days after each cycle |
| Anupana                                     |  | Madhu (Honey)   |   |
| <b>Rasayan Chiktisa for Pranvah strotas</b> |  |   |   |
| a. Vasavaleha                               | 150 ml   | In the form of liquid<br>10 ml for total day (5 ml each dose)<br>Sevenkala-As mentioned in above  | 15 days<br>Repeated cycle for 3 times with a gap of 7 days after each cycle |
| b. Pippalyadi rasayan                       | 1 tab daily with lukewarm water increased per day with half tab up to 10 days (5 tab daily at day 10th) and decreased accordingly with tapering dose. Like Vardhman pippali rasayana |   | 2 months  |
| Anupana                                     |  | Lukewarm water equal quantity for each dose   |   |



**Table 5:** Observation and result

| Observation   | Before Treatment | After Completion of regimen |
|---------------|------------------|-----------------------------|
| Sore throat   | ++               | -                           |
| Chronic Cough | +++              | +                           |
| Rhinitis      | +                | -                           |
| Pallor        | +++              | +                           |
| Dyspnoea      | +++              | -                           |
| Weight        | 29.7kg           | 31.1kg                      |
| Anorexia      | ++               | -                           |

**Table 6:** Histopathology report

| Investigations       | Before Treatment | After Treatment |
|----------------------|------------------|-----------------|
| TLC                  | 10100/cu mm      | 8000/cu mm      |
| DLC                  |                  |                 |
| Neutrophils          | 77%              | 65%             |
| Lymphocytes          | 18%              | 26%             |
| Eosinophils          | 02%              | 03%             |
| Monocytes            | 03%              | 05%             |
| Hb%                  | 10.8 gm%         | 13gm%           |
| ESR(Westergreen)     | 60 mm /hour      | 26 mm /hour     |
| AEC                  | 480/L            | 330/L           |
| S.G.O.T              | 21 IU/L          | 19 IU/L         |
| S.G.P.T              | 32 IU/L          | 17 IU/L         |
| Alkaline phosphatase | 96 IU/L          | 84 IU/L         |

**Radiological Findings – Chest X ray PA view****Image 1:** Before Treatment**Image 2:** After Treatment

Chest X ray PA view of a female child of 10 years. Before and after treatment clearly seen the improvement in chronic cough relieves within 2.5 months with ayurvedic regimen. Also the symptoms relieve and the child feels better.

**Discussion**

Ayurveda states that in children, the *Prana, Dosha, Dhātu, Bala, Ojas* are underdeveloped, and therefore, they are the most vulnerable group in terms of illness. Therefore they should be supported externally to potentiate their immune system. Although available allopathic conventional management provides symptomatic relief, there is no conclusive evidence that they shorten the duration of symptoms, hence for the above case we used proven ayurvedic preparation for chronic cough.

**Pippalyadi rasayan**

Pippali was one of the plants, which was growing in forest, has antitoxic drug, grouped under *katurasa varga*, and has *sleshmahara* property. The drug pippali finds its mention in atharvaveda in the context of *rasayana* and *vata roga bhesajya*. Acharya charaka in *vimana sthana* has elucidated *yogavahi karma* of pippali due to this special property it is used in various formulations as a medicine and adjuvant 9 pippali is indicated in *swasa, kasa, kshaya, pliha roga, gulma, jvara, udara roga, amavata, amadosha* 10 major constituents of piper longum are piperine, piperlongumine and methyl 3,4,5-methoxycinnamate. Others include resin, volatile oil, starch, fatty oil, and inorganic matter, having anti-amoebic, anti-asthmatic, hepato- protective, and immune-modulatory activities <sup>[11]</sup> Hence effective in *Jirna kasa*.

**Yashtimadhu Churna:** Yashtimadhu has been popularly used in Indian households to provide relief from a sore throat. This herbal medicine can treat cough, throat irritation and other upper respiratory problems. The antibacterial properties of Yashtimadhu help fight bacterial infections of the respiratory tract. Yashtimadhu is a popular herbal supplement that can boost your innate immunity and help your body fight diseases. Yashtimadhu can soothe irritated and inflamed bronchial walls. It also reduces chest congestion and relieves cough. The potent anti-inflammatory and antibiotic properties of Yashtimadhu make it a popular remedy to help get rid of phlegm. In Ayurvedic classical texts Yashtimadhu properties are very well explained by *Maharshi Charak* [12].

**Sitopaladi Churna:** Depending on the nature of the cough, it may be mixed with honey, water, or ghee or given alongside other herbal formulations. Animal studies established its ability to block cough. The antitussive activity of this medication is assigned to its ability to effect the central nervous system and suppress a cough. This soft remedy is considered safe enough for children as well [13]. The immune System responds to an allergen such as dust, dander, pollen etc. by releasing a chemical known as histamine. this is responsible for sign or symptoms like running nose, watery eyes, or bitter throat you experience during an allergic reaction. Animal studies show that sitopaladi churna has antihistaminic activity and can help you tackle allergies. It inhibits the release of inflammatory mediators from mast cells in our body and stabilizes them. This, in turn, helps to control those classic allergy symptoms [14].

**Vasavaleha:** Vasavaleha is a potent Ayurvedic remedy for respiratory conditions like bronchitis, asthma, and persistent cough. Asthma, bronchitis, and cough are just a few of the respiratory disorders that can be effectively treated with vasa. Vasa has a chemical that is related to bromhexine chloride as well as volatile oils, which is why it functions so effectively as an expectorant. Vasa's roots, leaves, and flowers are its main uses. Vasa functions as an expectorant, loosening the clingy phlegm and facilitating its removal from the chest and airways. By lessening bronchial tree irritation and spasm, it prevents asthma attacks. By calming the throat, it also aids in the management of pharyngitis and chronic cough [15]. Vasavaleha shows antitussive activity. Vasicine present in vasavaleha extracts dilates the bronchioles or air passages in the lungs. The different phytoconstituents present in vasa also have cough suppressing properties and act on the brain, specifically the medulla [16].

## Conclusion

Acharya *Charaka* specifies that *avarana* of *Kapha* to the *gati* (movement) of Prana *Vata* ultimately leading to *Kaphaja kasa*. In chronic bronchitis there is also production of mucus due to inflamed mucosa of the respiratory tract. Chronic production of mucus in the respiratory tract leads to airflow obstruction leading to symptoms like cough with expectoration, dyspnea, wheezing etc. Chronic cough is due to *Avarana* of *Kapha* to *Pranavayu*. *Agni Dushti* may also be a contributory factor in the *Samprapti*. In the involvement of *Dushya* Rasa dhatu plays a major role. Prana Vayu attains *Vilomagati* due to *Avarana Samprapti*. In this regard, treatment principles should include *Agnideepana*, *Avaranahara*, *Vatanulomaka* and *Rasayana*. The formulation of *vasavaleha* is generally indicated in all types of *Kasa* and

*Shawsa*, and has *Anabhishtyandi*, *Snigdha* and *Sroto Shodhan* properties.

From the above case study we can confirm that it is very important to have an Ayurvedic approach in recurrent respiratory illness like chronic cough, chronic rhinitis etc. *Kapha dushti* and *Dhatu kshaya* in recurrent respiratory illness is the prime thought which should be considered while treating the patient and proper ayurvedic interventions should be administered. Patient had significant relief recurrent episodes of respiratory illness by given ayurvedic regimen. Thus, Ayurvedic Regimen is beneficial in prevention and management of recurrent respiratory illness.

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### Review Article

## IMMUNITY – AYURVEDIC PERSPECTIVES AND PRACTICES

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### ABSTRACT

Most discussable and most common topic today is *Vyadhikshamatva* (Immunity) due to past SAR COV-2 situation. Major curse on our earth is pandemic situation has become a major headache for every government and every agency. To face this situation and to avoid future we have to work on our *Vyadhikshamatva* (Immunity). According to Ayurveda, the power of body which decreases the harmful effects of the disease and stops the origin of the disease is known as *Vyadhikshamatva* (Immunity).

*Vyadhikshamatva* is a broad concept comprising the whole modern understanding of immunology and giving attention to the prevention and progression of diseases in human body.

Ayurveda is the science of life and its main aim is to maintain healthy status of healthy living being, i.e., prevention of disease and treatment of disease. To fulfil these purposes, Ayurveda has mentioned various fundamental principle in reference of *Sharira Rachana*, *Sharira Kriya*, *Chikitsa*, etc. the natural inherent strength or power of the body which is responsible for the health is termed as *Bala*. *Bala* depends upon the health status of *Dhatu*, *Prakriti*, *Desha*, *Kala* and concept of *Ojas* is one among them. According to the concept of *Ojas* or *Vyadhikshamatva* or *Bala* (immunity), the body's resistance is of tremendous importance in the daily life of living beings not only for disease prevention but also for rapid recovery after disease. In

Ayurveda prevention is an equally important aspect of disease management as cure and thus, strengthening the immune system, is a natural way to help the body fight against the disease-causing pathogens. In Ayurveda Acharyas promoted the use of *Rasayana* (Rejuvenation) to enhance *Ojas* and *Vyadhikshamatva* (immunity). *Rasayanas* are useful for Promoting Health and rejuvenating agents which by their empirical effects produce resistance against disease both physically and mentally.

