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Career Opportunities in Ayurveda

William Baumal, author of “Macroeconomics” explains that the employment rate and economic growth are linked. Employment always enhances the economic growth of an individual, society and country as well. Once a person is employed he starts getting wages and his capacity increases to buy the services and goods. This increases the capacity of the industry to increase their production. But more or less the employment is based on education. An education which is having potential to develop skill and results into employment is considered best. Ayurveda an indigenous health science is having all potentials to produce best Vaidyas or doctors who as health professionals can have nice employment and help in the economic growth of country. There are ample opportunities for the employment of Ayurveda graduates. But it is the matter of exploration of the opportunities and exploit them. In the past years the private practice was the only way of employment for Ayurveda graduates. But now the time has changed and after graduation private practice is hardly done by Ayurveda doctors. Reason may be the lack of self confidence or lack of confidence on the system. This is the result of poor education system in Ayurveda institutions. To grab these opportunities there is the need to think out of the box, develop professional skill, attitude and entrepreneurship. Few possibilities are like; private practice, academics, research, management and administration, industry, herbal farming and trade etc.

Private practice is the foremost option because demand of good Ayurveda practitioner has increased manifold. It is one of the best options but requires good knowledge, experience and a professional attitude. Before going for private practice an Ayurveda student should try to gain best knowledge during his studies both theory and practical. It is better to work with some experienced practitioner for one or two years to get the practical knowledge, way of dealing with patients and other professional skills. To get employed in private Ayurveda hospitals is another good job opportunity. It gives better exposure, experience and idea about the entrepreneurship. It is the need of the day that Ayurveda graduates should think in this direction positively.

Academics is another very interesting area for career development but needs a different mindset, preferably post graduation and a long learning curve. If PG degree is not possible then diploma courses or short term courses can be pursued. After post graduation, students can join government or private colleges as assistant professors or lecturers because ample opportunities are available in private as well as govt. organisation for teaching. Private tuition classes for BAMS students, tuition classes for entrance exams, conducting workshops to teach particular skills, i.e., Kshrasutra, Ayurveda cooking, Ayurveda Beauty course Agnikarma, Panchakarma, etc., are good options. After doing BAMS various M.Sc. courses in subjects like Anatomy, Physiology, Microbiology or biochemistry can be pursued to brighten the career. While selecting such courses the affiliation of the institute and of that particular course must be assured. To do the fellowship or Ph.D. is another option to improve academically and to have research experience. Ph.D. in non Ayurvedic subjects is also possible.

Research is a wider area and can be chosen as sole career program or can be done simultaneously with academics or industry or self employment. Research needs a different mindset and inclination. After post graduation one can join the research council as research officer or industry as a research associate. After getting good training in GCP and
Ehtics an Ayurvedic doctor can become a resource person and have an excellent career. One can also go for a master degree in clinical research. MSc (Biotechnology/Bioinformatics/Health Sciences) is a very challenging course and is also available for BAMS students at some universities. “This is a 2-year, full time course. These courses can be useful for academic as well as in research. Students who are interested in fieldwork as well as research can go for this course which has promising opportunities in future. Some courses useful for research careers are short course on statistics and epidemiology (Christian Medical College, Vellore), and Clinical Toxicology (Kalina)”.

An Ayurvedic doctor can also join as research Junior or Senior Research Fellow in various project being conducted by various institutions, individuals or research organisations like NIA, IPGT&R, CCRAS, ICMR, DST, NIF and so many other private research organisations.

Every individual have different strengths and interests. Administration is best area for interested Ayurvedic graduates and post graduates. BAMS doctors are graduates and can opt for state or central administrative or allied services. This is an excellent career opportunity but needs lot of hard work to get selected. Recently it is being noticed that many Ayurvedic, Allopathic, Veterinary doctors, engineers etc. are opting for administrative jobs. Health/hospital management courses are available from so many universities and institutions. In Ayurvedic organisations also various administrative posts like Directors, Dyp. Directors, Joint Directors, Medical Superintendents, Pharmacy managers, RMOs and many more are available.

“Other than this, courses like Sports Medicine, Disaster Management, Industrial Management, Preventive and Promotive healthcare, Masters in Personnel Management are also good options”.

To establish Pharmaceutical industry is now a days in high demand. Drug manufacturing, cosmetic manufacturing, health products, food products, toiletries, oils, extracts are shining businesses. Some people are highly successful. Herbal farming, herbal trade and export of herbs are also high standard businesses.

To conclude it can be stated that wide range of opportunities for qualified Ayurveda doctors are available. It is just a matter of imagining, dreaming, setting the goal, doing hard and smart work with clarity in mind, sincerity in heart and honesty in efforts.

Prof. Sanjeev Sharma
Director
ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY

Efficacy of Kumari Swarasa on Yakritdaludar

*Dr. A. K. Sisodia, **Prof. O. P. Dadhich, ***Dr. M. Prasad, ****Dr. S. B. Singh

*Medical Officer, Govt. Ayurvedic Dispencery, Nimbla, Barmer (Raj.), **Assistant Professor, ***Assistant Professor, ****Ph.D. Scholar,
Department of Sharira Kriya, N.I.A. Jaipur

ABSTRACT

Yakrita (liver) is a largest metabolic organ which helps in ridding off waste materials, synthesis of various bioactive substances and also it is the site where most of the metabolic process takes place. So it is more prone to be affected specially in life style disorders, other metabolic and infectious disorders. Many times pathological enlargement of liver (Yakritdaludar) is the main presentation. Total 30 patients of hepatomegaly were screened and assessed the subjective parameter such as Daurbalya, Arochaka, Avipaka, Angasada, Varcho-mutragraha, Tamahpravesha, Pipasa, Kasha, Angamarda, Chardi, Murcha, Swasha, Mridjawara, Aanaha, Agnisthima with grading 0, 1, 2, 3 and 4 according to its severity. Objective parameters hemoglobin, total leukocyte count, serum bilirubin, Serum Glutamate Oxalo Transferase (SGOT), SGPT, Alkaline phosphatase, serum cholesterol, Serum triglycerides (TG), High Density Lipid (HDL), low density lipid (LDL) and very low density lipid (VLDL).

Patients have taken 20 ml aloe vera swarasa two times a day for one month and two follow up at 15 days interval. Subjective parameters chhardi, mutragraha, parvebheda, kosthavata shoola and daurbalya showed significant results and Arochaka, avipak and varchograha showed very significant. Objective parameter hemoglobin, SGOT, SGPT, Triglycerides, serum cholesterol, LDL and VLDL showed significant results. Alove vera swarasa increases the sarata guna of pitta and relived in varchograka due to snigdh and pichchhil guna. The aloe vera swarasa has effect on subjective parameter of yakritdalyudar and hypolipidemic actions.

Keywords: Yakritdaludar, Kumari, Tridoshagna, Sara Guna, Bhedaniya Karma.

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Introduction:

Ayurveda is the science of life dealing with physical, psychological as well as spiritual well being of an individual covering all facts of life, is famous for its holistic approach.

Person having Dosha, Agni, Dhatu & Mala in the
state of equilibrium with cheerful mind, intellect & proper sense organs termed as Swastha (healthy). Dosha, Dhatu & Mala are the base and root of body, So knowledge of Dosha, Dhatu and Mala needs to be necessary for knowing physiological process in our body.

Yakrita (liver) is a largest metabolic organ which helps in ridding off more toxic material[1] to less toxic material, synthesis of various bioactive substances and also it is the site where most of the metabolic process takes place. So it is more prone to be affected specially in life style disorders, other metabolic and infectious disorders.

Pitta is the Sthanika Dosha in Yakrita since it is metabolically active organ, due to various reason dusti of Pitta Dosha taking place. So this Pitta Dusti has to be corrected with Kumari swarasa. It has Tridoshagna property, Sheeta Virya, Tikta Rasa, Sara Guna and Bhedaniya Karma[2] with correcting the Pitta Dusti.

Aims & Objective:
To evaluate the effects of kumari Swarasa in Yakritdaludar (pathological enlargement of Liver).

Materials & Methods:

Ethical Clearance – This research study was cleared for ethical issues by Institutional Ethics Committee of National Institute of Ayurveda Jaipur vide its IEC Latter No. F 10 (5)/ EC/ 2014/ 7223; Dated: 07.11.2014.

Source of data: The study has conducted over 30 patients of OPD and IPD of Arogyashala N.I.A. Jaipur and SSBH Jaipur.

Sample size: 30 clinically diagnosed patients of Yakritdaludar.

Drug used in the study: Kumari Swarasa was procured from National Institute of Ayurveda Pharmacy, Jaipur.

Methods:

Research design: One group for observational study.

Drug: 20 ml aloe vera swarasa twice a day before meal.

Duration: One month

Inclusion Criteria
1. Patients of age group of 16 - 70 having classical sign & symptoms of Yakritdaludar.
2. Patients having agreed for the trial and fill the consent form.
3. Patients having hepatomegaly.

Exclusion criteria:
1. Patients suffering from liver carcinoma.
2. Patient having liver cirrhosis and ascites.
4. Patient having portal hypertension
5. Patients with other severe systemic diseases.

Assessment Criteria

1. Subjective Criteria:
   Most of the signs and symptoms of Yakritdaludara are subjective in nature. For subjective Criteria following symptoms were assessed- Daurbalya, Arochaka, Avipaka, Angasada, Varcho-mutragraha, Tamapravesha, Pipasa, Kash, Angamarda, Chardi, Murcha, Swasha, Mridujawara, Aanaha, Agninasha, Karshya, Aasayaverashya, Parvabedha, Kosthavata, Kosthashula, Udaramarunvarna, Udaravivarnyam, Neel-Harit-Haridrarajmant[3][4]. All character was graded with severity of character 0,1,2,3 and 4 with severity.

Observation & Results:
The collected data were analyzed and used the graph pad instant 3 version and applied the Wilcoxon signed rank test. Daurbalya, mutragraha, chhardi, koshthavata shool and Parvabedha has significant effects and Arochaka, Avipaka and varchograha has very significant effects. Tamapravesh, pipasa, angamarda, angasad, kas, shwasa, mridujwara has not significant with statistical analysis.
Table I: Effect of Kumari Swarasa on Classical Symptoms of Yakritdaludar

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Mean BT</th>
<th>Mean AT</th>
<th>Diff</th>
<th>% of Change</th>
<th>SD</th>
<th>SE</th>
<th>W</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daurbalya</td>
<td>1.8</td>
<td>1.57</td>
<td>0.23</td>
<td>12.96</td>
<td>0.50</td>
<td>0.09</td>
<td>35</td>
<td>0.039</td>
<td>S</td>
</tr>
<tr>
<td>Arochaka</td>
<td>1.3</td>
<td>0.83</td>
<td>0.47</td>
<td>35.90</td>
<td>0.63</td>
<td>0.11</td>
<td>105</td>
<td>0.001</td>
<td>VS</td>
</tr>
<tr>
<td>Avipaka</td>
<td>1.4</td>
<td>0.87</td>
<td>0.50</td>
<td>36.68</td>
<td>0.78</td>
<td>0.14</td>
<td>55</td>
<td>0.002</td>
<td>VS</td>
</tr>
<tr>
<td>Varchograha</td>
<td>1.0</td>
<td>0.73</td>
<td>0.27</td>
<td>26.67</td>
<td>0.45</td>
<td>0.08</td>
<td>36</td>
<td>0.008</td>
<td>VS</td>
</tr>
<tr>
<td>Mutragraha</td>
<td>0.33</td>
<td>0.13</td>
<td>0.20</td>
<td>60.00</td>
<td>0.41</td>
<td>0.07</td>
<td>21</td>
<td>0.031</td>
<td>S</td>
</tr>
<tr>
<td>Tamaprevesha</td>
<td>0.13</td>
<td>0.07</td>
<td>0.07</td>
<td>50.01</td>
<td>0.25</td>
<td>0.05</td>
<td>03</td>
<td>0.500</td>
<td>NS</td>
</tr>
<tr>
<td>Pipasa</td>
<td>0.33</td>
<td>0.23</td>
<td>0.10</td>
<td>30.00</td>
<td>0.40</td>
<td>0.07</td>
<td>09</td>
<td>0.312</td>
<td>NS</td>
</tr>
<tr>
<td>Angamarda</td>
<td>0.63</td>
<td>0.43</td>
<td>0.20</td>
<td>31.58</td>
<td>0.55</td>
<td>0.10</td>
<td>21</td>
<td>0.078</td>
<td>NS</td>
</tr>
<tr>
<td>Angasada</td>
<td>0.20</td>
<td>0.17</td>
<td>0.03</td>
<td>16.65</td>
<td>0.32</td>
<td>0.06</td>
<td>02</td>
<td>0.750</td>
<td>NS</td>
</tr>
<tr>
<td>Chardi</td>
<td>0.36</td>
<td>0.10</td>
<td>0.27</td>
<td>72.73</td>
<td>0.52</td>
<td>0.09</td>
<td>28</td>
<td>0.016</td>
<td>S</td>
</tr>
<tr>
<td>Kasa</td>
<td>0.50</td>
<td>0.43</td>
<td>0.07</td>
<td>13.33</td>
<td>0.36</td>
<td>0.07</td>
<td>05</td>
<td>0.375</td>
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</tr>
<tr>
<td>Swasha</td>
<td>0.37</td>
<td>0.23</td>
<td>0.13</td>
<td>36.35</td>
<td>0.34</td>
<td>0.06</td>
<td>10</td>
<td>0.125</td>
<td>NS</td>
</tr>
<tr>
<td>Mridujwara</td>
<td>0.13</td>
<td>0.07</td>
<td>0.07</td>
<td>50.00</td>
<td>0.36</td>
<td>0.07</td>
<td>05</td>
<td>0.375</td>
<td>NS</td>
</tr>
<tr>
<td>Ashyaverashya</td>
<td>0.37</td>
<td>0.30</td>
<td>0.07</td>
<td>18.18</td>
<td>0.45</td>
<td>0.08</td>
<td>07</td>
<td>0.562</td>
<td>NS</td>
</tr>
<tr>
<td>Parvabedha</td>
<td>0.47</td>
<td>0.17</td>
<td>0.30</td>
<td>64.28</td>
<td>0.65</td>
<td>0.12</td>
<td>54</td>
<td>0.034</td>
<td>S</td>
</tr>
<tr>
<td>Kosthavatasshoola</td>
<td>0.47</td>
<td>0.23</td>
<td>0.23</td>
<td>49.99</td>
<td>0.50</td>
<td>0.09</td>
<td>21</td>
<td>0.031</td>
<td>S</td>
</tr>
<tr>
<td>Udarvaivernyam</td>
<td>0.07</td>
<td>0.03</td>
<td>0.03</td>
<td>49.99</td>
<td>0.18</td>
<td>0.03</td>
<td>01</td>
<td>0.999</td>
<td>NS</td>
</tr>
</tbody>
</table>

VS= Very Significant S= Significant NS= Not Significant ND=Not Defined

Assessment of Objective Criteria

The following laboratory parameters were used before and after the course of the therapy for the assessment of any changes produced during and after the present clinical research project-

- CBC
- LFT
- Lipid Profile

The effect of kumari swaras on objective parameter such as hemoglobin, SGOT, SGPT, cholesterol, triglycerides, LDL and VLDL has significant effects and rest TLC, Serum bilirubin, alkaline phosphatase and HDL has not significant.
**Table II: Effect Of Kumari Swarasa On Laboratory Parameters In Patients Of Yakritdaludara**