**KEYWORDS:** *Vyadhikshamatva, Bala, Ojas, Immunity, Rasayana*

## INTRODUCTION:

“*Swasthasya Swasthya Rakshanama Aturasya Vikara Prashamanam Cha*”, Main aim of Ayurvedic Science is to maintain the health of healthy individuals and cure the diseased one. Due to advancement of science and research, life span of human being has been increased but simultaneously threat of pandemic situation or communicable diseases is increasing day by day. To make command on this pandemic diseases we have to increase our own immune system. Immune system is defined as a sophisticated and highly evolved network of integrated body system including organs, tissues, cells and cell products with a mission to provide resistance and or retaliation to foreign agents or invaders physiologically.

*Vyadhikshamatva* Functional role of-

- *Prana anuvarthana* – provide resistance and Preserves life
- *Harsha* –having a mind free of depression and anxiety and provide quality of life.
- *Arogyaanuvarthana* – Improves health.
- *Dosha nigraha* – Balances dosha and balance life
- *Vyadibalavighatha* – Inhibits the effects of diseases.
- *Vrana ropana* – Heals wound and recovery from diseases

## CONTENTS

- To study the concept of *Vyadhikshamatva*.
- To study the *Bala* in detailed.
- To study the concept of *Ojas* and its function in detail.
- To study role of *Rasayan*.
- To study role of *Satva*

**CONCEPT OF VYADHIKSHAMATVA** The concept of *Vyadhiksamatva* (immunity) is huge importance in the daily wellness of human beings; for prevention and also recovery from diseases. *Acharya Chakrapaani* has described *Vyadhikshamatva* (Resistance to disease manifestation) in two ways <sup>[1]</sup>

1. *Vyadhibalavirodhitvam*- Capacity of the body to fight against disease.

## 2. *Vyadyutpadapratibandhakatvam* - Capacity to restrain or withstand the strength (Severity) or Virulence of diseases.

According to *Acharya* Sushruta in the context of a person with good immunity against diseases says, 'He who consumes food which is moderate in both properties viz. unctuousness and dryness, the essence of that consumed food gets formed in him, circulating throughout the body,

nourishes all the dhatus (tissues) properly, being in their normal, the dhatus, make for medium sized body; he will be capable of performing all activities, of enduring hunger, thirst, cold, heat, breeze, rain and sunlight and will be strong.<sup>[2]</sup> Both of them together have called Immunity against disease and resistance against death and decay. Ayurveda emphasizes the promotion of health through the strengthening of host defences, against day-to-day physiological extremes as well as opportunistic maladies. Thus, *Vyadhikshamatva* implies a resistance against the loss of the integrity, proportion or amount, and interrelationship amongst the individual's *Doshas* (bioenergies) and *Dhatus* (tissues).

**CONTRIBUTING FACTORS FOR VYADHIKSHAMATVA** Various factors which contribute towards *Vyadhikshamatva* are normal *Doshas*, equilibrium state of *Dhatus* (bodily tissues), normal *Agni*<sup>[3]</sup> (digestive fire), patency of *Srotas*<sup>[4]</sup> (micro channels) etc. Person who is possessing excellence of all *Dhatus* including mental faculties i.e. *Sarvasara* are endowed with great strength, happiness and resistance to diseases.<sup>[5]</sup> It follows then that the Ayurvedic concept of immunity is intricately interwoven with the concepts of nutrition, *Agni* (digestive fire), and tissue formation. In the ancient texts *Vyadhikshamatva* which appears as a *Bala*, generally translated as "strength" and both terms are used as synonyms.

**Vyadhikshamatva in different individuals-** Some people with appropriate daily and seasonal habits develop disease and some peoples dose not developed in same condition like in Today's condition Corona affects easily to small age group and old age group due to variation in immunity power than young adult, though indulging in improper diet and behaviour hardly develop any disease. *Acharya* Charaka described two types of *Sharira* (individuals) - *Vyadhisaha* and *Avyadhisaha* which are similar and can be easily correlated to *Vyadhi Kshamatva* and *Akshamatva*. *Manobala* is also important Along with *Sharir Bala*; Person has poor *Vyadhikshamatva* if he /she has good *Sharirabala* but poor *Manobala* then generally they have and this is explained by *Acharya* Charaka by term *Alpa sattvaani*.

## REVIEW OF LITERATURE

The materials were collected from the Ayurvedic classics, and research journals, articles etc.

## MATERIALS AND METHODS

In Ayurveda *Vyadhikshamatva* related as: *Sleshma*, *Bala* and *Ojas*.

**I. Sleshma:** In normal state *Sleshma* is called *Bala* and *Oja*. *Sleshma* in abnormal state called "*Mala*" (waste) and "*Papma*" (diseases)<sup>[6]</sup>(Function of normal *Kapha* (*Kapha* is one of the *Tridosha* (three humors- *Vata*, *Pitta* and *Kapha*-which are said to be responsible for maintenance of homeostasis or equilibrium in the body), which performs the functions like strength, support, protection, growth and resistance) like that of *Ojas*. *Kapha* in normal state provides compactness, stability, heaviness, virility, immunity, resistance, courage and greedlessness.<sup>[7]</sup>

## II. Bala:

Acharya Sushruta mentioned *Bala* as "*Tatr Balen Sthiropacitamamsata Sarvachestastvapratigaatah Svaravarnaprashado Bahyanamabhyantraranam Cha Karananamatmakaryapratipattirbhavati*" means *Bala* imparts firm integrity to the muscles, improves the complexion and voice, helps the person to perform his natural functions (including the external and inner function) normally<sup>[8]</sup> Three types of *Bala* (*Vyadhiksamatva* or immunity) in Ayurveda are: 1. *Sahaja* 2. *Kalaja* 3. *Yuktikrita*<sup>[9]</sup>

**a. Sahaja Bala (innate):-** The constitutional strength present since birth. It depends on the healthiness of *Shukra* (sperms) and *Artava* (ovum). Genetics as per Ayurvedic concept, if two parents' genetic makeup is healthy, similar health status is acquired by the children. On the other hand if the genetic makeup of parents is susceptible to certain diseases, those diseases may be carried over into the next generation.<sup>[10]</sup> This concept indicates genetic abnormalities which occur due to abnormal changes at genes or chromosomal levels.

**b. Kalaja Bala (according to time, season, and age):-** About the time of day, season, age etc. (according to *ritu* and age) factors for enhancing immunity. In the early morning Strength is assumed to be greater, spring, and *yuvaawastha* (young age) than in evening, summers and old age. <sup>[11]</sup>

**c. Yuktikrita Bala (acquired):-** Ayurveda focuses for acquiring *bala* or enhancing immunity by:

- Proper, nutritional, suitable *Ahara* (nutritious diet),
- Performing exercise (*Chesta*) with proper method &
- Using different beneficial Yoga, Pranayama, Meditation (e.g. *Rasayanachikitsa*)<sup>[12]</sup>

## III. Ojas:

1. According to Charaka, during embryogenesis the *Oja* appeared foremost in the human body.<sup>[13]</sup>

2. The essence of *Saptadhatus* (*Saptadhatu* means the seven bodily tissues as from *Rasa* to *Shukra Dhatu* e.g. *Rasa* (plasma and lymph), *Rakta* (blood cells), *Mansa* (connective and muscular tissue), *Meda* (body fats e.g. adipose tissue), *Asthi* (bones), *Majja* (bone marrow) and *Shukra* (reproductive systems). is called *Oja* and it is the seat for strength, hence called *Bala*.<sup>[14]</sup>

3. In Ayurveda, *Ojas* has been considered vital in the defence mechanism of the body. It resides in the heart (*Hridaya*), but also circulates (*Vyapata*) all over body and maintains healthy status of the person. If this is lost, life also is lost and if this intact, life also continues.<sup>[15]</sup>

4. In conditions like and *Shosha* (malnutrition), *Madhumeha* (diabetes mellitus) where depleting of *Ojas* (infection fighting power) is a constant feature, people are known to be susceptible to various recurrent infections. Types:

- *Para Ojas*: This is *Ashtabindu* in quantity, if decreases then person will die.
- *Apara Ojas*: which is *Ardhanjali Ojas*, if decreases or vitiated manifest abnormalities. It is “*Somatmaka*” (mild and cool) and “*Snigdha*” (essence) in nature. Though predominately white in colour, has got some yellowish & whitish tinge. Ten great blood vessels connected to heart carry the *Rasatmaka Ojas*”, on which the whole life process itself is dependent.<sup>[16]</sup>

### Factors responsible for enhancement of strength

According to Carak acharya there are 12 factors responsible for increasing *Bala*(strength) of the body known as *Bala Vriddhikara Bhava*<sup>[17]</sup>

1. Birth in a country where people are naturally strong like *Sindhpranta*.
2. Birth at a time when people naturally gain strength i.e. *Hemanta* and *Shishiraritu*(winter)
3. Favourable deposition of time (pleasant and moderate climate)
4. Excellence in the qualities of seed i.e. sperm and ovum, and *Asaya* i.e. uterus of the parents.
5. Excellence of the ingested food.
6. Excellence of the physique.
7. Excellence of the *Satmya* (healthiness of various factors responsible for maintenance of the body).
8. Excellence of the mind.
9. Favourable deposition of the nature.
10. Young age of both the parents i.e. they should not be over aged.
11. Habitual performance of exercise.
12. Cheerful disposition and immense love for each other. The individuals possessing most of these factors are naturally immune i.e. *Vyadhikshama* for diseases.

### FOOD ARTICLES WHICH INCREASE OJAS AND BALA

1. The food which is light (*Laghu*) cold in potency unctuous and beneficial to body<sup>[18]</sup>
2. *Jivniya* drugs and milk and its product<sup>[19]</sup>
3. Food articles having *Madhura Rasa* and amla promotes *Ojas* and strength<sup>[20]</sup>
4. *Katu* and *Tikta* take away the strength.



5. Milk the cow milk has got the ten properties like that of *ojas* thus it is best among vitalizers.<sup>[21]</sup> *Takra* and *Navnita* are said to increase the strength.
6. *Ghrita* is mentioned as strength and *Ojas* promoter<sup>[22]</sup>
7. *Mamsarasa* is meat soup it is nourishing and cordial it is as nectar for those suffering from phthisis, emaciation during convalescence. Eggs of swans, *Chakora*, hens, peacocks and sparrows if consumed immediately promote strength<sup>[23]</sup>
8. Among cereals Barley *Yava* is *Balya*, wheat is vitalizer, bulk-promoting, stabilizer and heavy.<sup>[24]</sup>
9. All pulses in general are strength promoter especially *Masa*<sup>[25]</sup> and *Tila*. Fruits that are sweet in taste are *Balya* and nourishing especially Grapes, Dates, Coconut, *Phalgu*, ripened *Amra*, *Vataram*, *Abhisuka* and *Aksota*.

## ROLE OF RASAYANA

### Classification of *Rasayanas*:<sup>[26]</sup>

#### A) According to Acharya Charaka:

1. *Kutipraveshika* (indoor regimen): Patient has to stay in a very specialized manner in the specifically made *Kuti*, As per the needs of *Rasayana*.
2. *Vatatapikarasayana* (outdoor regimen): Person can use it while doing his/her normal duties and staying at his or her own home.<sup>[27]</sup>
3. *Achara Rasayana* (mode of conduct) - *Acharya* Charaka described in detail in *Rasayana* chapter<sup>[28]</sup>. Aim is to follow a particular code of conduct in routine life, which keeps oneself to attain good mental and spiritual health. By following *Achara Rasayana*, person can be keep away from anxiety, stress, and thereby from all diseases that are generated due to undue stress, anxiety, fear, anger, depression etc.

#### B) According to Sushruta<sup>[29]</sup>

1. *Sarvopaghatasamaniya* (*Rasayan* formulation which counteract various diseases process)
2. *Medhaayuskamiya* (*Rasyana* which increase intellect and longevity)
3. *Svabhavavaydhipratishedhaniya* (means delaying onset of *Svabhavika* disease)
4. *Nivrittasantapiya* therapy to improve immunity Promotion of health in Ayurveda is achieved by :

| <b><i>Rasayana</i> drugs as Immunity boosting herbs</b> |                              |
|---|------------------------------|
| <i>Guduchi</i>  | <i>Tinospora cordifolia</i>  |
| <i>Yastimadhu</i>                                       | <i>Glycyrrhiza glabra</i>    |
| <i>Jyothismati</i>                                      | <i>Celastrus paniculatus</i> |
| <i>Shatavari</i>  | <i>Asparagus racemosus</i>   |

|  |                           |
|--|---------------------------|
| <i>Amalaki</i>   | <i>Indian gooseberry</i>  |
| <i>Brahmi</i>  | <i>Bacopa monnieri</i>    |
| <i>Ashwagandha</i>   | <i>Withania somnifera</i> |
| <b>Immunity herbs with Rasayana</b>  |                           |
| <i>Pippali</i>   | <i>Piper longum</i>       |
| <i>Haritaki</i>  | <i>Terminalia chebula</i> |
| <i>Chyavanprasha</i> - Provide immunity and in today's scenario it is the best <i>Rasayana</i> |                           |

These are being explored for their effect on immune system. Available evidence shows these drugs modulate immune functions by improving antibody formation, macrophage activation and CMI suppressing effects. They can act as immunosuppressant, immune stimulant and immune adjuvant. These drugs promote nutrition by direct enrichment of nutritional qualities and improving *Agni* (digestion and metabolism)

**ROLE OF SATVA (PSYCHE)** in immunity *Manasik Vyadhikshamatva* or *Bala* can be understood in the sense of making an individual strong mentally to cope up with mental stress variably and can tolerate the disease and treatment. *Ojas* maintains the smooth functioning of sensory organs or cognitive thus making to audition, perceive vision etc at their optimum level. As far as mind or psyche is concerned it endows an individual with the feeling of strength and lightness. *Ahara* also important for to improve *Stvikta* and immunity, also good *Ahara* developed positivity ultimately *Satva*. *Ahara Sambandhita Sadvritta* (food habits) - Kashyapa *Acharya* said Food as *Mahabheshajam*. *Ahara* improves vitality, strength, complexion and *Ojas* (immunity). Use *Ahar Vidhi* (method of meal) as per mentioned by *Acharya Charaka* in *Vimansthan Adhyaya Rasaviman* like *Snigdha*, *Matrvat*, Consumed after digestion of previous food, *Virya Avirudha Ahara*, taken at *Ista Desha*, with *Ista Sarvopkarana*, not taken speedily, slowly, taken without talking with others, without laughing, taken with full concentration of mind etc.

## DISCUSSION

The body's resistance is importance in the health of living beings, for prevention and rapid recovery from diseases. This force computed, as regards everyday wellness termed as *Vyadhikshamatva*. Principles of *Vyadhikshamatva* in Ayurveda are free from diseases and lead healthy and prosperous life.

The *Vyadhikkshamatva*, *Ojas* and *Bala* are not entirely different from each other. All of these directly or indirectly indicate towards body resistance. In view of prevention and recovery from disease, body resistance plays a significant role.

The vital essence of all the dhatus from *Rasa* to *Sukra* is *Ojas* and it is responsible for the maintenance of tissue elements. *Acharya Ckrapani* mentions *Ojas* being a factor for resistance, is also the source of energy to all body elements including mind. Only one of the numerous functions of *Ojas* is *Vyadhikkshamatva*. As the function of *Aparaojas* and *Vyadhikkshamatva* in turn depends upon *Sahaja*, *Kalaja* and *Yuktikritabala*.

Suitable diet and appropriate regimen according to the season is the way to achieve strength, vitality, energy and longevity. The acquired strength can be gained by appropriate diet and behavioural regimen.

## SUMMARY

The main purpose and objectives of Ayurveda is the preservation of health in healthy individual and eradication of diseases which are curable. In the present scenario of Covid-19 pandemic most horrible situation, to survive in this pandemic we have to work on our *Vyadhikshamatva*(immunity) world accepted the ayurvedic fundamental like “*Swasthasya Swasthya Rakshanam; Aturasya Vikarprashamana Cha*”. In Ayurveda science different varieties of food, medicine, and procedures are mentioned to maintain healthy life and long-life span by improving *Vyadhikshamatva*. The external factors used to improve *Vyadhikshamatva* are the good quality of food (*Ahara*), adaptability of food and environment (*Vihara*) etc. and internal factors like *Bala*, *Ojas* etc. also by taking Rasayana we improve our *Vyadhikshamatva*. In above explain concept of *Vyadhikshamatva*, *Ojas*, *Bala*, *Satva* and *Rasayana*.

## CONCLUSION

*Vyadhikshamatva* ultimately depends on the status of *Ojas*, *Sahaja*, *Kalaja* and *Yuktikritabala*, diet etc Ayurvedic *Rasayan* treatment corrects the *Agni* and thereby produce best *Dhatu*s as *Dhatwagnis* are also at their best ability; for attaining good *Vyadhikshamatva*, we should use various regimens and follow conducts as described in Ayurvedic texts for maintenance of health such as -Eat Good and Nutritious food, Follow right eating habits, Adopt *Dincharya Ritucharya*, Timely *Shodhana*, *Rasayana* Therapies, Follow *Sadvritta* and *Achara Rasayana*. Time to integrate Ayurveda lifestyle in our modern lifestyle. Good Immunity will be outcome even in such horrible pandemic situation like SAR COV-2.