<table>
<thead>
<tr>
<th>Para.</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD</th>
<th>SE</th>
<th>t</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hb %</td>
<td>11.48</td>
<td>11.93</td>
<td>-0.46</td>
<td>3.98</td>
<td>0.95</td>
<td>2.62</td>
<td>0.01</td>
<td>S</td>
</tr>
<tr>
<td>TCL</td>
<td>7184.6</td>
<td>6980.2</td>
<td>204.43</td>
<td>2.84</td>
<td>807.9</td>
<td>147.5</td>
<td>1.39</td>
<td>NS</td>
</tr>
<tr>
<td>Poly.</td>
<td>61.60</td>
<td>61.50</td>
<td>0.100</td>
<td>0.16</td>
<td>9.89</td>
<td>1.80</td>
<td>0.05</td>
<td>NS</td>
</tr>
<tr>
<td>Lymp.</td>
<td>34.10</td>
<td>32.37</td>
<td>1.733</td>
<td>5.08</td>
<td>8.55</td>
<td>1.56</td>
<td>1.11</td>
<td>NS</td>
</tr>
<tr>
<td>Mono.</td>
<td>3.10</td>
<td>3.00</td>
<td>0.100</td>
<td>3.22</td>
<td>2.07</td>
<td>0.38</td>
<td>0.26</td>
<td>NS</td>
</tr>
<tr>
<td>Eosin.</td>
<td>2.833</td>
<td>2.20</td>
<td>0.633</td>
<td>22.35</td>
<td>1.75</td>
<td>0.32</td>
<td>1.98</td>
<td>NS</td>
</tr>
<tr>
<td>Baso.</td>
<td>0.07</td>
<td>0.03</td>
<td>0.033</td>
<td>49.92</td>
<td>0.32</td>
<td>0.06</td>
<td>0.57</td>
<td>NS</td>
</tr>
<tr>
<td>Sr. Bilirubin (T)</td>
<td>1.71</td>
<td>1.61</td>
<td>0.100</td>
<td>5.86</td>
<td>0.34</td>
<td>0.06</td>
<td>1.60</td>
<td>NS</td>
</tr>
<tr>
<td>Sr. Bilirubin (D)</td>
<td>0.74</td>
<td>0.70</td>
<td>0.0467</td>
<td>6.28</td>
<td>0.16</td>
<td>0.03</td>
<td>1.58</td>
<td>NS</td>
</tr>
<tr>
<td>Sr. Bilirubin (I)</td>
<td>0.79</td>
<td>0.75</td>
<td>0.0333</td>
<td>4.24</td>
<td>0.13</td>
<td>0.02</td>
<td>1.38</td>
<td>NS</td>
</tr>
<tr>
<td>SGOT</td>
<td>49.57</td>
<td>43.97</td>
<td>5.600</td>
<td>11.30</td>
<td>12.34</td>
<td>2.25</td>
<td>2.49</td>
<td>NS</td>
</tr>
<tr>
<td>SGPT</td>
<td>42.13</td>
<td>38.40</td>
<td>3.733</td>
<td>8.86</td>
<td>8.95</td>
<td>1.63</td>
<td>2.28</td>
<td>NS</td>
</tr>
<tr>
<td>Alk. Phosphatase</td>
<td>303.27</td>
<td>283.77</td>
<td>19.50</td>
<td>6.43</td>
<td>65.05</td>
<td>11.88</td>
<td>1.64</td>
<td>NS</td>
</tr>
<tr>
<td>Sr. Cholesterol</td>
<td>203.40</td>
<td>188.43</td>
<td>14.97</td>
<td>7.36</td>
<td>31.46</td>
<td>5.74</td>
<td>2.61</td>
<td>NS</td>
</tr>
<tr>
<td>Sr. Triglyceride</td>
<td>154.20</td>
<td>145.27</td>
<td>8.933</td>
<td>5.79</td>
<td>17.97</td>
<td>3.28</td>
<td>2.72</td>
<td>NS</td>
</tr>
<tr>
<td>HDL</td>
<td>43.80</td>
<td>44.00</td>
<td>-0.20</td>
<td>0.45</td>
<td>4.65</td>
<td>0.85</td>
<td>0.24</td>
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<tr>
<td>LDL</td>
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<td>115.38</td>
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</tr>
<tr>
<td>VLDL</td>
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<td>1.79</td>
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<td>3.59</td>
<td>0.66</td>
<td>2.72</td>
<td>NS</td>
</tr>
</tbody>
</table>

S= Significant, NS= Not Significant Discussion

**Discussion on observation**

**Age:** In the present study maximum no. of patient (66.67%) was of between the age of 31-50 years. Most probable cause of this data is due to alcohol consumption and common in this age group as alcohol consumption is a most common and major cause of hepatomegaly (*Yakritdaludar*).

**Occupation:** In the present study 60% of patients were belonging to private job. Due to stress in private job it is most common tendency to consume alcohol to get rid of stress. Some patients were belonging to labor class as they are more prone to invaded by various diseases which are caused by infections.
Addiction: Maximum Patients (80%) were addicted to tea and coffee. The reason for these; figure is only that in Indian society the addiction of tea is most common. But most of them patients were also addicted to alcohol. As alcohol addiction is most common cause of hepatomegaly.

Mode of action of Kumari Swarasa

In the present study only single drug “Kumari Swarsa” is used. Properties of Kumari are that it posses Tikta and Katu Rasa. It also posses Guna like Snigdha, Pichchhila and Sara Guna and it is having Katu Vipaka. It is Sheeta Virya in nature. Selection of Kumari for this study was completely made up on the basis of Aapta vachana as it is said to have a very good effect on yakrīta and as it is mentioned earlier that the purpose of this study was to assess the effect of its Guna specially Sara Guna on Yakridaludurar. It is observed in this study that Kumari Swaras has some very significant effect on some symptoms of yakridaludurar.

Pichhila and Snigdha Guna of kumari enhance the strength in body and hence it makes remarkable change in Daurbalya as mentioned Balya and Rasayaneśṭi in Bhavpraksha. Kumari is having Tikta and Katu Rasa dominant and beneficial in Arochaka and Avipka as Tikta Rasa is known for its Arochaka Nashan property and Tikta and Katu Rasa both are Agni Deepan and Pachana so stimulation of Agni and destruction of Ama result in subsiding of Avipaka. Due to its Sara Guna it is also proved to have significant result on Varchogriha (constipation) and Mutra Griha (difficulty to micturate). In symptom like Chardi, found to have significant effect due to its Kapha Pitta Nashana Karma as Acharya Sushruta described in Chardi Samanya Chikitsa to perform all the Kapha Pitta Nashaka Kriya. In the present study Kumari is found having significant effect on some other symptoms like Kosthavata Shoola and Parva Bheda due its Katu Rasa. Katu Rasa is helpful to relieved in various Shoola (pain).

Overall we can say that on most of the classical symptoms of Yakridaludurar, Kumari is having some good and significant effects due to its multiple mode of action by Rasa, Veerya, Vipaka and Guna. As far as the study is concerned to assess its Sara Guna effect on Yakridaludurar. Due to Mandagnī, there is formation of Ama and this Ama association with Dosha produce respective Samadosh. Sama Vata along with Sama Kapha causes Srotoavrodha which further causes Sanga and pathogenesis of Yakridaludurar occurs as per the classical text “Yatra sanga Vyadhitatropjayte”[6]. For this Samprapti Vighatana Role of Sara Guna becomes quiet important. Pitta is known for its Ushna Tikshna, Drava, Katu and Sara Guna which provide it to have penetrating or Srotoavrodha Nashan property but in Yakridaludurar, Pitta is also affected by Ama and in Sama condition it is denatured or less functional. When Kumari is used as medicine in Yakridaludurar as per the Concept of “Sarvada Svabhavana samanyam Vridhī karnam”[7-8], it causes Agni deepana and Ama pachana by its Katu and Tikta Rasa and also increases the Sara Guna of Pitta Dosha as this is common in both Pitta Dosha and Kumari. Due to effect of katu and tikta rasa effect on Ama change in to jirna avastha and Piita becomes normal from Samavastha, its Sara Guna is also increased so it clears all the Srotoavrodha and symptoms of disease are subsided gradually.

Aloe vera has many compounds and antimicrobial activity. The compounds are Anthraquinones-Aloin/ Barb-aloin, Isobarba-aloin, Aloe-emodin, Emodin, Aloetic acid, Ester of cinnamic acid, Anthranol, Arabinogalactan, Xylan, Pure mannan, pectic substance, Ethereal oil, Vitamins-Folic acid, Ascorbic acid, Lignins, Uric Acid, Gibberellin, Phospahatase, Carboxy-peptidase. Miscellaneous substances as Sitosterol, Lignins, Uric Acid, Gibberellin, Lectin like substances, Salicylic Acid, Arachidonic Acid, Barbaloin, Isobarba-aloin, Xylan, Pure mannan, pectic substance, glucomannan, Glucogal-tomannan, Galactan. Inorganic Compounds Calcium, Sodium, Chlorine, Manganese, Zinc, Chromium, Copper, Magnesium, Iron Non-essential Amino acids- Histidine, Arginine, Hydroxyproline, Aspartic Acid, Glutamic Acid, Proline, Glycine, Alanine Essential Amino acids- Lysine, Threonine, Valine,
Leucine, Iso-leucine, Phenyl-alanine, Methionine.\(^8\)

Objective Parameters like Hb, SGOT, SGPT, serum cholesterol, serum triglyceride, LDL and VLDL were found statistically significant due to hepato protective and hypolipidemic activities of *Kumari Swarasa*. Aloe vera has hepato protective action on isoniazid, rifampicin induced hepatotoxicity.\(^9\)

**Conclusion:**

*Kosthavatashoola* were found significant. Symptoms like *Arochaka*, *Avipaka* and *Vrachograha* were found very significant. Symptoms like *Tamapravesha*, *Pipasa*, *Angasada*, *Kasa*, *Swasa*, *Mridujwara* and *Asyavairasya* were found non-significant statistically it is due to small sample size. Objective Parameters like Hb, SGOT, SGPT, serum cholesterol, serum triglyceride, LDL and VLDL were found statistically significant due to hepatoprotective and hypolipidaemic activities of *Kumari Swarasa*.

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ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY

Role of Drakshadi Churna and Madhuka Anuwasana Basti in Management of Asrigdara

*Dr. Anita Ray, **Dr. Swati Alha, ***Dr. C.M. Jain, ****Dr. Hetal H. Dave

*A.M.O., Govt. Ayurvedic Dispensary, Kesia Betul, M.P., **Assistant professor, Dept. of Prasuti Tantra & Stree Roga, Panjab Ayurved Medical College & Hospital, Morjand Khari, Sri Ganganagar, ***Former Professor & HOD, ****Assistant professor, Dept. of Prasuti Tantra & Stree Roga, NIA, Jaipur.

ABSTRACT

Menstruation and its abnormalities decide the women’s general, social and reproductive aspects of life. Asrigdara characterized by excessive or prolonged menstrual or inter-menstrual bleeding. It is common gynaecological problem. Asrigdara needs non hormonal, palatable, affordable, harmless and effective therapy. Hence this study was taken with Drakshadi Churna and Madhuka Anuwasana Basti, which are having the properties of Vata-pitta Shamaka, Rakta-sthapaka, Rakta-sangrahi, Deepana-pachana, and Garbhashaya-balya.

Total 35 patients were selected and randomly divided into 3 groups. 10 patients completed in each group. Group A was treated with 1.5 gm of Drakshadi Churna, twice a day with Sheetal Jala and Group B was treated with Madhuka Anuwasana Basti, 60 ml OD for seven days, and Group C was treated with combination of Drakshadi Churna and Madhuka Anuwasana Basti for the duration of 2 months. Assessment criteria were based on the improvement in the score of objective and subjective parameters, before and after the treatment. Statistically significant results were observed in objective and subjective parameters by both the drugs at the end of the treatment period. The other common symptoms were also successfully reduced. Madhuka Anuwasana Basti was found to be more significant in comparison to Drakshadi Churna, and it is more effective to relieve and control Asrigdara.

Keywords: Asrigdara, Drakshadi Churna, Madhuka Anuwasana Basti.

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Introduction:

Women is endowed with energy of procreation, for which menarche is the first step. Menstrual cycle commences with this and ends with menopause and having normal menstruation depicts the well being of...
Asrigdara characterized by excessive or prolonged menstrual or inter-menstrual bleeding\(^1\). This condition is distressing and potentially disabling. Asrigdara is the common cause of iron deficiency anaemia and general debility. It also causes psychological upsets like lack of concentration, discomfort in work place, uneasiness etc. On account of the disturbance in intake of proper diet and rest, stress and strain, with the change of the life style, this disease has become a very challenging problem for working class ladies and common in house wives. It also causes considerable morbidity.

Asrigdara indicates the excessive\(^2\) and irregularity of menses. Asrigdara can be correlated with abnormal uterine bleeding specially, dysfunctional uterine bleeding (DUB) on the basis of its description in literature.

Regular cyclic menstruation results the choreographed relationship between the endometrium and its regulating factors. Any type of disturbance between the regulatory mechanism of pituitary ovarian axis or pelvic diseases results in abnormal uterine bleeding. DUB is one of the most common causes of abnormal uterine bleeding\(^3\).

DUB is excessive abnormal uterine bleeding for which organic causes or pelvic pathology cannot be found. The bleeding may be abnormal in frequency, amount or duration or combination of these three.

Abnormal uterine bleeding affects 10-30% of reproductive aged woman and up to 50% of perimenopausal woman. Pattern and causes of AUB differs in different age group and reproductive status of the woman\(^4\).

The prevalence of abnormal uterine bleeding due to DUB was 50.9%, which is more commonly seen in age group 20-40 years. The prevalence of puberty menorrhagia was 8.2% in general and 51% among age group <20 years\(^5\).

In modern medicine, medical treatment is usually the 1st intent treatment in excessive bleeding. But it reduces menstrual blood loss by only 50% and up to 50% of women undergo surgical treatment within 5 years. But none of these treatments proved its definite efficacy in spite of high cost and side effects. This condition presents a major financial burden in the health care service (Herve Fernandez et al - 2003).

This condition mainly depends upon hormonal treatment. But hormonal therapy has its own adverse effects like nausea, vomiting, G.I.T disturbances, obesity, sterility, hypertension, liver disease etc.

Yet considering the factors such as age, parity and wishes of the patient with regard to contraception, future pregnancy etc, the drug which is non-hormonal, non surgical, effective and without any adverse effects is the need of the home.

The drug chosen for the present study was Drakshadi Churna (Su.U.45/34) with Sheetal Jala and Madhuka Anuwasana Basti (Su.U.45/44)\(^6\). Out of them the efficacy of “Anuwasana Basti (in form of Matra Basti)” is given much more importance by the Acharyas, because Matra Basti has no complications as a Panchakarma therapy.

Materials & Methods

Current study was carried out in PG Dept. Of Prasuti Tantra and Stree Roga, NIA, Jaipur (Rajasthan).

Aims & Objectives

- To provide an effective, alternative, safe, cost effective remedies for the patients of Asrigdara.
- To evaluate and compare the therapeutic efficacy of the Drakshadi Churna and Madhuka Anuwasana Basti in management of Asrigdara.

Study Design

Type of Research: Clinical

Study: Interventional

Study Design: The study design selected for the present study was prospective comparative clinical trial.
Methodology

Data Collection

a. Source of Data:
Patients suffering from Asrigdara were selected for the study from the OPD and IPD of PG Dept. Of Prasuti Tantra and Stree Roga, of National Institute of Ayurveda, Jaipur.

b. Method of data collection:
Patients presented with complaints of excessive menstrual bleeding or irregular bleeding or inter-menstrual bleeding.

Selection Criteria

Inclusion criteria:
Patient complained of Asrigdara as a cardinal symptom, had excessive menstrual bleeding or inter-menstrual bleeding and aged between 12 to 50 years.

Exclusion criteria:
Any type of malignancy, pregnant women, positive VDRL, HIV, HbsAg, severe anaemic, patients had systemic disease i.e. DM, TB, CCF, severe hypertension, Liver dysfunction, Thyroid dysfunction (Hypothyroidism and Hyperthyroidism), patients had STD's, patients had bleeding due to abortion (Threatened or spontaneous or incomplete abortion), patients had bleeding after menopause, patients had bleeding from polyps, endometrial TB, severe erosions, cancer or fibroid, or any pelvic pathology, patients had coagulation disorders, patients using IUCD.

Trial Design

Total No. of registered patients – 35
Completed patients No. – 30
Withdrawal patients No.- 5
Trial Groups – 3 Groups, 10 completed patients in each group
Type of Trial - Treatment Trial, Phase 1
Treatment Allocation – Randomisation

Blinding – Single blind method
Duration Of Trial – 2 months or 2 consecutive menstrual cycles.

Treatment Details

1. Group A - Drakshadi Churna orally with Sheetala Jala, 1.5 gm BD, just before meal (Apana Vayu Kala), start from the first day of menses.

2. Group B - Madhuka Anuwasana Basti, 60 ml OD for 7 days, start from the next day following the stoppage of menstrual bleeding.


Objective Parameters

Investigations - Hb%, TLC, ESR, RBS, Platelet Count, CT, BT.

Subjective Parameters

1. Intensity of bleeding
   - Less than 15 pads / cycle – 0
   - 15 to 20 pads / cycle - 1
   - 21 to 25 pads / cycle - 2
   - More than 25 pads / cycle - 3

2. Duration of flow or menstrual period (Days of bleeding)
   - Less than 5 days – 0
   - 6-7 days - 1
   - 8 - 9 days - 2
   - >9 days - 3

3. Amount of flow
   - Scanty - 0
   - Moderate - 1
   - Heavy (without clots) - 2
   - Heavy (with clots) – 3

4. Inter menstrual period (Interval between two
Role of Drakshadi Churna and Madhuka Anuwasana Basti in Management of Asrigdara

Periods / cycle

- 25–28 days - 0
- 20-24 days - 1
- 15-19 days - 2
- <15 days or Irregular - 3

5. Body ache

- Occasionally on doing Extra work - 0
- Every time on doing Heavy work - 1
- After doing Routine work - 2
- Even without Routine work – 3

6. Burning sensation in Body (Daha)

- No burning - 0
- Occasional mild burning - 1
- Often mild burning - 2
- Severe burning – 3

Objective Parameter

1. Pallor

- Normal (>11 gm%) - 0
- Mild (9.1-11 gm%) - 1
- Moderate (7-9 gm%) - 2
- Severe (<7 gm%) - 3

Follow up

Patients were asked to follow-up for the next 2 cycles.

<p>| Table No. I: Effect Of The Trial Drug Of Group A on Objective Parameters |
|-----------------------------|---------------|-----------|---------|----------|---------|----------|--------|-----------------------------|</p>
<table>
<thead>
<tr>
<th>Group A</th>
<th>Hb %</th>
<th>BT</th>
<th>AT</th>
<th>Diff</th>
<th>% relief</th>
<th>SD</th>
<th>SEM</th>
<th>t value</th>
<th>p value</th>
<th>Sig</th>
</tr>
</thead>
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<tr>
<td>Hb</td>
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<td>10.84</td>
<td>0.43</td>
<td>4.13</td>
<td>0.3020</td>
<td>0.0955</td>
<td>0.22212</td>
<td>0.00148</td>
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<td></td>
</tr>
<tr>
<td>TLC</td>
<td>7360.00</td>
<td>7650.00</td>
<td>290.00</td>
<td>3.94</td>
<td>2220.8357</td>
<td>702.2899</td>
<td>2.42169</td>
<td>0.689319</td>
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<td></td>
</tr>
<tr>
<td>ESR</td>
<td>22.10</td>
<td>12.10</td>
<td>10.00</td>
<td>45.25</td>
<td>10.0000</td>
<td>4.8005</td>
<td>0.480046</td>
<td>0.066924</td>
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</tr>
<tr>
<td>CT</td>
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<td>5.28</td>
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<td>0.0482</td>
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<td>0.244542</td>
<td>NS</td>
<td></td>
</tr>
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<tr>
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<td>0.79713</td>
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<tr>
<td>Platelet count</td>
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<td>34.06</td>
<td>0.6470</td>
<td>0.2046</td>
<td>0.26165</td>
<td>0.004078</td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

SD = Standard Deviation, SE = Standard Error Mean, NS = Not significant (p>0.05), S= Significant (p<0.05, p<0.01, p<0.001), HS= Highly significant (p<0.0001), BT=before treatment, AT=after treatment

<p>| Table No. II: Effect of the trial drug of group B on objective parameters |
|-----------------------------|---------------|-----------|---------|----------|---------|--------|-----------------------------|</p>
<table>
<thead>
<tr>
<th>Group B</th>
<th>Hb</th>
<th>BT</th>
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<th>Diff</th>
<th>% relief</th>
<th>SD</th>
<th>SEM</th>
<th>t value</th>
<th>p value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
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<td>Hb</td>
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<tr>
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<tr>
<td>CT</td>
<td>5.28</td>
<td>5.29</td>
<td>0.01</td>
<td>0.19</td>
<td>0.0100</td>
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<tr>
<td>Platelet count</td>
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<td>2.95</td>
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<td>33.98</td>
<td>0.6228</td>
<td>0.1969</td>
<td>0.26294</td>
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### Table No. III: Effect Of The Trial Drug Of Group C On Objective Parameters

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<tr>
<th>Group C</th>
<th>BT</th>
<th>AT</th>
<th>Diff</th>
<th>% relief</th>
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<tbody>
<tr>
<td>Hb</td>
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### Table No. IV: Intergroup Comparison Of The Objective Parameters

<table>
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<tr>
<th>Inter Group Comparison</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>p value</th>
<th>Sig</th>
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<tr>
<td>Hb</td>
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<td>0.6678</td>
<td>NS</td>
</tr>
<tr>
<td>RBS</td>
<td>1.60</td>
<td>5.90</td>
<td>2.30</td>
<td>0.9373</td>
<td>NS</td>
</tr>
<tr>
<td>Platelet count</td>
<td>0.78</td>
<td>0.75</td>
<td>0.47</td>
<td>0.3194</td>
<td>NS</td>
</tr>
</tbody>
</table>

### Table No. V: Effect Of The Trial Drug Of Group A On Subjective Parameters

<table>
<thead>
<tr>
<th>Group A</th>
<th>BT</th>
<th>AT</th>
<th>Diff</th>
<th>% relief</th>
<th>SD</th>
<th>SEM</th>
<th>P value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of Flow</td>
<td>1.00</td>
<td>0.10</td>
<td>0.90</td>
<td>90.00</td>
<td>0.5676</td>
<td>0.1795</td>
<td>0.0078</td>
<td>S</td>
</tr>
<tr>
<td>Amount of Flow</td>
<td>2.90</td>
<td>0.90</td>
<td>2.00</td>
<td>68.97</td>
<td>0.4714</td>
<td>0.1491</td>
<td>0.0020</td>
<td>S</td>
</tr>
<tr>
<td>Duration of flow</td>
<td>1.70</td>
<td>0.00</td>
<td>1.70</td>
<td>100.00</td>
<td>1.7000</td>
<td>0.2603</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>Interval/Intermenstrual period</td>
<td>1.00</td>
<td>0.10</td>
<td>0.90</td>
<td>90.00</td>
<td>0.9000</td>
<td>0.3145</td>
<td>0.0625</td>
<td>NS</td>
</tr>
<tr>
<td>Bodyache</td>
<td>2.50</td>
<td>0.10</td>
<td>2.40</td>
<td>96.00</td>
<td>0.6992</td>
<td>0.2211</td>
<td>0.0020</td>
<td>S</td>
</tr>
<tr>
<td>Pallor</td>
<td>1.70</td>
<td>0.60</td>
<td>1.10</td>
<td>64.71</td>
<td>0.3162</td>
<td>0.1000</td>
<td>0.0020</td>
<td>S</td>
</tr>
<tr>
<td>Burning Sensation</td>
<td>0.20</td>
<td>0.00</td>
<td>0.20</td>
<td>100.00</td>
<td>0.2000</td>
<td>1.0000</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
</tbody>
</table>

### Table No. VI: Effect Of The Trial Drug Of Group B On Subjective Parameters

<table>
<thead>
<tr>
<th>Group B</th>
<th>BT</th>
<th>AT</th>
<th>Diff</th>
<th>% relief</th>
<th>SD</th>
<th>SEM</th>
<th>P value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of Flow</td>
<td>1.00</td>
<td>0.00</td>
<td>1.00</td>
<td>100.00</td>
<td>1.1547</td>
<td>0.3651</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>Amount of Flow</td>
<td>2.40</td>
<td>1.00</td>
<td>1.40</td>
<td>58.33</td>
<td>0.9661</td>
<td>0.3055</td>
<td>0.0010</td>
<td>S</td>
</tr>
<tr>
<td>Duration of flow</td>
<td>1.90</td>
<td>0.00</td>
<td>1.90</td>
<td>100.00</td>
<td>1.9000</td>
<td>0.2769</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>Interval/Intermenstrual period</td>
<td>1.50</td>
<td>0.00</td>
<td>1.50</td>
<td>100.00</td>
<td>1.5000</td>
<td>0.3073</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>Bodyache</td>
<td>2.60</td>
<td>0.10</td>
<td>2.50</td>
<td>96.15</td>
<td>0.5270</td>
<td>0.1667</td>
<td>0.0020</td>
<td>S</td>
</tr>
<tr>
<td>Pallor</td>
<td>1.50</td>
<td>0.60</td>
<td>0.90</td>
<td>60.00</td>
<td>0.5676</td>
<td>0.1795</td>
<td>0.0078</td>
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</tr>
<tr>
<td>Burning Sensation</td>
<td>0.70</td>
<td>0.10</td>
<td>0.60</td>
<td>85.71</td>
<td>0.3055</td>
<td>0.5092</td>
<td>0.0025</td>
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</tr>
</tbody>
</table>
Ray A, Alha S, Jain CM, Dave HH., Role of Drakshadi Churna and Madhuka Anuwasana Basti in Management of Asrigdara
JOA XIII-2, 2019; 11 - 19

Table No. VII: Effect Of The Trial Drug Of Group C On Subjective Parameters

<table>
<thead>
<tr>
<th>Group C</th>
<th>BT</th>
<th>AT</th>
<th>Diff</th>
<th>% relief</th>
<th>SD</th>
<th>SEM</th>
<th>p value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of Flow</td>
<td>1.40</td>
<td>0.00</td>
<td>1.40</td>
<td>100.00</td>
<td>0.9661</td>
<td>0.3055</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>Amount of Flow</td>
<td>2.30</td>
<td>1.00</td>
<td>1.30</td>
<td>56.52</td>
<td>1.0593</td>
<td>0.3350</td>
<td>0.0039</td>
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</tr>
<tr>
<td>Duration of flow</td>
<td>2.40</td>
<td>0.00</td>
<td>2.40</td>
<td>100.00</td>
<td>2.4000</td>
<td>0.3399</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
<tr>
<td>Interval/Inter-menstrual period</td>
<td>1.20</td>
<td>0.10</td>
<td>1.10</td>
<td>91.67</td>
<td>1.1000</td>
<td>0.3786</td>
<td>0.0213</td>
<td>S</td>
</tr>
<tr>
<td>Bodyache</td>
<td>2.60</td>
<td>0.20</td>
<td>2.40</td>
<td>92.31</td>
<td>0.6992</td>
<td>0.2211</td>
<td>0.0020</td>
<td>S</td>
</tr>
<tr>
<td>Pallor</td>
<td>1.60</td>
<td>0.20</td>
<td>1.40</td>
<td>87.50</td>
<td>0.6992</td>
<td>0.2211</td>
<td>0.0039</td>
<td>S</td>
</tr>
<tr>
<td>Burning Sensation</td>
<td>0.20</td>
<td>0.00</td>
<td>0.20</td>
<td>100.00</td>
<td>0.2000</td>
<td>1.0000</td>
<td>&lt;0.0001</td>
<td>HS</td>
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Table No. VIII: Intergroup Comparison Of The Subjective Parameters

<table>
<thead>
<tr>
<th>Intergroup Comparison</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
<th>P value</th>
<th>Sig</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensity of Flow</td>
<td>0.90</td>
<td>1.00</td>
<td>1.40</td>
<td>0.3790</td>
<td>NS</td>
</tr>
<tr>
<td>Amount of Flow</td>
<td>2.00</td>
<td>1.40</td>
<td>1.30</td>
<td>0.1704</td>
<td>NS</td>
</tr>
<tr>
<td>Duration of flow</td>
<td>1.70</td>
<td>1.90</td>
<td>2.40</td>
<td>0.1692</td>
<td>NS</td>
</tr>
<tr>
<td>Interval/Inter-menstrual period</td>
<td>0.90</td>
<td>1.50</td>
<td>1.10</td>
<td>0.4177</td>
<td>NS</td>
</tr>
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<td>Bodyache</td>
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<td>2.40</td>
<td>0.9700</td>
<td>NS</td>
</tr>
<tr>
<td>Pallor</td>
<td>1.10</td>
<td>0.90</td>
<td>1.40</td>
<td>0.1271</td>
<td>NS</td>
</tr>
<tr>
<td>Burning Sensation</td>
<td>0.20</td>
<td>0.60</td>
<td>0.20</td>
<td>0.3953</td>
<td>NS</td>
</tr>
</tbody>
</table>

Discussion

Action On Samprapti Ghataka

**Dosha:** Predominant Dosha responsible for disease are, vitiated Vata and Pitta. The drugs, Drakshadi Churna and Madhuka Anuwasana Basti (Matra Basti) are Vata-Pitta Shamaka, where Vata is pacifying due to Madhura Rasa and Madhura Vipaka, Snigdha-Guru Guna and Rasayana property. Pitta is pacifying due to Tikta-Madhura Rasa Madhura Rasa and Sheeta Veerya.

**Dushya:** The contents of Drakshadi Churna and Madhuka Anuwasana Basti (Matra Basti) are Rakta Sangrahi, Rakta Shodhaka and Rakta Shapaka, which helps in Shodhana of Dushita Pitta and Rakta. Further these have Agnivardhana, Deepana, Pachana properties which played a role in Ama Pachana of Rasa Dhatu by their action on Jatharagni.

**Adhishthana and Srotas:** The drugs in the formulations are Shothahara, Ropana and Mutrula which help in Srotoshodhana and Garbhashaya Shodhana thereby reducing inflammation and uterine congestion. Presence of Sandhaniya and Vrana-ropana drugs, reduce the fragility of endometrial capillaries and thus helps in their toning.

Drugs’ having anti-inflammatory property helps in reducing the prostaglandin levels thus reducing the menstrual blood loss, dysmenorrhea as well as pelvic congestion, which is the main factor in the pathogenesis of the disease. Drugs probably decrease the production of oestrogen which helps to reduce hyperplasia of endometrium. Overall, because of haemostatic and haematonic potential of the drugs, it helps to replenish the blood loss. Smooth muscle relaxant and antispasmodic properties of drugs reduces the contraction of myometrium, thus reduces blood loss. Anti-depressant, nerve tonic like properties of drugs corrects Manasika-Dushti (psychological status). Antioxidant and free radical scavenging activity of drugs do Srotoshodhana and hepato-protective property acts on liver to correct the metabolism and hormonal imbalance.
In Group A and C, the medicine (Drakshadi Churna with Sheetal Jala) advised to take just before meal in Apana-Vayu Kala, and medicine also started on the first day of menses (bleeding phase), that is also Kala of Vata, so this also helps in Apana-Vayu Anulomana.

In Group B and C, the medicine (Madhuka Anuwasana Basti) had given from the next day following the stoppage of menstrual bleeding. This is Ritu Kala with predominance of Kapha. In other words it is follicular phase.

In Ayurveda Basti is said as half of the whole treatment schedules. It is said to control almost all the diseases, all the Dosha and it is very fast on its onset of action, though it is typically scheduled to eliminate and pacify Vayu. The main abode of Vayu is said in Ayurveda classics as Pakvashaya and Basti pacifies this Vayu by its potency lodging in the Pakvashaya. Basti can control the total Vayu located all over the body by controlling the Vayu phenomenon in Pakvashaya. By the discovery of ENS, this fact may be established in modern perspective. A new nervous system of abdomen has been discovered which is named as Enteric Nervous System (ENS) and simply it is called as mini brain. Overall function of the Enteric nervous System (ENS): Control of Motility, regulation of fluid exchange and local blood flow, regulation of gastric and pancreatic secretion, regulation of gastrointestinal endocrine cells, defence reactions, entero-enteric reflexes and ENS-CNS (central nervous system) interactions. The Basti is containing several drugs and inserted in warm condition in fairly good amount. These factors are quite enough to influence the primary afferent neurons and here by ENS. Basti fluid by its direct action over nerve endings can control the whole body by influencing hormonal secretions and CNS[9].

Thus the actions of (Anuwasana Basti) Matra Basti can be analysed as, action on small blood vessels, haemostatic and coagulant action, uterine stimulant activity, potentiating of myometrial and endometrial activity like prostaglandins and the role of Eicosanoids, anti-oestrogenic activity, conversion of abnormal phospholipids and cholesterol to normal in the liver, corrects the follicular phase, ovulation, luteal phase, hormonal imbalance, uterine contractions and thus corrects the menstrual rhythm can be thought of.