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## INTERNATIONAL JOURNAL OF CURRENT SCIENCE (IJCSPUB)

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# A REVIEW OF SAMPRAPTI OF BAHU PITTA KAMLA AND RUDHPATH KAMLA WITH SPECIAL REFERENCE TO MODERN SCIENCE

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**Abstract:** Kamala is considered advanced stage of *panduroga* by *Charakacharya*. Ayurvedic classics explain *Varna* (colour) in detail. There are two broad categories of classification: 1. *Prakruta Varna*, 2. *Vaikruta Varna*. *Vikruta Varna* is most important sign seen in *Kamala*, as shown by *Haridra netra*, *Haridra twak*, *Haridra mutra* etc. The *Varna* is attributed to *Tejo mahabhuta*. *Rakta* and *Pitta* vitiation are the major culprits in *Kamala*, both being *Agni mahabhuta pradhanas*. In order to understand *Kamala* in its complete context, *Pitta-Agni* and *Rakta* must be studied in depth. In Acharya Charaka and Acharya Sushruta's explanations, there are no differences in opinion per se, but only a difference in pramana of *Pitta* involved and a difference in *mrudu* and *darunatwa* of disease conditions. Jaundice, also known as hyperbilirubinemia, occurs when the body accumulates too much bilirubin, resulting in yellowish skin and eyes. Deficiencies in excretion or increased production of bilirubin cause bilirubin to be deposited in the body. Jaundice presents clinically as scleral icterus (peripheral yellowing of the eye sclera) when bilirubin levels exceed 3 mg/dl, contrary to a normal serum concentration of less than 1 mg/dl. As a result of their high elastin content, sclerae are highly responsive to bilirubin. Basically, jaundice is caused by an increase in either unconjugated(indirect) or conjugated(direct) bilirubin. The presence of icterus is an important clinical indicator. The details of *Kamala vyadhi* with special reference to *Bahupitta* and *Rudhpatha* variety are discussed in this article with special reference to modern view.

**Keywords:** *Kamala*, *Kamla Samprapti*, *Bahupitta Kamala*, *Rudhpatha Kamala*, *Bilirubin*, *Jaundice*

### Introduction

*Rakta* is the manifestation of the life force of a living being (*Prana*). As part of its *Prakrut avastha*, it bestows strength, a youthful complexion, happiness, and long life. Symptoms of vitiation include *Pandu*, *Kamala* etc<sup>[1]</sup>. *Mala pravrutti* is altered, and excess *mala roopi Pitta* accumulates in *Kamala Roga* causing derangement of skin color and complexion. Originally *Kamala* was derived from *Kamu*, which meant *Kaanthi*. *Lunathi* means *Nasha* in Sanskrit. *Kaanthim Lunathi* refers to a pathological condition where the skin loses its normal color. A person in this *vyadhi* is unable to eat or have a great appetite for food. All *malas* (*peeta*, *haridra*, *harithadi*)<sup>[2]</sup> become vitiated and discoloured in this state.

In accordance with *Raktavahasrotodushti's* nidanas, *Kamala's* manifestation is the same as *Raktavahasrotodushti's*. It is thus evident that *Rakta* and *Pitta* are *Ashrayashrayis*, their *vardhanas* and *kshapanas* are interconnected<sup>[3]</sup>. *Kamala* is one of the *Raktapradoshaja vyadhis*<sup>[4]</sup>. This *Kamala vyadhi* is directly related to *Raktavaha srotas*. Due to the fact that *Rakta* and *Pitta* are *Ashrayashrayi*, a *dushti* in *Ashraya* will have a significant adverse impact on *Ashrita Dhatu*. It includes *Nidanas* such as *Nishpava*, *Masha*, *Pinyaka*, *Tilataila*, *ushna*, *Vidahi*, *Dadhi*, *Taila*, *Drava*, *Snigdha*, *Kshara*, *Anupa mamsa sevana*, and *Krodha*<sup>[5]</sup>. The same elements that cause vitiation of *Rakta dhatu* also lead to *Kamala*. When there is *dushti*

of *Rakta dhātu*, the same *srotas* will definitely be affected. As a result, the *Raktavaha srotas* will be *dushti*, eventually leading to its *moola sthana*, namely *Yakrut* and *pleeha*<sup>[6]</sup>.

Jaundice, also known as hyperbilirubinemia<sup>[7]</sup>, occurs when the body accumulates too much bilirubin, resulting in yellowish skin and eyes. Deficiencies in excretion or increased production of bilirubin cause bilirubin to be deposited in the body. Jaundice presents clinically as scleral icterus (peripheral yellowing of the eye sclera) when bilirubin levels exceed 3 mg/dl, contrary to a normal serum concentration of less than 1 mg/dl. As a result of their high elastin content, sclerae are highly responsive to bilirubin<sup>[8]</sup>. Basically, jaundice is caused by an increase in either unconjugated(indirect) or conjugated(direct) bilirubin. Icterus is one of the most important clinical indicators for liver disease, apart from other signs and symptoms.<sup>[9]</sup>

The pathophysiology of jaundice can be explained by dividing the metabolism of bilirubin into three phases: prehepatic, hepatic, and posthepatic.<sup>[10, 11]</sup>

## PREHEPATIC

1. In the production of bilirubin, heme is broken down by senescent or defective RBCs. Heme is processed by reticuloendothelial cells of the spleen, liver, and bone marrow into the final product bilirubin: As a result, Heme-->Biliverdin-->Bilirubin (insoluble due to tight hydrogen bonding)

## HEPATIC

**Hepatocellular uptake** - Bilirubin is released from the reticuloendothelial system unconjugated (i.e., non-soluble), and it is transported to the liver along with albumin, which makes it soluble in blood. Through a carrier membrane transport, the albumin-bilirubin bond is broken, and bilirubin alone enters the hepatocytes and is bound to proteins in the cytosol to decrease the efflux of bilirubin back into the plasma.

**Conjugation of bilirubin** - In the endoplasmic reticulum, unconjugated bilirubin undergoes conjugation to glucuronic acid, to produce conjugated bilirubin, which can be dissolved in bile. In this case, UDP-glucuronosyl transferase is responsible.

## POSTHEPATIC

**Bile secretion from hepatocytes**- Conjugated bilirubin exits the bile canaliculi into the bile ducts, accumulates in the gallbladder, reaches the small bowel via the ampulla of Vater, and then enters the colon.

**Intestinal metabolism and Renal transport**- Because conjugated bilirubin is hydrophilic and has a large molecular size, it cannot be reabsorbed by the intestinal mucosa. In the colon, bacteria deconjugate and metabolise bilirubin to urobilinogen's, of which 80% is excreted in faeces and stercobilin, and the remaining (10-20%) is transported to the liver. This yellow pigment in urine is caused by some of these urobilins excreted in the urine. Unconjugated bilirubin levels rise during pre hepatic dysfunction, while conjugated bilirubin levels rise during post hepatic dysfunction. Both unconjugated and conjugated bilirubin can be elevated by hepatic phase impairment. The urinary excretion of urobilinogen can be influenced by decreased hepatic clearance of urobilinogen or increased production of bilirubin.

## MATERIALS AND METHODS

1. Charak Samhita with Ayurved Dipika Commentary by Chakrapani.
2. Sushruta Samhita with Nibandhsangraha commentary of Shri Dalhanacharya and Nyayachandrika Panjika of Shri Gayadasachary.
3. Ashtang Hriday with commentaries Sarvangasundara of Arundatta and Ayurved rasayana of Hemadri.
4. Relevant articles published in various national and international journals.
5. Harrison's principles of internal medicines.

## Classification of *Kamala*

1. Charak<sup>[12]</sup> -*Bahupitta (Koshthashkhashrit), Rudhpath (Shakhashrit), Halimak, Kumbhkamala.*
2. Sushrut<sup>[13]</sup> -*Kamala, Halimak, Kumbhahvaya (kumbha sahva), Laghraka (laghrakaalasaka).*
3. Vagbhat<sup>[14]</sup> -*Swatantra, Paratantra, Kumbhakamala, Lodhara, Aalasaka*

## Review of *Nidanas* of *Kamala*

As far as *samprapti* (etiopathogenesis) is concerned, different Ayurvedic classical texts explain the etiology of *Kamala* vyadhi in a scientific way. There are several peculiar *nidanas* mentioned by Acharya Sushruta in the context of *Pandu*, such as vyayama, amla, lavana, madya, mrudbhak-shana, divaswapna, ati teekshna-ushna ahara, etc<sup>[15]</sup>. Aside from these factors, Acharya Charaka also mentioned etiological factors like consumption of kshara, amla lavana, ati ushna, viruddha asatmya ahara, nish-pava, masha, pinyaka, tila taia,<sup>[16]</sup> etc.