Effect Of Treatment On Objective Parameters

Effect of Treatment on Hb% and Platelet Count

Group A showed a little noticeable effect on the Hb% (4.13%) and platelet count (34.06%), group B showed only on the platelet count (33.98%), and group C showed effect on Hb% (6.76%) and on platelet count (20.51%), which was statistically significant (p value<0.05). Except these all the variables exhibited a very little change after the completion of the trial which was not significant statistically (P value >0.05). Group A and C showed a little noticeable effect on the Hb%, it was may be due to iron content of Drakshadi Churna. Group A, B and C showed a little noticeable effect only on the platelet count, it was may be possible by correcting metabolism and functions of liver. Comparative analysis of objective parameters of the three groups showed no significant difference statistically (p value>0.05).

Effect Of Treatment On Subjective Parameters

Effect on Intensity of flow

Group A reveals that relief was 90%, which was statistically significant (p value<0.01), group B and group C reveals that maximum percentage of relief was 100%, which was highly significant statistically (p value<0.0001). Thus it proves the effectiveness of the Anuwasana Basti (Matra Basti) to reduce the quantity of menstrual blood.

Effect on Duration of flow

Group A, B,  and C reveals that maximum percentage of relief was observed in the parameter of duration of flow (100%), which was highly significant statistically (p value<0.0001). This proves that Drakshadi Churna and Anuwasana Basti (Matra Basti) were equally effective on the symptom.

Effect on Amount of flow

Group A reveals that relief was 68.97%, Group B reveals that relief was 58.33%, Group C reveals that relief was
56.52%, which was statistically significant (p value<0.01). This proves that Drakshadi Churna and Anuwasana Basti (Matra Basti) were equally effective on the symptom.

**Effect on Inter menstrual period**

Group A reveals that relief was 90%, which was statistically not significant (p value>0.05), Group B reveals that relief was 100%, which was highly significant statistically (p value<0.0001) and Group C reveals that relief was 91.67%, which was statistically significant (p value<0.01). Thus it proves that Anuwasana Basti (Matra Basti) was more effective to increase interval or inter-menstrual period as compared to oral medicine Drakshadi Churna.

**Effect on Body ache**

Group A reveals that relief was 96%, Group B reveals that relief was 96.15%, and Group C reveals that relief was 92.31%. This proves that Drakshadi Churna and Anuwasana Basti (Matra Basti) are mostly equally effective on the symptom.

**Effect on Pallor**

Group A reveals that pallor showed 64.71% of relief, Group B reveals that pallor showed 60% of relief, Group C reveals that pallor showed 87.5% of relief which was statistically significant (p value <0.01). This proves that combination of Drakshadi Churna and Anuwasana Basti (Matra Basti) was more effective to improve pallor as compare to single one.

**Effect on Burning sensation**

Group A and C reveals that burning sensation showed 100% of relief, which was highly significant statistically (p value<0.0001). Group B reveals that burning sensation showed 85.71% of relief, which was significant statistically (p value<0.001). This proves that Drakshadi Churna was more effective to treat burning sensation.

**Inter Group Comparison Of Subjective Parameters**

Comparative analysis of subjective parameters of the three groups showed no significant difference statistically (P value >0.05).

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**Conclusion**

In Samprapti of Asrigdara prominent Doshas are Vata and Pitta. These Doshas have predominant role in all type of Asrigdara. The excessive loss of blood caused Raktakshaya and Raktakshaya also leads to Vata Prakopa. After critical analysis, it can be concluded that Asrigdara can be compared to DUB. The incidence of Asrigdara (DUB) was high among the women of reproductive age and of perimenopausal age. Madhuka Anuwasana Basti (Matra Basti) proves more efficacies and more stability on subjective parameters as a part of Panchakarma therapy.

All three groups also showed marked good results on associated symptoms like foul smell, consistency of menstrual blood, colour of menstrual blood, and presence of pain during menstruation.

Thus we can conclude that Drakshadi Churna and Madhuka Anuwasana Basti (Matra Basti) shows significant and highly significant results on subjective parameters to treat the Asrigdara. These are non-hormonal, inexpensive, easily available, safe and applicable type of treatment in Asrigdara, as compare to modern medicines. This has proved that these classical preparations very effective in treatment of Asrigdara without any complications or adverse effects.

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ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY


*Dr. Krishna Dutt, **Dr. Shrinidhi Acharya K.

*Ayurveda Medical officer, Govt. Ayurveda Hospital Kithana, Jhunjhunu, Rajasthan ,
**Associate professor, Department of Kaumarbhritya, National institute of Ayurveda, Jaipur.

ABSTRACT

Background: Nephrotic syndrome is one such burning problem which effects the school going child due to exaggerated immune response like auto-immunity following a viral infection. The incidence is 2 to 7 per1, 00,000 children per year. It’s more common in males. Steroids, diuretics and other immuno-suppressive treatment which does not solve the purpose of correction of immune-response. Adverse effect and steroids dependency has been emerged as major hazard. Mainstay of our treatment is corrections and re-modulation of immune system by immuno-modulators. Hence an attempt has been made to find out effective treatment which is devoid of adverse effect and also remove the disease from the root.

Material & Methods: Study Type: Randomized Control Trail. Trial period: 6 months. Selection of Cases (Source of Data): The study was conducted on patients of age group 2-16 years which were randomly selected from O.P.D/I.P.D. National Institute of Ayurveda Jaipur, Rajasthan. Sample Size: Total 30 cases, were randomly divided into two groups. Group A: Given an Indigenous Compound and Sthiradi Yapana Basti with ongoing steroid treatment. Group B: Given ongoing steroid treatment and taken as control group.

Results: Extremely significant improvement in all laboratory parameters and symptomology in both the groups.

Conclusion: Nephrotic Syndrome can be clinically compared with Ojovayapath, owing to similarity in pathology, symptomatology and clinical presentation. Present study has partially succeeded in fulfilling an alternative treatment modality for Minimal Change Nephrotic Syndrome and reducing adverse effect of long term steroid therapy.

Keywords: Nephrotic syndrome, Sthiradi Yapan Basti, Ojas.

Address of Correspondence:
Dr. Krishna Dutt
Department of Kaumarbhritya,
Ayurveda Medical officer,
Govt. Ayurveda Hospital, Kithana, Jhunjhunu (Raj.)
Email ID : drkrishnadutt@gmail.com
Contact No : 9001536075

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Introduction:
Childhood is a highly eventful and unique period
of life that lays an important foundation for the future adult life. This period is marked by high physical and mental growth and development. Ayurveda with its global approach stand separate and put forth unique treatment principle for the management of disorders. Ayurveda formulated by keeping universe as reference point always consider human body as part of universe and treat accordingly. Altered life style and food habits of the individuals give rise to emergence of many disorders which demand re-correction of life style and food habits rather than drug treatment, which is quite difficult in present day mechanical life.

Disorders related to immune system specially aberration of immune response leading to auto-immune disorders becoming more common now-a-days. Nephrotic syndrome is one such burning problem which effects the school going child due to exaggerated immune response like auto-immunity following a viral infection.

Nephrotic syndrome is primarily a paediatric disorder and is 15 times more common in children than adults (minimal change nephrotic syndrome). The incidence is 2 to 7 per 1,00,000 children per year\(^5\). It can occur in any age and both in males and females but it is more common in males. It is a nonspecific kidney disorder characterised by proteinuria, hypoalbuminemia and oedema. According to International Study of Kidney Diseases in Children (ISKDC classification)\(^6\) the characteristic are heavy/massive proteinuria (>3.5 gms/24hrs in adults or 4 mg/meter \(^2\)/hr in children), hypoalbuminemia (<2.9 gm/dl), oedema, hyperlipidaemia (>220mg/dl), Predisposition for coagulation. Glomeruli are affected by inflammation or hyalinization (the formation of a homogenous crystalline material within cells) that allows proteins such as albumin, anti-thrombin or the immunoglobulin’s to pass through the cell membrane and appear in urine\(^5\). Loss of protein from the body leads to pressure changes in vascular bed leading to oedema\(^4\).

Recurrency and relapse is quite common in nephrotic syndrome especially after a viral infection, and with each recurrency disease become more and more chronic, but effective treatment is lacking. Steroids, diuretics and other immune-suppressive treatment are presently used as main stay of treatment. Steroids are extensively used as immune-suppressant action which does not solve the purpose of correction of immune-response\(^5\). Adverse effect and steroids dependency has been emerged as major hazard which also interfere with growth and development of child.

Whole etiological factors, pathogenesis and symptomology explained in contemporary science can be interpreted on the basis of Ayurvedic principles as follows.

\textit{Aama} is consideredas route cause of all disorders which exist due to \textit{Aganimandyaat} macro and micro cellular level. \textit{Aama} formed at digestive level due to irregular \textit{Agni} in \textit{Bahya Aanavaha Srotus (Susuruta)} which is modulated by enzymatic activity and referred as \textit{Aavasthapaka}. \textit{Aama} formed at digestive tractcan be easily cleared. But cellular level \textit{Aama} formed at \textit{Dhatus} due to \textit{Dhatwagani Mandyaa} or at molecular level and enzyme level / which separates through hormone activity is difficult to clear. Metabolic error in molecular / cellular level related to amino-acid may from different toxic / non-toxic metabolic waste products which have certain antigenicity. Especially waste production produced by errors of protein / carbohydrates are more dangerous as it may exhibit certain degree of antigenicity. Cell wall of certain viruses / bacteria are also made up of protein and carbohydrates which may mimic cellular configuration of bodily cells.

Hence these waste products may stimulate body immune system due to its antigenicity resulting in certain degree of antigen-antibody reaction. Thus freely circulating antibodies can attack similar body tissues in human body and can evoke an auto-immune response. When tissue of glomerular area i.e. basement membrane is injured due to such auto-immunity results in pathophysiology and symptomology similar to Nephrotic Syndrome.

\textit{Ojas} which is essence of \textit{SaptaDhatues} of the body is such an entity in the body which is disturbed
from macro to micro level. It is present at level of each cell from conception to death[6]. When Ojas undergo instability at 8th month of pregnancy the life of both mother and foetus is under threat[7]. Such an Ojas is responsible for existence of this human body and its fluctuations, disturbances, deficiencies, malfunctioning result in uncertain human life. Stable Ojas maintain whole body just like a sheet anchor. Its deficiency can be Ojo-Kshaya, its malfunctioning can be Ojo-Vayapath, and its fluctuations may be Ojo-Visarmana. Same Ojas is very clear and increase Satwa of the body. It is one of the Paranayatanas[8] and usually its Kshaya occurs in chronic disorders like Rajayakshayama, Parmeha etc. Ojas is also called is Sara of the body, Bala of the body and responsible for Vayadhi-Kshamatwa. Hence for all clinical purpose in detail analysis of literature of Ojas, it can be well compared with immune system of body. Body immune system is distributed locally and peripherally or local or generalised similarly Ojas is either Para or Apara. Each system tissue, cells shows certain degree of its own immunity which can be compared with generalised distribution of Ojas.

It is quite obvious that aberrations of body immune system is the root cause of all disorders. Pronicity of infections increase with Ojas Kshaya while immune regulation is disturbed by Ojo-Vayapatha and Visarmana. Hence an exaggerated immune response leading to auto-immunity like presentations is possible in aberration of Ojas especially Vayapath / Visarmana as evidenced in Nephrotic Syndrome like condition (other example are RHD, SLE, RA etc.). This condition should not be treated with immune-suppressive therapy like steroids as it further depress the immune system instead of immune-modulation.

Aims & Objectives -

• Evaluate the efficacy of an Indigenous compound and Sthiradi Yapana Basti in the management of Nephrotic Syndrome w.s.r. to aberrations of Ojas.

• To study different facts of Nephrotic Syndrome with its Ayurvedic understanding.

Material & Method

Following materials and methods were adopted for conducting the present clinical trial.

Selection of Children

The study was conducted on patients of age group 2-16 years which were randomly selected from O.P.D/I.P.D. of National Institute of Ayurveda Jaipur, Rajasthan. Total 32 cases registered in the study. Cases registered for the study were randomly divided into two groups, total 17 patients were registered in group A and 15 patients were registered in group B. Two cases in group A were dropped out as they have not followed complete treatment protocol.

Clinical study was approved by IEC, Order No. F10 (5)/EC/2014/7220

Group A: Given an Indigenous Compound and Sthiradi Yapana Basti with ongoing steroid treatment.

Group B: Given ongoing steroid treatment.

Inclusion Criteria

1. Children age between 2-16 years children suffering with Nephrotic Syndrome according to ISKDC.

Exclusion Criteria

1. Steroid dependent/resistant cases.


3. Children with Secondary Glomerulonephritis (e.g. Post infectious Glomerulonephritis, SLE, Diabetic neuropathy, Henoch-Schonlein Syndrome)

4. Children of Nephrotic Syndrome with end stage disease.

5. Children to receiving immuno-suppressant other than steroid like cytotoxic drugs Etc. with indication of renal biopsy.
Discontinuation Criteria

1. Appearance of complication or any acute illness which adversely affect the treatment schedule during trial.
2. Any parent not willing to continue with the medicine,

Assessment Criteria:

a. Clinical Assessment:

<table>
<thead>
<tr>
<th>Grading for oedema</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Oedema</td>
<td>0</td>
</tr>
<tr>
<td>Periorbital Oedema</td>
<td>1</td>
</tr>
<tr>
<td>Pedal Edema</td>
<td>2</td>
</tr>
<tr>
<td>Generalized Oedema</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grading for Proteinuria</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil</td>
<td>0</td>
</tr>
<tr>
<td>Trace (5-20 mg/dl)</td>
<td>1</td>
</tr>
<tr>
<td>+ (30 mg/dl or &lt;0.5g/day)</td>
<td>2</td>
</tr>
<tr>
<td>++ (100 mg/dl or 0.5-1g/day)</td>
<td>3</td>
</tr>
<tr>
<td>+++ (300 mg/dl or 1-2g/day)</td>
<td>4</td>
</tr>
<tr>
<td>++++ (&gt;300mg/dl or &gt;2g/day)</td>
<td>5</td>
</tr>
</tbody>
</table>

b. Laboratory Assessment

1. Urine Protein (24 hrs specimen)

Study Drug: Batch no. A-0085, drugs were prepared in the pharmacy of N.I.A., Jaipur.

Table No. I: Composition of an Indigenous compound

<table>
<thead>
<tr>
<th>Name</th>
<th>Scientific Name</th>
<th>Use Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guduci</td>
<td>Tinosporacodifolia</td>
<td>Stem</td>
<td>1Part</td>
</tr>
<tr>
<td>Bhumyamalaki</td>
<td>Phyllanthusnururi</td>
<td>Whole plant</td>
<td>1 Part</td>
</tr>
<tr>
<td>Yashthimadhu</td>
<td>Glycyrhiza glabra</td>
<td>Root</td>
<td>1 part</td>
</tr>
<tr>
<td>Araqvadha</td>
<td>Cassia fistula</td>
<td>Root bark</td>
<td>1 Part</td>
</tr>
<tr>
<td>Varun</td>
<td>Crataevaanurvala</td>
<td>Stem bark</td>
<td>1 Part</td>
</tr>
<tr>
<td>Punarnava</td>
<td>Boerhavia diffusa</td>
<td>Whole plant</td>
<td>1 Part</td>
</tr>
<tr>
<td>Goksurava</td>
<td>Tribulusterrestris</td>
<td>Whole plant</td>
<td>1 Part</td>
</tr>
<tr>
<td>Sunthi</td>
<td>Zingibarofficinale</td>
<td>Rhizome</td>
<td>1 Part</td>
</tr>
<tr>
<td>Kush</td>
<td>Desmost. Bippinata</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Kash</td>
<td>Sacch. Spontaneum</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Nala</td>
<td>Arundodonex</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Darbh</td>
<td>Imperatacylindrica</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Kandekshu</td>
<td>Sacha. officinaram</td>
<td>Root</td>
<td>1 Part</td>
</tr>
</tbody>
</table>

Table No. II: Composition of Sthiradiyapana Basti

<table>
<thead>
<tr>
<th>Name</th>
<th>Scientific Name</th>
<th>Use Part</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saliparni</td>
<td>Desmodium angeticum</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Prsniparni</td>
<td>Uurariapicta</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Kantakari</td>
<td>Solanum surratanc</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Brhati</td>
<td>Solanum indicum</td>
<td>Root</td>
<td>1 Part</td>
</tr>
<tr>
<td>Goksur</td>
<td>Tribulusterrestris</td>
<td>Root</td>
<td>1 Part</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Sali</th>
<th>Oryzasativa Seed</th>
<th>2 Part</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sashtik</td>
<td>Oryzaglaberrima Seed</td>
<td>2 Part</td>
</tr>
<tr>
<td>Yava</td>
<td>Chenopodium album Seed</td>
<td>2 Part</td>
</tr>
<tr>
<td>Godhum</td>
<td>Triticumaestivum Seed</td>
<td>2 Part</td>
</tr>
<tr>
<td>Masha</td>
<td>Phacolus mungo Seed</td>
<td>2 Part</td>
</tr>
<tr>
<td>Aja Ksheera</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Kukutand rasa</td>
<td>-</td>
<td>White liquid part</td>
</tr>
<tr>
<td>GauGhrit</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Tila tail</td>
<td>Sesamumindicicum Seed oil</td>
<td>-</td>
</tr>
<tr>
<td>Madhu</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>SaindhavLavana</td>
<td>Rock Salt</td>
<td>-</td>
</tr>
<tr>
<td>SuvarachalLavana</td>
<td>Na₂SO₄ + NaCl</td>
<td>-</td>
</tr>
</tbody>
</table>

Dose & Duration:
The Indigenous compound drug dose was prescribed according Yogaratanakar BalaRoga Chikitsa Parkarana¹⁰(acc. age of children) in kasaya form. Basti as explained in classics is quite difficult for its practical implementation of dose in children due to large variations in status of Dosha, Datu, Agni, Kala, Ayu and certain morphological and pharmacological limitations by considering the above facts exactly half of classical doses of Niruha Basti mentioned by Charaka. It’s given in every morning continuous up to seven days in every follow up, till completion of study period.

Follow-up:
All patients were followed on an interval of every month up to complete study period (6 months). I.e. on day 30th, day 60th, day 90th, day 120th, day 150th, day 180th. A window period of +3 days was given to allow for holidays and weekends.

Observations:
- Majorities of the patients were in between 5-8 yrs. (64.28%) of age. ISKDC study report also provides the information that most prevalent age of Nephrotic Syndrome is 2-8 years in children.
- Male child (66.67%) were more effected then female (i.e. 2:1 ratio.) ISKDC data indicate the prevalence ratio of the disease in male and female varies from 2:1 to 3:2 as per different studies in older children, adolescent and adults³³.
  - Maximum patients were belongs to Hindu community (60%). These incidences may be due to predominance of Hindu residents in study area.
  - Present study showed 100% of patients were immunized because of maximum health awareness as study area was located in urban area.
  - Maximum numbers of patients were belonging to lower (40%) and middle (40%) socio-economic status. Nephrotic syndrome is aggravated by repeated respiratory infections and immune system is hampered by poor nutrition. Incidences reflects importance of hygiene maintenance and nutrition in prevention of disease on it is hardly possible in poor socio-economical group⁴¹.
  - Vata-KaphajaSharirikaParkruti (63.33%) patients were found to more prone for MCNS. Thus incidences are high in Kapha-Vataja due to direct relationship between Ojasand Kapha.
  - In the present study 30 % patients were found protein 2+ in their urine sample and 26.66 % were found protein 1+ in urine where as 16.67% were present with 3+ and 10% with 4+ after urine analysis. Massive proteinuria is confirmatory diagnostic tool for nephrotic syndrome and also the cause for oedema, which has been graded depending on total
protein loss / per day, which is also evidenced in the present study.

- In the present study patients presented with periorbital oedema were 60% while 26.67 % of patients presented pedal as well as periorbital oedema. However 13.33 % of patients presented with generalised oedema. As oedematous pathology of Nephrotic Syndrome begins with periorbital region as a first symptom high evidence of the same has been noted. Chronicity or severity of the disease has been evidenced by pedal and generalised oedema

Results:

Intragroup comparison:

- **Weight and Serum Cholesterol:** In the present study in group B (control group) after treatment increased in weigh by 6.89% and serum cholesterol by 5.66%, while in group A (treated group) after treatment the weight was increased by 5.52% and serum cholesterol decreased by 1.32%.

- **24 hr. Urine output:** It was observed that in group B (control group) after treatment the urine output was increased by 1.23 %, while in group A (treated group) after treatment urine output was increased by 12.08 %. It was more obvious in treated group.

- **Oedema:** In group A (trial group) after treatment the oedema was decreased by 58.90 % with ‘p’ value at < 0.0010 which is significant. While in group B (control group) after treatment the oedema was decreased by 53.75 % with ‘p’ value at < 0.0039 which is also significant. Thus both the group showed significant decrease in oedema though it was more obvious in treated group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
<th>Gain/ Loss-%</th>
<th>S.D.</th>
<th>S.E.</th>
<th>p</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B.T.</td>
<td>A.T.</td>
<td>Diff.</td>
<td>58.90</td>
<td>0.639</td>
<td>0.16</td>
</tr>
<tr>
<td></td>
<td>1.46</td>
<td>0.60</td>
<td>0.86</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>1.60</td>
<td>0.73</td>
<td>0.86</td>
<td>53.75</td>
<td>0.91</td>
</tr>
</tbody>
</table>

**Proteinuria:** In group A (trial group) after treatment the proteinuria was decreased by 55.67 % with ‘p’ value at < 0.0002 which is significant. In group B (control group) after treatment the proteinuria was decreased by 49.80 % with ‘p’ value at < 0.0002 which is also significant. Thus both the group showed significant decrease in proteinuria though it was more obvious in treated group.

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
<th>Gain/ Loss-%</th>
<th>S.D.</th>
<th>S.E.</th>
<th>p</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B.T.</td>
<td>A.T.</td>
<td>Diff.</td>
<td>55.67</td>
<td>1.04</td>
<td>0.27</td>
</tr>
<tr>
<td></td>
<td>03</td>
<td>1.33</td>
<td>1.67</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.53</td>
<td>1.26</td>
<td>1.26</td>
<td>49.80</td>
<td>0.79</td>
</tr>
</tbody>
</table>

**Serum creatinine and Blood Urea:** In present study it was observed that in group B serum creatinine was increased by 15.82 % and blood urea by 8.09%. While treated group A decreased in serum creatinine by 6.78% and increased in blood urea by 1.27%.

**Total serum protein:** In the present study it was observed that after treatment the total serum protein level was decreased by 5.08% in group B (control group). In group A (treated group) after treatment there was increased in the total serum protein level percentage by 4.13% respectively[14].

Table No. V

<table>
<thead>
<tr>
<th>Characters</th>
<th>Group</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Gain or Loss</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A.T.</td>
<td>B.T.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wt. (k.g.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>21.7</td>
<td>22.9</td>
<td>1.2</td>
<td>5.52</td>
</tr>
<tr>
<td>B</td>
<td>20.3</td>
<td>21.7</td>
<td>1.4</td>
<td>6.89</td>
</tr>
<tr>
<td>Urine output (ml)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>402.67</td>
<td>451.33</td>
<td>48.67</td>
<td>12.08</td>
</tr>
<tr>
<td>B</td>
<td>380.6</td>
<td>385.3</td>
<td>4.7</td>
<td>1.23</td>
</tr>
<tr>
<td>Sr. creatinine (mg/dl)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>1.15</td>
<td>1.07</td>
<td>0.078</td>
<td>6.78</td>
</tr>
<tr>
<td>B</td>
<td>1.39</td>
<td>1.61</td>
<td>0.22</td>
<td>15.82</td>
</tr>
<tr>
<td>Blood urea (mg/dl)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>39.2</td>
<td>39.7</td>
<td>0.5</td>
<td>1.27</td>
</tr>
<tr>
<td>B</td>
<td>39.02</td>
<td>42.18</td>
<td>3.16</td>
<td>8.09</td>
</tr>
<tr>
<td>Sr. total protein (mg/dl)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>5.80</td>
<td>6.04</td>
<td>0.24</td>
<td>4.13</td>
</tr>
<tr>
<td>B</td>
<td>5.51</td>
<td>5.23</td>
<td>0.28</td>
<td>5.08</td>
</tr>
<tr>
<td>Sr. Cholesterol (mg/dl)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>188.4</td>
<td>185.55</td>
<td>2.49</td>
<td>1.32</td>
</tr>
<tr>
<td>B</td>
<td>224</td>
<td>236.7</td>
<td>12.7</td>
<td>5.66</td>
</tr>
<tr>
<td>Systolic B.P. (mm of Hg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>112.6</td>
<td>118.6</td>
<td>6</td>
<td>5.32</td>
</tr>
<tr>
<td>B</td>
<td>105.06</td>
<td>117.06</td>
<td>12</td>
<td>11.42</td>
</tr>
<tr>
<td>Diastolic B.P. (mm of Hg)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>68.66</td>
<td>72.66</td>
<td>0.4</td>
<td>5.82</td>
</tr>
<tr>
<td>B</td>
<td>67.33</td>
<td>76</td>
<td>8.67</td>
<td>12.87</td>
</tr>
</tbody>
</table>

Intergroup comparison:

- In the present study in intergroup comparison showed insignificant result of group A over group B in oedema and proteinuria.

Table No. VI

<table>
<thead>
<tr>
<th>Features</th>
<th>Group</th>
<th>Mean</th>
<th>St. D</th>
<th>St. E</th>
<th>Diff</th>
<th>%</th>
<th>P Value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oedema</td>
<td>A</td>
<td>0.8667</td>
<td>0.6399</td>
<td>0.1652</td>
<td>0</td>
<td>0</td>
<td>0.7856</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>0.8667</td>
<td>0.9155</td>
<td>0.2364</td>
<td>0</td>
<td>0</td>
<td>0.2727</td>
<td>Insignificant</td>
</tr>
<tr>
<td>Proteinuria</td>
<td>A</td>
<td>1.667</td>
<td>0.7988</td>
<td>0.2063</td>
<td>0.4</td>
<td>23.99</td>
<td>0.2727</td>
<td>Insignificant</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>1.267</td>
<td>1.047</td>
<td>0.2702</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Discussion:

Mode of action of trial drug:

- So treatment principles of trial drug in present study are-Enhance the tolerance level of body immunity (Ojovardhaka): Guduchi, Yasthimadhu, Bhumayamlaki and Sthiradi Yapana Basti.
- Evaluate cellular level Aama and increase the digestive capacity (Deepan, Pachana, Agni Vardhaka, Aama Nashaka, virechaka): Shunthi, Aragwadha.
- Decrease the oedema (Mutrala): Gokshura, Punarnava and Varuna.
- Regenerate the damaged tissue (Rasayana): Guduchi, Yasthimadhu and Gokshura.
- Ensure the aseptic urinary tract and prevent recurrent infections: Bhumayamlaki, Trinpanchmoola.
- Dietic modification: protein supplementation: Sthiradi Yapana Basti.

Conclusion:

- In the present study based on the results, it can be
concluded that conventional treatment of nephrotic syndrome added with Ayurvedic immunologic indigenous compound and Sthiradi Yapana Basti is highly beneficial in controlling pathology, decreasing recurrency and symptomology in comparison to conventional treatment of same without adverse effect.

- We did not recommend that the Sthiradi Yapana Basti and Indigenous Compound is a separate line of treatment for nephrotic syndrome. We can use it with the ongoing therapies for better effect and it also reduces the adverse effect of steroids.

**Recommendations for further study** -

- In future, study may be conducted on same drug with large Sample size and for longer duration.

**Acknowledgement**

We are thankful to the laboratory and pharmacy staff for their support and to the patient for the cooperation in the study.

**References**

"A Conceptual, clinical and comparative Study of Vidangadi churna and Medohara lepa along with Vidangadi churna on Sthaulya in the purview of - "संतर्पणोत्तानामपर्याप्तर्णणमोऽधम्"

*Dr. Kuldip Jadav, **Late Dr. Govind Pareek, *** Dr. Asit K panja

*Ayurved Medical officer, Govt. of Gujarat, **,** ***Associate professor, Department of Maulik Siddhanta & Samhita, National institute of Ayurveda, Jaipur.

ABSTRACT

**Background:** Sthaulya is abnormal and excess accumulation of Medo Dhatu. Meda is the main Dushya and Kapha is the main Dosha of Sthaulya but Sthaulya is a Dushya dominant Vyadhi. Sthaulya is a Santarpanjanya vyadhi so if we treat the Santarpanjanya vyadhi by Apatarpana dravyas, Vyadhi will automatically get treated. To prove this hypothesis a conceptual and clinical and comparative study was performed in the patients of Sthaulya. **Aims and Objectives:** The study was undertaken to prove the principle “Santarpanotthanam-Apatarpanam-Aushadham” clinically in Sthaulya. **Materials and Methods:** In this clinical study we had randomly allocated 30 patients in to two groups. Group A Vidangadi churna with Purana Madhu Anupana and Group B Medohara lepa (For external use) along with Vidangadi churna were selected for the comparative study in management of Sthaulya. All the patients were reviewed after 15 days for a period of 2 months. **Result:** In both the group results were significantly improved but in Group B (Where we used Vidangadi churna along with Medohara Lepa) better Improvement was shown than Group A. **Discussion & Conclusion:** Apatarpana dravyas can be used in Santarpanjanya vyadhi.

**Keywords:** Sthaulya, Apatarpana, Vidangadi churna, Medohara Lepa.

**How to Site the Article:** Jadav K, late Pareek G, Panja AK, A Conceptual, clinical and comparative Study of Vidangadi churna and Medohara lepa along with Vidangadi churna on Sthaulya in the purview of - "संतर्पणोत्तानामपर्याप्तर्णणमोऽधम्" JOA XIII-2, 2019; 28 - 35

Introduction:

Every science is based on its own basic principles and on these basic principles that science gets elaborated. Ayurveda science is also based on the various fundamental principles. The principles of Ayurveda are based on strict
experimental studies of several years. These principles are the outcome of those studies. Several Acharya have tested these principles for many years and then these principles have got a place in Ayurvediya Samhita\textsuperscript{[1]} Out of these principles “Santarpanotthanam-Apatarpanam-Aushadham” is one of the most important fundamental principle\textsuperscript{[2]}.

Sthaulya is abnormal and excess accumulation of Meda Dhatu. Medo is the main Dushya and Kapha is the main Dosha of Sthaulya, Sthaulya is a Dushya dominant Vyadhi. The living body can function normally, only when its Doshas, Dhatus and Malas are in a state of equilibrium. Meda is one of the seven components of the ‘Sapta Dhatu’ is of immense importance hence it is selected for the present clinical study. Any derangement in the normal pathophysiological of the Medo dhatu may lead to several lifestyle disorders like Obesity, CAD, Atherosclerosis etc. Acharya Charaka considered Atishthaulya Purusha as one out of the Asthanindtiya Purusha.

The study was under taken to prove the principle “Santarpanotthanam-Apatarpanam-Aushadham” clinically. Sthaulya is a Santarpanjanya vyadhi\textsuperscript{[3]} The hypothesis decided for the study was if we treat the santarpanjanya vyadhi by Apatarpana dravyas, Vyadhi will automatically get treated. To prove this hypothesis a conceptual and clinical and comparative study was performed in the patients of sthaulya.

So here we made an endeavor to evolve a safe & complete solution for this disease with the help of Ayurvedic medicines especially Vidangadi churna\textsuperscript{[4]} and Medohara Lepa\textsuperscript{[5]}.

Concept of Apatarpana:

In Ashtanga Hridaya: Sutrasthan chapter no.14: Dwividhopa kramaniyaa dhyaya\textsuperscript{[5]} has been mentioned. In which there are two folds of therapies have been mentioned as 1) Santarpana and 2) Apatarpana, The synonyms mentioned for Santarpana and Apatarpana are Brimhana and Langhana respectively. Brimhana is meant is make to make body stout while Langhana is for making the body light i.e.thin.

According to Charakasutrasahana 22\textsuperscript{nd} chapter, Six fold therapies are being mentioned namely Laghana, Brimhana, Rukshana, Snehana, Swedana, Shthambhana. Considering the opinions from above mentioned classical literatures, it can be inferred that Apatarpana and Langhana are considered as synonymous under some contexts.\textsuperscript{[7]} Accordingly different modalities of Langhana are included under Apatarpana. Similarly in some of the contexts Apatarpana is considered to be either among Rukshana or Swedana. So Apatarpana is an umbrella term which includes Langhana, Rukshana and Swedana\textsuperscript{[8]} Modality of treatment needed among these three is decided depending on Vyadhi and Aturavastha.