## Charak Samhita

A clinical syndrome that develops after *pandu roga* is referred to as *Kamala* in *Charak Samhita*. *Pandu rogi* sufferers developed *bahupittakamala* after taking excessive *paittik ahar-vihars*<sup>[17]</sup>.

**table 1 : bahupitta kamla hetu according to charak samhita<sup>[12]</sup>**

| <i>Bahupitta Kamla</i>                           |                      |                       |
|--|----------------------|-----------------------|
| <i>Aharaj</i>                                    | <i>Viharaj</i>       | <i>Mansik</i>         |
| <i>Excessive kshar, amla, lavan, ushna sevan</i> | <i>Ati vyayam</i>    | <i>Kama</i>           |
| <i>Viruddha anna</i>                             | <i>Ati maithun</i>   | <i>Chinta</i>         |
| <i>Vidagdha anna</i>                             | <i>Diwaswapna</i>    | <i>Bhaya</i>          |
| <i>Asatmya bhojana</i>                           | <i>Veg vidharana</i> | <i>Krodha</i>         |
| <i>Nishpav, masha, pinyaka, tiltail sevan</i>    |                      | <i>Shoka</i>          |
|  |                      | <i>Upahata chetas</i> |

**table 2 : rudhpath kamla hetu according to charak samhita<sup>[12]</sup>**

| <i>Rudhpath Kamla</i>                       |
|---|
| <i>Excessive intake of ruksha guna ahar</i> |
| <i>Sheeta, guru, madhur rasa ahar</i>       |
| <i>Ati vyayam</i>                           |
| <i>Veg dharan</i>                           |

**Shushruta Samhita<sup>[13]</sup>**- According to *Shushruta Samhita*, when patient of *pandu roga* or person affected with other diseases consumes *amlaraspradhan* and *apathyakar ahar* develops *kamala*.

**Ashtang Hriday<sup>[14]</sup>**- According to *Ashtang Hriday*, when *pandurogi* or person with excessive *pitta* consumes *pittakar ahar* develops *kamala*.

## Understanding of BahuPitta Kamala

Whenever *Pandu Roga* patients consume foods and regimens that aggravate *Pitta*, the increased *Pitta* burns normal *Rakta* and *Mamsa*, resulting in *Kamala*<sup>[18]</sup>. *Rakta* dhatu is vitiated by vitiated *Pitta*. Since *Rakta* and *Pitta* have similar properties, they are more prone to vitiation. This in turn causes *Shithilata* by burning the *Mamsa dhatu*. *Netra, twacha, mutra, nakha* and other systems are discoloured yellow because the *Dushita Pitta* mixes with the *Sthanika Pitta*. It is attributed to increase in *malaroopata* of *Pitta* in *koshta* for *Peeta Varna* of *mootra* (urine) and *varchas* (stools). The color of his skin changes to yellow, just as that of a frog during the rainy season (*Bheka varna*), and his senses become impaired. Anorexia, digestion problems, burning sensations in the body, and other symptoms affect the patient. The patient loses weight and becomes weak due to inadequate nutrition<sup>[19]</sup>.

There are increased *Ranjaka Pitta* levels in *Koshta* and *Shakha*. *Mahasrotas* are referred to as *koshta*, while *Raktadi dhatus* are referred to as *shakha*. *Koshta-sakhashrita Kamala* is the medical term for this condition. As a result, it is also known as *Ubhayashrita Kamala*<sup>[20]</sup>.

As we study these symptoms in light of contemporary sciences, *Bahupitta Kamla Kamala* has many similarities between its pathogenesis and symptoms with haemolytic jaundice / prehepatic jaundice. In case



of excessive bilirubin accumulation in the duodenum (*Bahu Pitta*), urine contains more urobilinogen, which results in dark yellow urine. An excess of stercobilinogen is responsible for dark, yellow stools. Some parts of *Ranjaka Pitta* are responsible for the *Mala Ranjana karma*, so the darker the stool will be, the greater the amount of *Ranjaka Pitta* in *Koshta*. We can therefore consider the *Dravyatah* and *Karmatah vruddhi* of *Ranjaka Pitta* in *Koshta*. A patient with severe *Raktakshaya* (Anemia) may have diminished perception power due to *dourbalya durbalendriyata*.

### Clinical Features of *Bahupitta Kamla*<sup>[21]</sup>

*Haridra netra mutra twak, mal* (Yellowish discolouration of eyes, mouth, skin & nails, stool), *Daha* (Burning Sensation), *Avipaka* (Indigestion), *Daurbalya* (weakness), *Bheka varna* (just as that of a frog during the rainy season), *Sadana* (Fatigue), *Aruchi* (Anorexia), *Krusha* (gaunt), *Tandra* (lethargy), *Balakshaya* (Weakness), *Indriyadaurbalya* (diminished perception power)

### Chikitsa of *BahuPitta Kamala*

The main purpose of vaidya is to eliminate the vitiated *Doshas* in *koshta*, according to *BahuPitta Kamala*. And to prevent the destruction of *Rakta* and *Mamsa* at the same time. Acharya Charak explained how the *Sanchita Doshas* can be eliminated through *mruvu shodhana* (mellow purgation) in *Kamala* using substances like *Aragwadha*, *Trivrut* etc<sup>[22]</sup>. Because *Tikta rasa dravyas* are *Pitta shamaka* in nature, they are used for *Pitta shamaka* conditions.

It is also explained by Acharya Vagbhata that in *Kamala Roga* one should do treatments so that they are *Pitta shamaka* but do not adversely affect *Pandu Roga*<sup>[23]</sup>. Therefore, the method of treatment should be *snehana* with *dravyas* such as *Panchagavya ghrita*, *Mahatiktaka ghrita*, *Kalyanaka ghrita*, *Dadeemadi ghrita*, *Indukanta ghrita*. There are two major components of *Kamala Chikitsa*: *Tikta rasa pradhana* and *Pitta shamaka dravyas*<sup>[24]</sup>. Similarly, fresh juices from *Guduchi*, *Nimba*, *Bhumi amalaki*, *Eranda*, or freshly prepared *triphala kwatha* have been beneficial<sup>[25]</sup>.

### Understanding *Rudhpath Kamala*

*Pittavaha srotas* are blocked by *kapha*, resulting in *Ruddhapatha Kamala*. In response to obstruction in *srotas*, *srotovahi dravya* performs *vimargagamana* and moves from *koshta* to *shakha*. *Rudhpath Kamala* can only be understood through a comprehensive understanding of *Doshagati*. *Rudhpath Kamla* also known as, *Alpa Pitta Kamala* is also known as *Shakhashrita Kamala*, here *shakha* is one among the *trividha Rogamargas*.<sup>[26]</sup>

It is essential for the whole body to be infused with *Doshas* to perform its regular functions. In accordance with requirements, *doshas* move from *koshtas* to *sakhas* and from *sakhas* to *koshtas* constantly. In the *koshtas* they perform their *prakruta karma*, and in the *sakhas* they return once that function is complete. In normal physiological conditions, the movement of *Doshas* takes place smoothly under normal conditions. The smooth movement of *Doshas* is hampered by vitiation for the following reasons. *Ahitacharanat* (due to non-observance of wholesome regimen) vitiated *Doshas* as a result of these *nidanas* include *Vyayama* (exercise), *Ushmanat thaikshnyat* (due to digestive fire), and *Vatasya drutatvam* (increased *Vata* activity). Instead of moving freely between *sakha* and *koshta*, *sama Doshas* stick to vitiated *srotas*. It is described as '*sthana-samahsraya* of *doshas* in *dathus*'<sup>[27]</sup>. *Shakhagati* of *Doshas* refers to the diversion of *Doshas* from their physiological function to their pathological function. Consequently, *Malaranjana* is hampered and one of the *prakruta karma* of the *mala-roopi Pitta* is hampered. As a consequence, *Tilapishtanibha varchas* (faeces that resemble sesame seeds paste)<sup>[28]</sup>.

'*Shleshmana rudhamargam tat Pittam kaphahare jayet*' is a pathology described by Acharya Charaka very clearly in the *Samprapati* of *Rudhapatha Kamala*, which means there is obstruction to *Pitta's* passage by *Kapha*<sup>[29]</sup>. *Amshamsha Kalpana* highlights that *Kapha* vitiation primarily results from its *manda guna*, *Pitta* vitiation due to its *sara guna* and *Vata* vitiation because of its *chala* and *rika gunas*. In this case, the obstruction may take one of two forms: 1. *Nija* (by *Kapha*) and 2. *Agantuja* (physical). *Dushtarbuda*, *krimi*, *Pittashmari*, or other obstructions may be causing the obstructions. Likewise, they fall under the purview of *Shleshimana Rudha Marga*. A stenosis, calculus, trauma, or other physical obstruction may be considered an *agantuja* type.