Whatever is capable to reduce the body mass is known as Langhana\textsuperscript{[9]}, Whatever causes dryness, roughness and non-sliminess is Rukshana\textsuperscript{[10]}, whatever cures stiffness heaviness and coldness is Swedana.\textsuperscript{[11]} Langhana dravya contains\textsuperscript{[12]} Laghu, Ushna, Tikshna, Vishada, Ruksha, Sukshma, Khara, Sara and Kathina Guna, Rukshana dravya contains\textsuperscript{[13]} Ruksha, Laghu, Khara, Tikshna, Ushna, Sthira, Apichehhilam and Kathinaguna, Swedana dravya contains\textsuperscript{[14]} Ushna, Tikshna, Sara, Snigdha, Ruksha, Sukshma, Drava, Sthira, and Guru Guna.

Aims and Objective

1. To study the etiopathogenesis of Sthaulya.
2. To compare the effect of Vidangadi churna and Medohara Lepa along with Vidangadi churna on Sthaulya.
3. To evaluate the effect of Vidangadi churna and Medohara Lepa along with Vidangadi churna on the Medodhatu in relation to lipid Profile.

Methods

Material and Methodology

Ethical Clearance – This research study was cleared for ethical issues by Institutional Ethics Committee of National Institute of Ayurveda Jaipur vide its IEC
1. **Literary Materials:**

Here we have mentioned critical review of relevant literature of sthaulya in Ayurvedic text books, previous research paper, different medical text books and journals.

2. **Clinical Materials:**

**Selection of Patients**

For the clinical trial 30 Patients has been selected in the group of 15-15 patient each from the OPD and IPD Arogyashala of National Institute of Ayurveda and Seth Surajmal Bombaiwala Hospital and Satellite Hospital, Jawahar Nagar, patients were dropped out.

**Inclusion Criteria:**

1. Patients were selected age group of 16-60 year.
2. Sex Either were considered
3. Patient having clinical sign and symptoms of Sthaulya as per classical Ayurvedic literature.
4. B.M.I. criteria were also followed for selection of patient.

**Exclusion Criteria:**

1. Patient suffering from obesity due to hereditary indisposition.
2. Pregnant and Lactating women.

**Withdrawal Criteria:**

1. Patients developing any threatening complication during this trial.
2. Patient not willing to continue treatment.
3. Any other acute illness.

3. **Trial Drug:**

**Group A:**

The **“Vidangadi churna”** was prepared in the Pharmacy of National Institute of Ayurveda, Jaipur.

- **Drug Doses:**

  **Vidangadi churna:** dose 3 gms BD Pratahkala(before meal) and Sandhya-Kala(before meal) for internal use.

  - **Anupana:** Puranamadhu.

**Group B:**

- **Vidangadi churna:** dose 3gms BD Pratahkal(before meal) and Sandhya-Kala(before meal) for internal use.

  - **Anupana:** Puranamadhu.

- **Medohara Lepa:** for external application B.D.

4. **Time Period of Clinical Trial:** Duration of medication completed at least for 60 days and according to condition of patient.

5. **Follow Up:** Total four (every 15 day) follow ups were recorded during 60 days of treatment period.

6. **Pathyapathya:** Patient has been made to follow Pathyapathya While taking medication.

**Results**

**Effect of therapy on Subjective Parameters in Group A & B**

- In **group A** Vidangadi churna is highly significant in Khushhaadhiyata, Daurabalya and very significant in Javoparodha while **Significant** in Chalasphika-udara-stana, Pipasaatiyoga, Sweyatiyoga, Nidritiyoga, Gaurava, Khudraswasas, Angasada. While **Not Significant** in Krichhavyavayata, Dauragandhya, Krathana and Snigadhangata.

- In **group B** Medoharah Lepa along with Vidangadi-churna is highly significant in Kshudhaadhiyata, Daurabalya, and very significant in Javoparodha, Chalasphika-udara–stana, Sweyatiyoga, Gaurava, Angasada.

- **Significant** in Dauragandhya, Pipasaadhiyata, Nidraadhiyka, kshudraswasas, Snigadhangata, While **Not Significant** in Krichhavyavayata, Krathana.
Effect of therapy on Objective Parameters (Physical parameters) in Group A & B

- In **group A** Vidangadi churna is **highly significant** in decrease symptoms of Body Weight, B.M.I, Waist Circumference, and **very significant** in decrease symptoms of Chest Circumference while **significant** in decrease symptoms of Hip circumference.

- In **group B** Medohara Lepa along with Vidangadi churna is **highly significant** in decrease symptoms of Body weight, BMI, Waist Circumference, Chest Circumference while **very Significant** in decreased symptoms of Hip circumference.

Effect of therapy on Biochemical Investigation in Group A & B

- In **group A** vidangadi churna is not significant in decrease symptoms of Serum cholesterol, Serum Triglyceride, HDL, LDL and VLDL.

- In **group B** Medohara Lepa along with Vidangadi churna is highly significant in decrease symptoms of Serum cholesterol, HDL, LDL and not Significant in Serum Triglyceride and VLDL.

Overall Effect of Therapy

In **Group A** Moderate relief was found in 46.67% of patients, while Mild relief in 53.33% of patients, while in **group B** Moderate relief was found in 66.67% of patients, while Mild relief in 33.33% of patients.

Discussion

Discussion on Observation & Results:

Maximum patients were in age group of 31-45 years (60%) (18 patients), because the reason behind these observations might be that in present era consumption of fast food, soft drink, lack of physical activity, sitting work, overeating in this age is more at their work place. In the study Male (50%) and Female (50%) were equal, It is not related with Sthaulya, may be it is depending on person’s life style. maximum number of patients i.e. 90% were married (27), It may be due to their sedentary life style, overeating, and day sleep. maximum number of patients i.e. 86.67% were from Hindu community (26), In education status 36.66% of the patients had graduate and High Secondary, 26.66% were Post Graduate, maximum number of patients i.e. 36.66% were house wife (11), This is showing highest prevalence of obesity in Housewifes. The reason behind this might be sedentary life style; Divaswapa is also a major cause in housewifes, 50 % of patients (15) were belongs to middle class income group, maximum i.e. 26 patients (86.66%) were registered with addiction of Tea, Intake of tea with sugar may be a cause of obesity. majority of 53.33% patients (16) were having vegetarians, koshtha was assessed in maximum patients were 63.33 % of kuruakoshtha, The reason behind these observations might be that Krura Koshtha onset is due to Samana Vayu Prakopa in these diseased individuals and Madhyama Kostha found in Kapha predominance Prakriti, which increases prevalence of Sthaulya, majority of patients i.e. 20 patients (66.67%) were having tikshnagni, The reason behind these observations might be that Agni sandukshanas due to Samana Vayu Prakopa increased Jatharagni (Tikshnagni), 83.33% of patients (25) were belongs to Jangala Desha, maximum patients i.e. 13 patients (43.33%) were having kapha-vata Prakriti, 14 patients (46.66%) were having Tamasika Prakriti, maximum patients i.e. 25 patients (83.33%) were having Madhyam Samhanana, 19 patients (63.33%) were having Madhyama Satva, which indicates moderate mental strength of the subjects, 19 patients (63.33%) were having Madhyama Satmya which indicates they were having moderate tolerance towards change in food habits, place and season, maximum patient i.e. 20 patients (66.67%) were having Pravara Abhyavaharana Shakti, In the patients of Sthaulya due to Avarana by Meda & Kapha there is SamanaVayu Prakopa leading to Agrisandhukshhana, so, there is increased tendency for intake of diet, 20 patients (66.67%) were having Pravara Jarana shakti, In the patients of Sthaulya due to Avarana by Meda & Kapha there is SamanaVayu Prakopa leading to Agrisandhukshhana, so, there is increased digestion power, maximum i.e. 19 patients (63.33%) were having Madhyama Vijayamashakti, It explains the role of etiological factors i.e. Avyayam in the prevalence of

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Sthaulya. Lack of physical exercise is the major cause of obesity.

Table No.I Showing The % Relief In Both The Groups In Subjective Parameters

<table>
<thead>
<tr>
<th>Subjective parameters</th>
<th>% Relief in Group A</th>
<th>% Relief in Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chala-sphika-udara-stana</td>
<td>22.25</td>
<td>31.93</td>
</tr>
<tr>
<td>Javoparodha</td>
<td>31.92</td>
<td>38.15</td>
</tr>
<tr>
<td>Krichhavyayata</td>
<td>13.00</td>
<td>26.00</td>
</tr>
<tr>
<td>Daurbalya</td>
<td>61.94</td>
<td>51.50</td>
</tr>
<tr>
<td>Dauragandhya</td>
<td>16.99</td>
<td>24.73</td>
</tr>
<tr>
<td>Kshudhaadhikya</td>
<td>48.49</td>
<td>42.91</td>
</tr>
<tr>
<td>Pipasatiyoga</td>
<td>20.72</td>
<td>24.73</td>
</tr>
<tr>
<td>Swedatiyoga</td>
<td>27.46</td>
<td>38.15</td>
</tr>
<tr>
<td>Nidratiyoga</td>
<td>27.39</td>
<td>30.63</td>
</tr>
<tr>
<td>Gaurava</td>
<td>25.55</td>
<td>27.27</td>
</tr>
<tr>
<td>Krathana</td>
<td>13.69</td>
<td>20.63</td>
</tr>
<tr>
<td>Kshudraswasa</td>
<td>25.55</td>
<td>24.09</td>
</tr>
<tr>
<td>Snigdhangata</td>
<td>18.57</td>
<td>21.59</td>
</tr>
<tr>
<td>Angasada</td>
<td>23.83</td>
<td>31.08</td>
</tr>
</tbody>
</table>

Table No.II Relief % In Both The Groups In Objective Parameters

<table>
<thead>
<tr>
<th>Objective parameters</th>
<th>% Relief in Group A</th>
<th>% Relief in Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>2.06</td>
<td>3.05</td>
</tr>
<tr>
<td>BMI</td>
<td>2.09</td>
<td>3.08</td>
</tr>
<tr>
<td>Hip circumference</td>
<td>0.95</td>
<td>1.19</td>
</tr>
<tr>
<td>Waist circumference</td>
<td>2.18</td>
<td>2.70</td>
</tr>
<tr>
<td>Chest circumference</td>
<td>1.02</td>
<td>1.47</td>
</tr>
</tbody>
</table>

Table No.III Relief % In Both The Groups In Biochemical Investigation

<table>
<thead>
<tr>
<th>Parameters</th>
<th>% Relief in Group A</th>
<th>% Relief in Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Serum cholesterol</td>
<td>0.90</td>
<td>13.44</td>
</tr>
<tr>
<td>Serum Triglyceride</td>
<td>12.17</td>
<td>1.54</td>
</tr>
<tr>
<td>HDL</td>
<td>2.57</td>
<td>4.27</td>
</tr>
<tr>
<td>LDL</td>
<td>-3.85</td>
<td>21.91</td>
</tr>
<tr>
<td>VLDL</td>
<td>13.39</td>
<td>0.87</td>
</tr>
</tbody>
</table>
Conclusion

The present research work was aimed to establish the fundamental principle of Ayurveda in management of Sthaulya, conclusion on literature Sthaulya from the detailed compilation clinical observations and discussion the following conclusions are evolved:-

- Apatarpana itself contributes a major documentation in Samhitas and also proves most important basic principle in Nidan as well as in Chikitsa aspect.

- As Sthaulya itself is a Santarpanoth vyadhi and also Kashtasadhya so Apatarpana Chikista is prescribed for Sthaulya.

- The channels, which give nutrition to the Medo Dhatu or the Srotas carrying the nutritive material up to the site of Medo Dhatu can be considered as Medovaha Srotas.

- The etiological factors lead to Kapha & Meda vraddhi which block the microchannels causing Samana Vayu vitiation in the Koshtha and causes Jatharagni Sandhukshana there by increasing the person’s appetite and increased intake of food ultimately leading to Sthaulya Roga (Medodhatuvriddhi).

- Due to obstruction by Meda, VyanaVayu could not transport nutrient to other Dhatu so Medadhatu is increased and Uttara Dhatu are decreased.

Moreover, as enumerated earlier, Meda as Dushya, Kapha and Avrita Vata as Dosha and Medo dhatvagnimandya are main responsible factors in pathogenesis of Sthaulya.

- Restoration of Agni to normal physiological states, removal of Medaavarana and accumulated Sama Meda from the body are the main principle of treatment of this disease.

- Pharmecodynemic study of trial drugs have dominance of Kashaya, Katu, Tikta Rasa, Ruksha, Laghu, TikshnaGuna,UshnaVirya, KatuVipaka and Kaphavatashamaka Karma are present in Maximum Dravyas.

- The trial drug is effective in the disease due to their Deepana, Pachana, Lekhana, Rukshana, Medohara, Srotoshodhana, Aamapachana, Vatanulomna, Kaphaghna etc. properties.

- These drugs have Medoghna Prabhava.Katu, Tikta, Kashaya Rasa isopposite of Kapha, Ama, and medodhatu. So Katu, Tikta and kashaya rasa reduces the Kapha, Ama, Medodhatu.

- An appropriate Anupana can enhance the property of drug. Hence Puranamadhu is used to enhance the action of the drug. Puranamadhu has kashaya rasa, Due to their Rukshana Lekhana properties they results in reduction of exesive Medo Dhatu from
body by having Medokshaya and kapha Kshaya properties reduces the meda and kapha.

✔ The trial drug had found Ama Pachaka properties so the drug can be established as potent AmaPachana drug.

✔ Thus it can be concluded that Vidangadi churna in the dose 3gms. B.D twice in a day before meals with the Anupana Puranamadhu and Medohara lepa for external Application can be used as safe and main ‘Therapeutic Agent’ in the management of Sthaulya.

References

1. Agnivesha, Charaka Samhita Revised By Charaka & Supplemented By Dridhabala With Ayurveda Dipika Commentary By Chakrapanidatta Edited By Vaidya Yadavaji Trikamji Acharya, Chaukhamba Surbharati Prakashan Varanasi, Reprint. (Ch. Vi.8/37). p-268


सारांश:
स्थायल्य मेदो धातु की असामान्य और अतिरिक्त संचयित व्याधि है। स्थायल्य का एक प्रमुख दूषक मेद और कफ प्रमुख दोष है लेकिन स्थायल्य दूष मात्रानुसार व्याधि है। स्थायल्य एक संतर्पण जन्य व्याधि है, परिकल्पना के अनुसार अगर हम अपतर्पण द्रव्यों द्वारा संतर्पणजन्य व्याधि की चिकित्सा करते हैं, तो व्याधि की स्वतः ही चिकित्सा हो जाएगी। उक्त परिकल्पना को सिद्ध करने के लिए सर्वाधिक ही स्थायल्य के रोगियों पर यह वैचारिक, चिकित्सकीय और तुलनात्मक अध्ययन किया गया था। लक्षण और उद्देश्य: अध्ययन के अंतर्गत चिकित्सकीय सिद्धांत "संतर्पणोत्तानामपरतर्पणमीलम" सिद्ध करने के लिए स्थायल्य व्याधि को लिया गया था। सामग्री और तरीके: इस चिकित्सकीय अध्ययन में हम दो समूहों में 30 रोगियों का समावेश किया था। ग्रुप ए में विडंगादि चूर्ण का पुराण मधु अनुपान के साथ और ग्रुप बी में मेदोहर लेप (बाहरी उपयोग के लिए) का विडंगादि चूर्ण के साथ स्थायल्य के प्रबंधन में तुलनात्मक अध्ययन के लिए चयन किया। सभी रोगियों को दो महीने की अवधि तक औषधी दी गई तथा प्रत्येक 12 दिनों के बाद परिणाम की समीक्षा की गई। परिणाम: दोनों समूह के परिणाम में महत्वपूर्ण सुधारात्मक परिणाम मिले, लेकिन ग्रुप बी में (जहां हम ने मेदोहर लेप के साथ विडंगादि चूर्ण का प्रयोग किया था) ग्रुप ए की तुलना में बेहतर परिणाम मिले। निष्कर्ष: अपतर्पण द्रव्यों का संतर्पणजन्य व्याधियों में प्रयोग किया जा सकता है।
Clinical study to evaluate the efficacy of *Indukantam Ghritam* (S.Y.) in the management of *Balshosa* W.S.R. to PEM (Protein Energy Malnutrition)

*Dr. Lalit Kumar Rathore, **Dr. Rakesh Kumar Nagar, ***Dr. Om Prakash Bairwa

*Ayurveda Medical officer, Govt. Adarsh Ayush Hospital Sadri, Pali, Rajasthan,
**Assistant Professor, ***P.G. Scholar, Department of Kaumarbhritya, National institute of Ayurveda, Jaipur.