## Understanding of *Rudhpath Kamala samprapti* through concept of *Ashayapakarsha*

Madhukosha, a commentator of Madhavanidana, explained this peculiar type of *Doshagati*. *Ashaya* refers to a place of rest or abode. In Sanskrit, *apakarsha* means to carry away, drag or remove, and *gati* means to move. *Ashayapakarsha* refers to moving something from one location to another. There is a special quality of *Vata Dosha* in that vitiated *Vata* Displaces *Pitta* and *Kapha* from their proper places, causing imbalance in the body<sup>[30]</sup>. The *Pitta* and *Kapha* are not vitiated and do not displace them from their natural homes but the vitiated *Vata* does. It also requires a peculiar type of treatment. In light of this, we should pay special attention to this phenomenon. In simple terms, *asayapakarsa* is simply a case of *Vata Dosha*, regardless of whether *Kapha* or *Pitta* symptomatology prevails.

A *prakopa* of *Pitta* and *Vata* occurs in *Rudhpath Kamala* due to independent etiological factors. In vitiated *Kapha*, *Pitta* is obstructed from passing normally. It is believed that mala's normal color is caused by the same *Pitta*, which is why *Teekakara* called it *Malaranjaka Pitta*. As a result of *Pitta samsarga*, there will be less *ranjana* of *mala*, causing *Tilapishtanibha varchas*. As a result of *Kapha avarodha*, the *Sanchita Pitta* is taken away from *twacha*, *netra*, etc. One of the best examples of *Ashayapakarsha* can be found in this pathology<sup>[31]</sup>.

## Clinical features of *Rudhpath Kamla*

*Haridra netra mutra twak* (Yellowish discolouration of eyes, mouth, skin & nails), *Shwetavarchas* (White coloured stools), *Vishtambha* (Constipation), *Atopa* (Flatulence), *Alpagni* (Indigestion), *Aruchi* (Anorexia) *Jwara* (Fever), *Dourbalya* (Weakness), *Hrudaya Gourava* (epigastric discomfort), *Hikka* (Hic-cough), *Shwasa* (Dyspnoea) are the clinical features<sup>[32]</sup>. As we look at the above signs and symptoms in the context of contemporary science, *Ranjaka Pitta*, which is obstructed rather than flowing normally, may be compared with diseases such as Obstructive phase of infective hepatitis and Intrahepatic cholestasis as the pathological factors and clinical symptoms are almost the same.

Obstructive Phase of Infective hepatitis and Intrahepatic Cholestasis are two different conditions that affect the liver. The main differences between these two conditions are<sup>[33, 34, 35, 36]</sup> :

1. Causes: Infective hepatitis is caused by a viral infection that targets the liver, while intrahepatic cholestasis is caused by a blockage or reduction of bile flow within the liver.
2. Types: There are several types of infective hepatitis viruses, including hepatitis A, B, C, D, and E. In contrast, intrahepatic cholestasis can occur in a variety of forms, including pregnancy-related cholestasis, drug-induced cholestasis, and primary biliary cholangitis
3. Symptoms: While there is some overlap in symptoms between the two conditions, there are also some unique symptoms for each. For example, fever, joint pain, and nausea are common symptoms of infective hepatitis, while pruritus (itching), pale stools, and dark urine are more common in intrahepatic cholestasis.
4. Treatment: Treatment options for infective hepatitis vary depending on the type of virus and the severity of the infection, but may include antiviral medications and supportive care. Treatment for intrahepatic cholestasis also depends on the underlying cause and may involve medication to reduce itching, as well as efforts to promote bile flow.

## Chikitsa of *Rudhpath Kamala*

As for *samprapti vightana*, it is necessary to *do kapha hara chikitsa* due to *avarodha* of *Kapha* in *Pitta sthana*. In order to bring the *Doshas* back to *koshta*, they need to be brought back to *shaktha*. Acharyas mentioned several important modalities as follows: *srothomukha visodhanat* (clearance of obstruction from srotas), *Vridhi* (further increase in vitiated *Doshas*), *Abhishyandanat* (increase in fluidity), *pakat* (subject to change of consistency due to *Agni's* action), *vatasya nigrahat* (reduction in intensity of *Vata Dosha*)<sup>[37]</sup>. Developing treatment protocols requires an understanding of how *Doshas* move. The treatment protocol should be designed such that the stronger *Dosha* is treated first, and that the weaker *Dosha* is treated later. Due to *kapha avarodha*, *pippali*, *maricha*, *shunthi*, etc., are to be consumed, as well as *ushna dravyas* with *katu*, *lavana*, and *amla rasas*.

Due to its properties of *snigdha*, *deepana*, *vartanulomana*, and *kledana*, *amla rasa* balances vitiated *Vata Dosha* and cleanses *Ranjaka Pitta*<sup>[38]</sup>. As a result of their *chedana*, *bhedana*, *teekshna*, *kledana*, and *marga vishodhana* properties, *lavana rasa dravyas* help remove obstructions. As well as being *kapha shamaka* and *mala shodhana*, *katu rasa dravyas* dissolve *srotoshodhana*, *deepana*, and *shonita sanghata*, which are also the desired qualities in treatment<sup>[39]</sup>.

The *Teekshna virechana* is administered to remove obstructions in *Ruddhpatha Kamala*. For this reason, *kalpas* containing *Danti*, *Trivrut*, *Katuki*, and *Jayapala* are used. Those *dravyas* are *Ushna*, *Teekshna*, *Lekhana*, and *katu Rasatmaka*. In Chakrapani's view, *Pitta vardhana chikitsa* should be continued until the

*mala* regains its normal color<sup>[40]</sup>. A variety of therapies, including *Yapana bastis*, *Ksheerabastis*, and *Anuvasana bastis*, can be administered following those treatments<sup>[41]</sup>.

**table 3 : comparison of sign and symptom of *bahupitta kamla* with hemolytic jaundice**

| Signs and Symptom  | Bahupitta Kamla <sup>[42]</sup>    | Hemolytic jaundice <sup>[43]</sup>           |
|--|------------------------------------|--|
| <i>Haridra netra mutra twak , mala</i> (Yellowish discolouration of eyes, skin, urine & stool) | Present, due to pitta vigargamanam | Present, due to increased bilirubin level    |
| <i>Daha</i> (Burning sensation)  | Present                            | Not present                                  |
| <i>Avipak</i> (Indigestion)  | Present                            | Uncommon                                     |
| <i>Daurbalya</i> (weakness)  | Present                            | Present                                      |
| <i>Aaruchi</i> (Loss of appetite)  | Present                            | Present                                      |
| <i>Bheka varna</i> (just as that of a frog during the rainy season)                            | Present                            | Paleness may be seen due to hemolytic anemia |
| <i>Aruchi</i> (Anorexia)   | Present                            | Present, due to increased bilirubin level    |
| <i>Balakshaya</i> (Weakness)   | Present                            | Present                                      |
| <i>Tandra</i> (lethargy)   | Present                            | Mostly Present, due to hemolytic anemia      |
| <i>Indriyadaurbalya</i>  | Present                            | -  |

table 4 : comparison of sign and symptom of *rudhpath kamla* with obstructive phase of infective hepatitis and intrahepatic cholestasis

| Sign and Symptom  | Rudhpath Kamla <sup>[32]</sup>   | Obstructive Phase of Infective Hepatitis <sup>[44,45]</sup>  | Intrahepatic Cholestasis <sup>[46, 47]</sup>  |
|---|--|--|---|
| <i>Haridra netra mutra twak</i> (Yellowish discolouration of eyes, mouth, skin & nails) | Present  | Present, due to accumulation of bilirubin  | Present, due to accumulation of bilirubin   |
| <i>Shwetavarchas</i> (White coloured stools)  | Present, Tilapishtanibha varchas (faeces that resemble sesame seeds paste) | Present, mostly clay colored stool or light colored, because normal flow of bile from liver to small intestine is disrupted  | Present, mostly clay colored stool or light colored, because normal flow of bile from liver to small intestine is disrupted     |
| <i>Vishtambha</i> (Constipation)  | Present  | Less likely to accompany unless there is blockage of bile ducts completely or damage to the liver. Diarrhea can occur due to inflammation and swelling of liver which lead to accumulation of toxins in body | Absent. Diarrhea can occur due to disruption of normal flow of bile within liver, which can also lead to digestive disturbances |
| <i>Atopa</i> (Flatulence)   | Present  | Absent   |   |
| <i>Alpagni</i> (Indigestion)  | Present  | Present  |   |
| <i>Aruchi</i> (Anorexia)  | Present  | Present  | Present   |
| <i>Jwara</i> (Fever)  | Present  | Present  | Not a typical symptom   |
| Weight Loss   | Present  | Present, mostly not commonly, due to combination factors such as loss of appetite, nausea, vomiting and fever  | Present, may occur due to decreased appetite, as well as malabsorption of nutrients due to disrupted bile flow                  |
| <i>Dourbalya</i> (Weakness)   | Present  | Present  | Present   |

|   |         |                                  |                                       |
|---|---------|----------------------------------|---------------------------------------|
| <i>Hrudaya Gourava</i><br>(epigastric discomfort) | Present | May be present                   | Absent, abdominal pain may be present |
| <i>Hikka</i> (Hic-cough)                          | Present | Can occur, not a typical symptom | Can occur, not a typical symptom      |
| <i>Shwasa</i> (Dyspnoea)                          | Present | Can occur, not a typical symptom | Can occur, not a typical symptom      |
| Itching   | Absent  | Absent                           | Present                               |
| Nausea and Vomiting                               | Absent  | Absent                           | Present                               |