ABSTRACT

**Background and objectives:** Today Pediatric malnutrition constitutes a major public health problem in India and other countries of the world. Therefore society wants a nutritional supplement which could provide better nutrients to eradicate or improve the malnutrition related problems. In present study to access the efficacy of *Indukantam Ghritam* in treatment of *Balshosa*. **Design:** Double blind randomized Placebo controlled study. **Participants:** children of age group 2-7 yrs. **Methods:** 60 patients were selected from OPD and IPD of NIA, Jaipur and local school in Jaipur. That were satisfied the inclusion and exclusion criteria. They were randomly divided in two groups. In Group A administered *Indukantam Ghritam*- I and in group B *Indukantam Ghritam*-II for three month of duration with follow up at every forth night. **Outcome measures:** Anthropometry parameters i.e. Weight Height and MAC (Mid arm circumference), Clinical Features of *Balshosa* & Blood for Hb, TSP (Total serum protein), ESR (erythrocyte sedimentation rate). **Results:** extremely significant improvement in anthropometric parameters in both group, extremely significant improvement in most of clinical feature of *Balshosa* in group A, and in laboratory parameters extremely significant improvement in hemoglobin level and TSP Level and Very significant reduction in the level of ESR in group B. **Conclusion:** - the trial drug “*Indukantam Ghritam*” is effective in reduce incidence of the symptoms of *Balshosa* as well as of PEM (Protein Energy Malnutrition) and promotes the growth and weight gain in children those suffering with *Balshosa*.

**Keywords**: *Balshosa*, PEM (Protein Energy Malnutrition), *Indukantam Ghritam*

Introduction:

Malnutrition in India has been called ‘The Silent
Emergency or Silent Killer’. The proportion of under-nutrition among children in India is one of the highest in the world. In spite of unprecedented economic growth, improvements in childhood nutritional status in India over the last decade have been slow. Suboptimal infant and young child feeding practices in particular continue to be a serious challenge to reducing malnutrition among children[1]. The malnutrition develops because the low economic status of families could not provide proper and balanced nutritional diet to their child. The essential ingredient of the diet i.e. Carbohydrate, Proteins, Fats, Vitamins, and Minerals must be component of a child diet. The presence of proper ratio of these substances in the body is called “well nutrition.”

**Prevalence of Malnutrition:**

The prevalence of under nutrition is varies across state, there is highest in Madhya Pradesh (55%) and lowest in Tamil Nadu (27%), Rajasthan in the between of them with 51% ratio[2].

The NFHS (National Family Health Survey)-3 in 2006 found that 20% of children under-3 years of age in Rajasthan were wasted, 34% were stunted and 44% were underweight. 20.4% of the children under-5 years suffered from wasting and 7.3% suffered from acute severe malnutrition. This means that about 620,000 children in Rajasthan needed emergency treatment in 2006[3]. In developing countries, poor perinatal conditions are responsible for approximately 23% of all deaths among children younger than five years old.

Hence there is a sustained need of developing an nutritious food supplement which could provide better nutrients to eliminate or improve the malnutrition related problems, within the reach of a majority even in rural area also.

**Ayurveda**, a holistic science of life; describes a condition “Balshosha” which closely resembles to malnutrition. Thus the management of malnutrition can be done on the line of principles of Balshosha treatment i.e. drug having properties of Deepana, Pachana, Srotoshodhan, Balya, Brahana, And Rasayana etc. In Astangahrdayam Samhita the disease Balshosha is referred to as disease of infancy and childhood. In the disease balashosha[6] there is obstruction of rasavaha srotas by kapha dosha[6]. So there is either abolition or inadequate nutrition to the further dhatus.

**Drug review:**

Details about the ingredients of “Indukantam Ghritam” regarding their physical and pharmacological properties, relevant clinical and experimental studies have been discussed in drug review.

The trial drug “Indukantam Ghritam” is selected from Sahasra Yogam,. Present study was done with all available drug of this composition that are Putik, Davdaru, Bilva, Shayonak, Gambhari, Agnimantha, Patala, Shalaparni, Prashniparni, Brahuti, Kantakari, Gokshur, Marich Pippali, Pippalimool, Chavya, Chitrak, Shunthi, Go-Ghrita, Cow Milk, Saindhav.

The research drug has been found Tridoshahara, Deepana, Pachana, Jwaraprasamak, Shothahara, Rakta Shodhak, Krimighna, Mootral, Hridya, Balya, Brahana, Rasayana, Vrisha, Kasahara, Swasahara properties mentioned in our classics.

Experimental and clinical studies have been proved that these drugs are hepatoprotective, bioavailability enhancing, antioxidant, immunomodulatory, antihistaminic, anti-allergic, bronchodilator, antibacterial, antiviral, anthelmintic, antimalarial, Antipyretic and Analgesic, anticholinesterase, diuretic, larvicidal,  anti-inflammatory, anti-asthmatic, antineoplastic, hematinic and increase the secretion of digestive enzymes. Trial drugs also have micronutrients, vitamin, fatty acid, protein, carbohydrate.

**Material & Methods**

**Aims and Objectives**

The present research trial has been undertaken with the following objective.

- To study the concept of Balshosha with special reference to P.E.M.
To assess the efficacy of Indukantam Ghritam in Balshosha.

To restore normal development and to reduce the morbidity incidences among them.

Material and method

A. Selection of cases: - Total 68 cases those were fulfilled inclusion criteria that divided in to two groups equally. The cases were randomly divided in the respective groups and were treated as per the regimen allotted to the group. During trial period 8 case were dropout.

B. Source:– Children for the present study were screened out from the O.P.D. and I.P.D. of P.G Department of Balroga, National Institute of Ayurveda, Jaipur. And local government school.

C. Age Group:– Children between 2 to 7 years were selected after evaluating them clinically.

D. Study design:- A randomized , double blind placebo controlled clinical study has been conducted in children suffering from Balshosha (protein energy malnutrition)

E. Institutional Ethics Committee Clearance

Clinical study was approved by IEC, order No. F10 (5)/EC/2014/7220 dated 7/11/2014

F. Inclusion Criteria:– Subjects who are having age group 2 to 7 years was selected irrespective of sex, caste & religion, with following complaints of -

- Poor Growth & Weight Gain
- Less Weight for Age criteria
- Grade1, Grade 2 and Grade 3 of Malnutrition (I.A.P Grading of Malnutrition)

G. Exclusion Criteria:-

- Diagnose case of Systemic diseases (Tuberculosis, Diabetes, any other infectious illness requiring active management).
- Diagnose case of Gross Congenital problems
- Diagnose case of Malignancies
- Diagnose case of Mal-absorption syndrome
- Diagnose case of Inborn errors of Metabolism
- Diagnose case of Children less than 60 % of ideal weight for age.

H. Discontinuation Criteria

- Appearance of any adverse effect of drug during trial,
- Parent or child not willing to continue with the medicine,
- Any Other acute illness

Placebo- the placebo for the study was prepared from sugar in syrup form. For maintaining physical similarity and uniformity in appearance with trial drug.

Procurement of the drug: Both trial drug and placebo drug were prepared in the pharmacy of National Institute of Ayurveda, Jaipur. The trial drug and placebo was prepared in the form of liquid as mentioned in classics. Both the trial and placebo were of similar physical character and were packed in similar type of packing.

Grouping of Cases

<table>
<thead>
<tr>
<th>Group</th>
<th>Allocation</th>
<th>Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td>Trial Group (Ayurvedic Management)</td>
<td>a. Trial Drug</td>
</tr>
<tr>
<td>Group B</td>
<td>Placebo control group</td>
<td>b.Placebo drug</td>
</tr>
</tbody>
</table>
Grouping Of The Cases Was Selected Randomly. The Coded Medicine (Study Drug) Was Given As Per Instruction. The Coding Of The Study Was Done By Another Person Not Related With Study. Coded Document Was Sealed And Kept Under Safe Custody. The Envelop Was Opened After Completion The Study To Decode It For Interpretation.

**Dose And Duration Of Study:** The Drug Was Prescribed 1ML/Kg/Day In Two Divided Doses With Milk In Patients For Three Months.

**Route Of Administration:** - Oral

**Standard Diet:** Standard Diet Was Advised To Both Groups, Without Altering The Family Traditional Feeding Habits i.e. Advise For Modification In Substances And Pattern Of Diet, According To The Present And Expected Body Weight For Age Group With Due Recommendation To Fulfil Energy And Protein Requirements.

**Follow Up Study:** During The Trial, Patient Were Assessed Twice Every Month i.e. Every 15th Day For Three Month.

**Criteria For Assessment:** For Assessment Of The Efficacy Of Trial Drug Therapy, Following Parameter Were Adopted:

1. **Clinical Assessment:** Clinical Feature And Anthropometric Parameters Were Assessed Before And During 15th, 30th, 45th, 60th, 75th, 90th, 105th And 120th, Day Of The Treatment Follow-Ups

2. **Laboratory Assessment:** Laboratory Finding Were Assessed At The Time Of Registration And After Treatment.

**Clinical Features:**

Assessment Of Clinical Features (Arochaka, Jwara, Pratishyaya, Kasa, Mukha Snigdhata, Mukh Shwetata, Netra Snigdhata, Netra Shwetata, Shwasa, Shotha And Kesha Shushkata) Depending On The Severity Was Done On Four-Point Scale.

Nil - G0, Mild - G1, Moderate - G2, Severe - G3

**Anthropometry**

- Weight For Age Criteria.(As Per Iap Guidelines)
- Mid Arm Circumference (M.a.c) In Cm
- Height In Cm

**Laboratory Parameters**

- Cbc (Complete Blood Count)
- Esr (Erythrocyte Sedimentation Rate)
- Total Serum Protein (Tsp)

**Adverse Effect Evaluation Criteria** - To Rule Out The Possible Adverse Effect Of Studied Drug Clinical Criteria Was Adopted And Documented In AEEF (Adverse Effect Evaluation Format) During The Course Of The Study In Every 15th Day Treatment Follow-Ups.

**Analysis And Statistical Methods To Be Used:** Observation Data Of Study Period Was Analyze & Find Out Evaluate By Using Statistical Analysis To Establish The Final Conclusion.

**Observation And Results:**

**Grade of Malnutrition After Treatment in Group A**

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Grades</th>
<th>Before Treatment</th>
<th>After treatment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td>%</td>
</tr>
<tr>
<td>1</td>
<td>Normal</td>
<td>0</td>
<td>0.00</td>
</tr>
<tr>
<td>2</td>
<td>I</td>
<td>24</td>
<td>80.00</td>
</tr>
<tr>
<td>3</td>
<td>II</td>
<td>3</td>
<td>10.00</td>
</tr>
</tbody>
</table>
Rathore LK, Nagar RK, Bairwa OP, Clinical study to evaluate the efficacy of *Indukantam Ghritam* (S.Y.) in the management of Balshosha W.S.R. to PEM (Protein Energy Malnutrition) JOA XIII-2, 2019; 36 - 45

<table>
<thead>
<tr>
<th></th>
<th>III</th>
<th>3</th>
<th>10.00</th>
<th>1</th>
<th>3.33</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>30</td>
<td>100</td>
<td>30</td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

The observations show that after treatment in group A 70.00% Patients were achieved normal weight for age, and rest 20%, 6.66% & 3.33% patients were in grade I, II & III respectively.

**Grade of Malnutrition after treatment in group B**

<table>
<thead>
<tr>
<th>Table No. III. Showing Grades Of Malnutrition After Treatment In Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S.N.</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>

Table no 3. Showed the grade of PEM after treatment in group B only 20% patients were achieved normal weight for age and rest 56.66%, 10% & 13.33% patients were in grade I, II & III respectively.

**Grades of malnutrition after treatment in both groups**

<table>
<thead>
<tr>
<th>Table No. IV. Showing Grades of Malnutrition With Percentage of Shifting Towards Normalcy in Both Groups</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>S. N.</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Total</td>
</tr>
</tbody>
</table>
Clinical study to evaluate the efficacy of *Indukantam Ghritam* (S.Y.) in the management of *Balshosha* W.S.R to PEM (Protein Energy Malnutrition) JOA XIII-2, 2019; 36 - 45

Rathore LK, Nagar RK, Bairwa OP, Table No. IV. Showing response of treatment in both groups as patients shifting from lower grade of PEM to upper grade of PEM i.e. towards normalcy. Details are as follow; in group A, out of 3 registered patients of grade-III 2 (66.66%) patients were shifted to grade-II, all 3(100%) patients of grade-II were shifted to grade-I. Out of 24 patients of grade-I 21(87%) were shifted to normal grade. Whereas in group B 1(13.33%) patient of grade-III was shifted to grade-II, 2 (50%) patients of grade-II were shifted to grade-I, 6 (28.57%) patients were shifted to grade-I to normal grade.

Statistical analysis of all features in group A

Table No. V. Showing Statistical Analysis Of All Subjective And Objective Feature In *Balshosha*.

<table>
<thead>
<tr>
<th>Features</th>
<th>BT</th>
<th>AT</th>
<th>%</th>
<th>S.D.</th>
<th>S.E.</th>
<th>t value</th>
<th>p value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>13.56</td>
<td>15.14</td>
<td>11.65</td>
<td>0.38</td>
<td>0.07</td>
<td>22.55</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Height</td>
<td>102.8</td>
<td>104.98</td>
<td>2.12</td>
<td>0.66</td>
<td>0.12</td>
<td>18.04</td>
<td>0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>M.A.C.</td>
<td>13.83</td>
<td>14.513</td>
<td>4.8</td>
<td>0.38</td>
<td>0.07</td>
<td>9.544</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Hb%</td>
<td>11.04</td>
<td>12.26</td>
<td>10.96</td>
<td>0.61</td>
<td>0.11</td>
<td>10.89</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>ESR</td>
<td>15.40</td>
<td>12.43</td>
<td>18.06</td>
<td>4.83</td>
<td>0.88</td>
<td>3.358</td>
<td>0.0022</td>
<td>V.S.</td>
</tr>
<tr>
<td>T.S.P.</td>
<td>5.86</td>
<td>6.46</td>
<td>10.06</td>
<td>0.28</td>
<td>0.05</td>
<td>11.43</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Arochaka</td>
<td>1.333</td>
<td>0.233</td>
<td>82.70</td>
<td>0.66</td>
<td>0.12</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Jwara</td>
<td>1.033</td>
<td>0.233</td>
<td>77.74</td>
<td>0.61</td>
<td>0.11</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S.</td>
</tr>
<tr>
<td>Pratishyaya</td>
<td>1.033</td>
<td>0.23</td>
<td>77.44</td>
<td>0.61</td>
<td>0.11</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Kasa</td>
<td>0.93</td>
<td>0.26</td>
<td>70.96</td>
<td>0.54</td>
<td>0.09</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Mukha Snigdhat</td>
<td>1.0</td>
<td>0.36</td>
<td>81.08</td>
<td>0.47</td>
<td>0.08</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S.</td>
</tr>
<tr>
<td>Mukha Shwetata</td>
<td>1.1</td>
<td>0.30</td>
<td>72.22</td>
<td>0.48</td>
<td>0.08</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Netra Snigdha</td>
<td>0.86</td>
<td>0.33</td>
<td>76.19</td>
<td>0.57</td>
<td>0.10</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S.</td>
</tr>
<tr>
<td>Netra Shwetata</td>
<td>1.23</td>
<td>0.30</td>
<td>71.43</td>
<td>0.44</td>
<td>0.08</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S.</td>
</tr>
<tr>
<td>Shwasa</td>
<td>0.80</td>
<td>0.16</td>
<td>78.75</td>
<td>0.55</td>
<td>0.10</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S.</td>
</tr>
<tr>
<td>Shotha</td>
<td>0.43</td>
<td>0.23</td>
<td>53.48</td>
<td>0.43</td>
<td>0.07</td>
<td>-</td>
<td>&lt;0.0001</td>
<td>E.S.</td>
</tr>
<tr>
<td>Kesha Vikriti</td>
<td>0.50</td>
<td>0.20</td>
<td>60.00</td>
<td>0.46</td>
<td>0.08</td>
<td>-</td>
<td>0.0039</td>
<td>V.S.</td>
</tr>
</tbody>
</table>

Table No. V. showing statistical analysis of all target features in group A shows that extremely significant results were observed in weight, height, mid arm circumference, total serum protein, Arochaka, Jwara, Pratishyaya, Kasa, Mukha Snigdhat, Mukha Shwetata, Netra Snigdha, Netra Shwetata, shwasa, shotha.
Rathore LK, Nagar RK, Bairwa OP, Clinical study to evaluate the efficacy of Indukantam Ghritam (S.Y.) in the management of Balshosha W.S.R. to PEM (Protein Energy Malnutrition) JOA XIII-2, 2019; 36 - 45

haemoglobin, total serum protein with 'p' value <0.0001. Very Significant results were observed in Kesha Vikriti with 'p' value 0.0039.