## Discussion

Acharya Charaka explains the *Samprapti* of *Rakta Pitta* by saying *tadyonitwat prapannam cha vardhate tat pradushaya*<sup>[48]</sup>. In other words, *Pitta's yoni (utpatti)*, *Rakta*, has a *vrudhhi* when combined with its *utpada amsha*, similar *samprapti* is taking place here. When *Pitta* is vitiated, *Rakta* and *mamsa* are vitiated, resulting in *Kamala*. *Rudhpath Kamala* has a peculiar sign called *Tilapish-tanibha varchas*. It is not necessary to assume that it is *Rudhpath Kamala* only based on *Shweta Varchas*, as the same symptoms are observed in *Shleshmatisara*<sup>[49]</sup>. A *Haridra netra* and *mutra* may not always be *Kamala*, as these are also observed in *Pittaja Gulma*, *Pittaja jwara*, *Pittaja gulma* etc., so careful attention should be paid to *nidana* and *upashaya*, *anupashaya*.

## Interpretation of Laboratory Investigations in Kamala

In *Bahupitta Kamala*, the serum bilirubin amount (unconjugated hyperbilirubinemia) is mostly elevated<sup>[50]</sup>. When there is *Dhatvagnimandya in Rakta dhatu mala*, the formation of *Saara* and *Mala bhaga* will be hampered. In cases of haemolytic jaundice, there is extensive damage to *Rakta dhatu*, and serum bilirubin can be taken as *Malaroopi Pitta*. This can be compared with the *samprapti* of *BahuPitta Kamala (asruk mamasam dagdhwa Rogaya kalpate)*<sup>[51]</sup>.

There are two sensitive indicators of liver cell injury: aspartate aminotransferase (AST; SGOT) and alanine aminotransferase (ALT; SGPT); ALT is a more specific measure of liver cell injury; ethanol-induced liver damage normally causes modest increases in AST, with a more prominent rise in ALT. According to Ayurveda, both of these enzymes are *Tejo mahabhoota pradhana* entities. Whenever there is increase in these enzymes they indicate the *Agni dushti* and *Pitta vrudhi*.

The alkaline phosphatase level increases more quickly in cholestasis, biliary obstruction, and liver infiltration and is a sensitive indicator of cholestasis<sup>[52]</sup>. Therefore, raised values can indicate *Rudhpath Kamala*. Stool examination shows whitish bulky and *Tilapish-tanibha varchas*, on examination, it contains excess fat due to reduced fat metabolism in liver.

## Conclusion

Acharya Charaka considers *Kamala* to be an *avastha vishesha* of *Pandu Roga*, while Acharya Sushruta considers it an independent phenomenon without prior *Pandu Roga*. The differences between Acharya Charaka and Acharya Sushruta are not merely differences in opinion per se, but also differences in the *mrudu* and *darunatwa* of the disease condition and in *Pitta pramanas*. *Bahupitta Kamla*, also known as *Kosth Shakashrit Kamala*, is *pramanatah vrudhi* of *Pitta* as a result of its own *prakopa hetu*. The *prakupitha Pitta* is responsible for the *dusti* of *Rakta* and *Mamsa* in *Bahupitta Kamala samprapti*. This can be considered as due to Haemolysis according to modern authors. Haemolytic Jaundice is nothing more than *BahuPitta Kamala / kosta shakashrita Kamala(paratantra)*. There is usually no history of *Pittakara nidana* in *Rudhpath Kamala*, the *Pitta* will be vitiated to *Alpa* in this case. As a result, *Rudhpath Kamala* can be *Alpa Pitta* since *Avarodha* by *Kapha* prevents *Pitta's Marga* from functioning. The phenomenon can be compared to the obstructive phase of infective hepatitis or Intrahepatic cholestasis, which needs to be studied in detail further.

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## Conceptual study of Asthidhatvagni by evaluating association of Vitamin B12 and Vitamin D3

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### Abstract

Agni is key factor in transformation of consumed aharadi dravyas (food articles) of vijatiya (Heterogeneous) origin to sajatiya (homogenous) nature. Agni is derivative of Tejas mahabhuta (fire element). It carries metabolic transformations in which the inherent feature is change. Agni is having 13 categories. Jatharagni (1 type) looks after the functions of food digestion and absorption. Bhutagni (5 types) turns all the vijatiya panchabhautika dravyas consumed to Sajatiya Panchabhautika Dravyas, i.e. conversion of heterogenous to homogenous. Dhatvagni (7 types) performs Synthesis and breakdown of tissues. Asthi is one of the dhatu which will be nourished by components similar to its composition the influence of asthidhatvagni. Here we can correlate vit B12 and Vit D3 with asthidhatvagni.

**Keywords:** Calcium, Vitamin B, Vitamin D, Dhatu, Dhatuagni

### 1. Introduction

One of the fundamental and most important body structures is asthi. The human body is composed of Dosha, Dhatu, and Mala, according to Ayurveda <sup>[1]</sup>. Asthi Dhatu, one of the seven Dhatus, is connected to Sharira's Dharana. Due to its difficulty, it aids in the development of a body frame that is appropriate. The words "Asyathe iti asthi" are the source of the word "Asthi." It implies that Asthi is a chemical that does not normally break down as quickly as other bodily tissues like muscles, arteries <sup>[2]</sup> etc. Even after death, it persists for a very long time. When vitamin B12 deficiency was first identified in 1849, it was thought to be fatal. However, in 1926, liver, which is high in vitamin B12, was shown to slow the progression of the condition. Vitamin B12 deficiency was first described in 1849, and was considered to have a fatal outcome until 1926 when a diet of liver, high in vitamin B12, was shown to slow the disease process. Much is now known about the biochemistry and metabolism of vitamin B12, however, the diagnosis of its deficiency has become more complicated with the classification of a "sub-clinical" deficiency category, characterized by serum vitamin B12 concentrations that were once considered to be adequate.

Before, it was believed that vitamin B12 insufficiency mainly occurred in severe vegetarians or people who had pernicious anaemia over a long period of time. The membrane that contains the Asthi Agni, which leaves the body in Pakvashaya, is known as the Purisha Dhara Kala. Prithvi Mahabhuta is dominant in Asthi Dhatu. Poshaka (unstable) Meda Dhatu creates Asthi Dhatu, which then enters the Purisha Dhara Kala and is consumed by the Asthiagni <sup>[3]</sup>. Teeth are also generated during this process, making them the Upadhatu (secondary tissue) of Asthi Dhatu in addition to the body's bones. The hair and nails are the malas (waste products) of this metabolic process. According to Ayurveda, Dhatu and Dosha both contain Ashraya Ashrayi Bhava or Dosha is considered to reside there <sup>[4]</sup>. For example, Rakta and Sweda are the residing sites for Pitta Dosha. Like that Vata Dosha resides mainly in Asthi Dhatu. Considering this, Vata Dosha vitiation plays an important role in the pathogenesis of Asthi Dhatu Dushti. Pitta and Kapha Dosha vitiation lead to inflammatory or obstructive pathologies respectively in the bone. Upadhatu and Mala Dushti of Asthi include Keshha, Danta and Nakha Vikriti. So pathology in Asthi Dhatu may also lead to deformities in these body organs.

Cobalamin, generally known as vitamin B12, comes in cyano-, methyl-, deoxyadenosyl-, and hydroxy-cobalamin forms. Food contains traces of the cyano form, which is utilised in supplements <sup>[5]</sup>. The 5-deoxyadenosyl or methyl forms of cobalamin, which are needed as cofactors for the enzymes methionine synthase and L-methyl-malonyl-CoA mutase, can be created from the other forms of the vitamin. Purine and pyrimidine synthesis depends on methionine synthase.

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The reaction, in which the methyl group of methyltetrahydrofolate is transferred to homocysteine to create methionine and tetrahydrofolate, depends on methyl cobalamin as a co-factor and is also dependent on folate. Megaloblastic anaemia is brought on by a vitamin B12 deficiency and the stoppage of this response. Folate deficiency independent of vitamin B12 also causes megaloblastic anaemia [6]. Methylmalonyl CoA mutase converts methylmalonyl CoA to succinyl CoA, with 5-deoxy adenosyl cobalamin required as a cofactor. It is a defect in this reaction, and the subsequent accumulation of methylmalonyl CoA that is thought to be responsible for the neurological effects in vitamin B12 deficiency.

Serum vitamin B12 is bound to proteins known as transcobalamins (TC). The majority of the vitamin, approximately 80%, is transported on the inactive TCI (also called haptocorrin). The active transport protein for vitamin B12 is transcobalamin II (TCII), which carries about 20% of the vitamin in the circulation. Holo-transcobalamin (holo-TC) is TCII with attached cobalamin, which delivers vitamin B12 to cells. A low serum vitamin B12 concentration can be associated with a deficiency of TCI, while TCII levels and so vitamin B12 status remain adequate.

## 2. Dietary calcium requirements

With crucial roles in the skeletal, cardiovascular, endocrine, and neurological systems, calcium is a necessary mineral. The majority (99%) of the body's calcium is found in the bones, where it serves as calcium storage and gives the skeletal system rigidity and shape. The remaining portion takes part in metabolic activities like enzyme activation, transmembrane transport, nervous system transmission, vascular and muscular contraction, and hormonal activity. Much research on the long-term effects of insufficient calcium intake is focused on bone health, particularly in relation to rickets in young children and fractures, osteopenia, and osteoporosis in older persons. Vitamin D is necessary for intestinal calcium absorption by the active, transcellular pathway and is involved in maintaining normocalcemia, which promotes bone mineralization, so dietary calcium requirements are partially dependent on vitamin D. 1, 2 In most adult populations, vitamin D deficiency is unlikely to be a rate-limiting constraint on calcium absorption, as only very low concentrations of 25-hydroxyvitamin D (25(OH)D) are associated with impaired calcium absorption [7-8]. The effect of vitamin D on calcium absorption in children is not clearly established.

Rasa (Chyle/Plasma/Lymph), Rakta (blood), Maamsa (muscle), Medo (Fat/Adipose tissue), Asthi (bone), Majja (Marrow), Sukra (Reproductive tissue). Sapta dhatus gets Preenanam (nourishment) from Aahararasa (chyle). Aahararasa is the end product of Jatharagni paka (Intestinal digestion). Each dhatu is of two kinds, Asthayi (mobile or non static) is poshaka dhatu (meant to nourish). Sthayi (fixed, static) is Poshya dhatu (already formed and existing). Srotas do not transport Sthayi dhatus. Dhatus that are formed consecutively from the asthayi dhatus one after another. Seven categories of Dhaatwagnis (Rasagni, Raktagni, Mamsagni, Medogni, Asthyagni, Majjagni, Sukragni), & Sapta dhatus (Rasa, Rakta, Mamsa, Medo, Asthi, Majja, Sukra), undergo Paaka (Metabolic transformation) in two different ways for the sustainers of the body. One is Prasaada paaka and other is the Kittapaaka [9]. The prasaada paaka is stated to yield the seven kinds of poshaka or Asthayi dhatus. Kitta paaka is the waste products. In Ayurveda the concept of

dhatwagni and dhatwagni paaka (Metabolic transformation) provides an extensive field of research in the present day.

Ashti Dhatu Prayay (Synonyms) 1. Kikasam: Round structures. 2. Kulyam: Tubular or canal like structure. 3. Svadayitam: Animals like dogs like it. 4. Medasteja: Essence of Medadhatu. 5. Sara: Extract of body which remains even after death. 6. Majjakrit: Which produces Majja Dhatu. 7. Dehadharakam: This maintains body skeleton and bears body weight. 8. Karkaram: Rough.

## 3. Discussions

### 3.1 Concept of Dhatu

The term Dhatu is derived from Sanskrit root "Du dhatru" which means Dharana (to support) & Poshana (to nourish), Which promotes the growth of shareera (body) is dhatu. Dhatus are seven in number, Rasa, Rakta, Maamsa, Medo, Asthi, Majja, sukra. Sapta dhatus get Preenanam (nourishment) from Aahararasa (chyle). Aahararasa is the end product of Jatharagni paka (Intestinal digestion).

### 3.2 Dhatwagni

Dhatwagnis are seven Rasagni, Raktaagni, Maamsagni, Medogni, Asthyaagni, Majjaagni, Sukragni. Dhatwagnis are located in its own dhatus (tissues). After Jatharaagni paaka & Bhootagni paaka aadya aahaara rasa (chyle) circulates in the body to reach all tissues. Seven categories of Dhaatwagnis (Rasaagni, Raktaagni, Mamsagni, Medogni, Asthyagni, Majjagni, Sukragni), & Sapta dhatus (Rasa, Rakta, Mamsa, Medo, Asthi, Majja, Sukra), undergo Paaka (Metabolic transformation) in two different ways for the sustainers of the body. One is Prasaada paaka and other is the Kittapaaka. All the seven Dhatus (seven element tissues of the body) contain their own Agni to metabolize the nutrient materials supplied to them through their own Srotas.

(i) Rasagni present in the Rasa Dhatu.

(ii) Raktagni present in the Rakta Dhatu.

(iii) Mamsagni present in the Mamsa Dhatu.

(iv) Medagni present in the Meda Dhatu.

(v) Asthyagni present in the Asthi Dhatu.

(vi) Majjagni present in the Majja Dhatu.

(vii) Shukragni present in the Shukra Dhatu. Each Dhatwagni or the bioenergy present in each Dhatu synthesizes and transforms the essential Rasa Dhatu required for that particular Dhatu or cell from the basic nutrients present in the Anna Rasa or essence of the diet that we consume. Each Dhatwagni has got a speciality to synthesize and transform the constituents suitable to its particular Dhatu. This action is a sort of selective action. Acharya Charaka has mentioned the fact that the seven dhatus that are a support of the body contain their own Agni, and by their own Agni they digest and transform the materials supplied to them to make the substances alike to them for assimilation and nourishment [10].

The main cause of Asthivikruti is Vata Prakopa. According to the concept of Ashraya Ashrayi Bhava, Asthi is the seat of Vata dosha. There is an inversely proportional relationship between Asthi and Vata. If there is an increase in Vata, there is decrease of Asthi. In Asthi kshaya, there is decrease in Asthi dhatu content. Similar to Asthi kshaya, a disease condition called Osteoporosis, has been described in contemporary system of medicine. Decrease in the bone tissues causes brittle bones and increases the risk of fractures. Upadhatu of Asthi i.e. Nakha, Danta and Mala Kasha and Loma also become brittle in Asthi Kshaya. Rickets and osteomalacia can also be taken in relation to Asthikshaya. In our classical text, Asthi-kshaya is not mentioned as a separate

disease but is mentioned under Dhatu Kshaya. Nutritional deficiencies (Vitamin D, C, and Phosphorus) can result in the formation of weak, poorly mineralized bone. Tooth, nails, skin and bone have genetic connectivity they have paternal lineage. i.e. they come from the genes of the father. (Pitruja Bhavas) Thus bones are connected to the hard tissues like hairs, body hairs, nails and tooth genetically. Therefore pathology in one element will lead to the deformity and pathology in the other. Vivarnata and Sadana of Keshha, Loama, Nakha, Smashru is observed due to vitiation of Pitta and Vata Dosha. It is mostly due to local infection. Many things interfere with the development of a strong and healthy skeleton. Genetic abnormalities can produce weak, thin bones, or bones that are too dense. Many hormonal disorders can also affect the skeleton. Lack of exercise, immobilization, and smoking can also have negative effects on bone mass and strength. Inflammation can lead to bone loss, probably through the production of local resorbing factors by the inflammatory white cells. This process can occur around the affected joints in patients with arthritis. Bone tumor can be produced due to abnormal growth of tissue in bone. Asthi Vriddhi can be observed in various hormonal, genetic and tumorous pathologies. Bone pathologies can be simple or complex. Vata vitiation leads to weak or fragile bones that become osteoporotic and fracture easily. Pitta vitiation leads to bone infections (osteomyelitis) and inflammation. Kapha vitiation leads to excessively thick, dense bones. Other diseases of the bones are more complicated. Fractures can be considered as Agantuja pathology. Tumorous growth of bone can be considered under Sannipatik Dosha Prakopa.

#### 4. Conclusion

In this article after a brief discussion of Asthi dhatu, Vit B12, Vit D3 and calcium with its correlation with Agni shows that Vit B12 and Vit D3 as energy convergent in the form of asthi dhatu, can be considered as Asthidhatvagni. Derangement in Vit B12 and Vit D3 level proved to be responsible for osteoporosis. Hence correcting these levels considering as Asthidhatvagni by Ayurvedic parameters, corrects the Asthi dhatu.

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