**Statistical Analysis of all features in Group B**

<table>
<thead>
<tr>
<th>Features</th>
<th>BT</th>
<th>AT</th>
<th>%</th>
<th>S.D.</th>
<th>S.E.</th>
<th>T value</th>
<th>p value</th>
<th>Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>13.26</td>
<td>13.79</td>
<td>3.94</td>
<td>0.35</td>
<td>0.06</td>
<td>8.098</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>Height</td>
<td>101.77</td>
<td>102.52</td>
<td>0.74</td>
<td>0.71</td>
<td>0.13</td>
<td>5.799</td>
<td>0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>M.A.C.</td>
<td>13.35</td>
<td>13.58</td>
<td>1.6</td>
<td>0.21</td>
<td>0.03</td>
<td>5.943</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>HB%</td>
<td>10.90</td>
<td>11.22</td>
<td>2.93</td>
<td>0.17</td>
<td>0.03</td>
<td>10.32</td>
<td>&lt;0.0001</td>
<td>E.S</td>
</tr>
<tr>
<td>ESR</td>
<td>11.10</td>
<td>10.00</td>
<td>15.23</td>
<td>3.90</td>
<td>0.71</td>
<td>1.542</td>
<td>0.1339</td>
<td>N.S</td>
</tr>
<tr>
<td>T.S.P.</td>
<td>6.00</td>
<td>6.12</td>
<td>2.00</td>
<td>0.18</td>
<td>0.03</td>
<td>3.168</td>
<td>0.0036</td>
<td>V.S</td>
</tr>
<tr>
<td>Arochaka</td>
<td>1.13</td>
<td>0.80</td>
<td>29.39</td>
<td>0.47</td>
<td>0.08</td>
<td>-</td>
<td>&lt;0.0002</td>
<td>V.S</td>
</tr>
<tr>
<td>Jwara</td>
<td>0.70</td>
<td>0.60</td>
<td>14.28</td>
<td>0.30</td>
<td>0.05</td>
<td>-</td>
<td>0.2500</td>
<td>N.S</td>
</tr>
<tr>
<td>Pratishyaya</td>
<td>0.83</td>
<td>0.60</td>
<td>27.61</td>
<td>0.43</td>
<td>0.07</td>
<td>-</td>
<td>0.0156</td>
<td>S</td>
</tr>
<tr>
<td>Kasa</td>
<td>0.70</td>
<td>0.56</td>
<td>18.57</td>
<td>0.34</td>
<td>0.06</td>
<td>-</td>
<td>0.1250</td>
<td>N.S</td>
</tr>
<tr>
<td>Mukha Snigdhat</td>
<td>0.66</td>
<td>0.46</td>
<td>61.76</td>
<td>0.40</td>
<td>0.07</td>
<td>-</td>
<td>0.0313</td>
<td>S</td>
</tr>
<tr>
<td>Mukha Shwetata</td>
<td>0.96</td>
<td>0.76</td>
<td>20.68</td>
<td>0.40</td>
<td>0.07</td>
<td>-</td>
<td>0.0313</td>
<td>S</td>
</tr>
<tr>
<td>Netra Snigdhat</td>
<td>0.86</td>
<td>0.63</td>
<td>34.62</td>
<td>0.5</td>
<td>0.09</td>
<td>-</td>
<td>0.0391</td>
<td>S</td>
</tr>
<tr>
<td>Netra Shwetata</td>
<td>1.00</td>
<td>0.86</td>
<td>18.75</td>
<td>0.34</td>
<td>0.06</td>
<td>-</td>
<td>0.1250</td>
<td>N.S</td>
</tr>
<tr>
<td>Shwasa</td>
<td>0.63</td>
<td>0.50</td>
<td>20.63</td>
<td>0.34</td>
<td>0.06</td>
<td>-</td>
<td>0.1250</td>
<td>N.S.</td>
</tr>
<tr>
<td>Shotha</td>
<td>0.46</td>
<td>0.40</td>
<td>13.04</td>
<td>0.25</td>
<td>0.04</td>
<td>-</td>
<td>0.5000</td>
<td>N.S.</td>
</tr>
<tr>
<td>Kesha Vikriti</td>
<td>0.46</td>
<td>0.36</td>
<td>21.73</td>
<td>0.30</td>
<td>0.05</td>
<td>-</td>
<td>0.2500</td>
<td>N.S.</td>
</tr>
</tbody>
</table>

Table No.VI. Showing statistical evaluation of all target features in group B shows that extremely significant results were noticed in weight, height, mid arm circumference, Hemoglobine with 'p' value <0.0001. Very significant result were noticed in total serum protein and Arochaka with 'p' value 0.0036 and <0.002 respectively. Pratishyay Mukha snigdhat Mukha Shwetata Netra Snigdhat shows significant result. and insignificant results were noticed in jwara, kasa, netra swetata, shwasa, shotha, kesha vikriti.

**Discussion on results**

**Discussion on anthropometry parameter:** -

Discussion on anthropometry parameter: - pattern of weight gain, height gain MAC gain and shifting of the PEM grade toward normalcy clearly indicate the trial drug (group A) promote the growth of the patients. This may be due to opening of the Srotorodha and Agni is augmented in the patients of group A those received the drug compound; resulting in faster weight gain, height gain, and MAC gain due to better digestion, absorption and assimilation of diet taken. The drug also have Balya, Brimhana and Rasayana properties resulting in formation of tissues at better rate. In addition the incidence of infection and resultant weight loss is prevented by antibacterial antiviral, antioxidant, antihistaminic, immunomodulatory effect of drug
compound.

Discussion on clinical feature of Balshosha

- **Arochaka:** The drug compound contains Pippali, Pippalimoola, Sunthi, Chvaya, Chitraka, Maricha, and Saindhav each having the property like Aruchinashak; moreover these are having Deepana – Pachana and Rochana Karma which increases appetite thereby reducing Arochaka. Active principle of Marich Pippali, and Pippalimool have Piperine that have ability to increase the activity of intestinal lipase, disaccharidase, sucrose, and maltase enzymes.

- Trial drug have Tridoshashamaka properties that help to reduce the symptoms of Pratishyaya, Kasa and Shwasa. This due to Kasa-Shwasahara properties of drugs like Pippali (Chopra et al 1969), Bruhati, Kantakari, Sunthi, Chitraka, Devdaru, Maricha and Go-Ksheer. Trial drug having properties i.e. Antitussive, Antihistaminic, Antimicrobial, Antiviral, Immunomodulatory, Bronchodilatory.

- The present study drug contains Panchkol and Dashmool which are having the properties like Deepan, Pachan and Jwarahara by these properties it digests Ama and clears the Srotabrodh and pacifies the symptom like Jwara. Moreover the contents of drug like Pippali (Thakur et al 1989), Maricha, chitrak, Sunti, Bilva, Shalparni, Prashniparni, Gokshur these are having properties like Krimighnata properties and Shunthi Maricha Pip-palli, Pippalimoola, having properties i.e. hepatoprotective, anthelminthic, bioavailability enhancement which is indirectly helps in correction of anemia.

- **Sotha:** this may be due to effect of Dashmool drugs ie. Bilva, Achnimantha, Shyonak, Gambhari, Patala, Brahati, Kantakari, Shalparni, Prashniparni, Gokshur these are having Sothahar and Mootral. The trial drug having properties i.e. Anti-inflammatory, Nephroprotective, and Diuretic. due to this reason Sotha was reduce in group A.

- **Kesh Vikriti:** - This is feature of moderate to severe malnutrition. For the same reason this was included in target symptoms, trial drug acts for relieving obstruction and digestion of Ama. And correction in formation of succeeding Dhutas (Raktadi dhatu) that reason it taken longer time because of Kesh is Mala of Asthi Dahtus.

Discussion on laboratory parameter:

- Hemoglobin level:- In trial drug contain chitrak, chavya, pippali, pippalimool, maricha, sunthi which help in improve digestion absorption, assimilation and increase bioavailability of micro and macro nutrients. So more nutrients in plasma and more uptake by cells which improve hemopoisis mechanism and formation of RBC in much more number.

- Total serum protein:- Bilva, Gambhari, Shalparni, Prushniparni, Gokshur, Pippali (QAZI et al, 2002), and also Ksheer and Ghrita having properties like Balya, Brimhana, Rasayana hence these are play a vital role to improve total serum protein.

- Effect on ESR level reduction:- this is because of drug compound having antibacterial, antiviral, anthelminthic, and immunomodulatory effect of drug.

Probable action of the drug

**Indukanta Ghritam** is a well-balanced preparation
including the drugs having Deepana, Pachana, Srotosodhana, Tridosasamana, Balya, Brimhana and Rasayana properties which are very much essential in a Shosha predominant disease.

**Conclusion**

- Present research work shows that mild to moderate malnutrition is far more prevalent than severe grade of malnutrition.
- Present study reflects that both regimens- simple standard diet and drug with standard diet have showed that extremely significant good outcome on anthropometric index like weight gain, height gain, MAC gain of children with malnutrition, but in group A who received Indukantam Ghritam with standard diet showed faster and better improvement.
- Present study group A with trial drug Indukantam Ghrita with dietary advice treated patients got remarkable results in reducing the sign and symptoms of Balashosha.
- In the present study laboratory parameter like total serum proteins and hemoglobin are extremely significantly increased by “Indukantam Ghritam” whereas very significantly and significantly increased haemoglobin and total serum protein respectively with standard diet after completion of trial.
- No adverse effects of the drug therapy were observed during the present study.
- So it can be concluded that Indukantam Ghritam is beneficial, safe and very effective in management of Balashosha and also PEM.

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Clinical study to evaluate the efficacy of *Indukantam Ghritam* (S.Y.) in the management of *Balshosha* W.S.R. to PEM (Protein Energy Malnutrition) JOA XIII-2, 2019; 36 - 45


**Sarang**

भारत में कुपोषण एक प्रमुख स्वास्थ्य विषयक समस्या है, कुपोषण के कारण बाल्यस्तथा में बच्चों का शारीरिक व मानसिक विकास बाधित या रुक जाता है। अतः कुपोषण के उपचार के प्रयास रूप में सहस्र योग में उल्लेखित इन्दुकांतम घृतम की बालशोष में प्रभाव का डबल ब्लाइन्ड प्लेसिबो नियोजित अध्ययन किया गया है। इस चिकित्सकीय शोध कार्य 2.5 वर्ष तक के 60 शोषियों का क्रम रहित तरीके से राष्ट्रीय आयुर्वैदिक संस्थान के बहिरंग एवं अन्तरंग इकाई बालों और स्थानीय विधायिका से चयन कर दो समूह में बांट दिया। एक समूह–अ को इन्दुकांतम घृतम–I और समूह–ब में इन्दुकांतम घृतम–II को दूध के साथ में 1ml/kg/day मात्रा को दो माह में बांटकर प्रातः और सांयकाल 3 माह तक लगातार सेवन करखाया गया। तीन माह पश्चात समूह–अ व समूह–ब दोनों समूहों में एन्टीपोमेट्रिक पेमेंट में extremely significant परिणाम मिले, पर improvement समूह–अ में अधिक मिला। इसी प्रकार समूह–अ के रोगियों में बालशोष के लगभग सभी लक्षणों में भी extremely significant परिणाम मिले, पर समूह–ब में significant व insignificant परिणाम मिले। साथ ही Hb, TSP, ESR, में extremely significant तथा very significant परिणाम मिले। अतः बालशोष में इन्दुकांतम घृतम एक बहुत अच्छा विकल्प हैं, पुरे शोध कार्य के दौरान कोई हानिकारक प्रभाव सामने नहीं आया।
Effect of *Upodika* (Basella rubra Linn.) in the management of Osteoporosis

*Dr. Manju Singh, **Prof. Mita Kotecha*

*Women Scientist, Dept. of Biochemical Engineering and Biotechnology, IIT Delhi, New Delhi,  
**Head of the Department in Dravyaguna, National Institute of Ayurveda, Jaipur.

**ABSTRACT**

Osteoporosis is a chronic disease that results in the deterioration of bone. It leads to broken bones and poor posture in old women and men. In the present study, evaluation of effect of *Basella rubra Linn.* (*Upodika*) powder in the management of Osteoporosis was performed in 30 patients diagnosed with osteoporosis, randomly divided into two groups. In Group A - *Upodika* leaves powder in form of capsule was given internally. In Group B – Calcium Sandoz tablet were given internally. 15 patients were registered in each groups and the trial was carried out for 45 days .The results were evaluated on the basis of clinical findings. At the end of clinical trial the observations shows that the *Upodika* leaves powder is more effective than other group.

**Keywords**: Osteoporosis, *Upodika*, Basella rubra Linn.

Introduction:

*Ayurveda* is ancient medical practice having holistic approach to all aspects of the life. All over world, herbs and traditional medicines have been extensively used since times immemorial for health care. Ancient religious texts have plenty of references on the use of natural products with medicinal properties\(^1\). Because of the local beliefs and practices and also from cost considerations herbal medicines remain a popular mode of treatment in the developing countries. Rising cost of drugs and harmful effects of the treatment makes it highly attractive to use traditional medicine, particularly for minor and chronic ailments\(^2\).

Medicinal plants have been used in all cultures as a source of medicine. The widespread use of herbal remedies and healthcare preparations, those described in ancient texts such as the Vedas and the Bible, and...
obtained from commonly used traditional herbs and medicinal plants, has been traced to the occurrence of natural products with medicinal properties\(^3\). *Ayurveda* the ‘Science of Longevity’ promotes positive health, natural beauty and, long life\(^4\). The medicinal plants (Dravya) were considered as essential among the four podes of the treatment\(^5\).

Osteoporosis is a chronic disease that results in the deterioration of bone mineral density. It leads to broken bones and poor posture in old women and men. To prevent the loss of bone mass, it is important to have sufficient calcium in blood that is transported to the bones\(^6\). Although, calcium is abundant in dairy products like milk, green leafy vegetables etc. the amount of calcium that we need increases with age.

*Vata doṣa* is dominant in *jarawastha*; it leads to degeneration of all dhatus that results in *vata prakopa*. Consequently, provoked *vata* leads to *kṣaya* of *asthi* dhatu\(^7\)\(^8\). This vicious cycle leads to bones become weaker and weaker. The process of aging is associated with decreased calcium absorption from the gut, especially in postmenopausal women; thus, there is an increased requirement of calcium intake in these women. Insufficient dietary calcium intake attributable to socioeconomic conditions and lack of awareness increases the risk of osteoporosis.

Through lifestyle modifications and environmental factors risk of osteoporosis can be decreased. Aged people require approximately 1,200 milligrams of calcium per day\(^9\). To overcome the wide range of side effects produced by synthetic drugs, there is a great demand for ‘herbal medicines’ which are thought to be healthier and safer. Here, in present study management of osteoporosis with *Upodika* plant powder has been reported (fig.1).

**Aims and Objects:**

1. *Basella rubra Linn.* can be a good supplement for calcium as it is rich in calcium.
2. Whether the *Basella rubra Linn.* is effective in minimizing bone loss.
3. To compare the *Basella rubra Linn.* with placebo control group in the management of Osteoporosis.
4. To find out the adverse effects of the selected drug during trial period.

**Materials and Methods:**

The patients were selected randomly, divided into two groups namely trial and control group and examined clinically along with laboratory investigations. The patients attending the O.P.D. and I.P.D. of the National Institute of Ayurveda College, Jaipur were selected irrespective of their age, sex, caste etc. Total 30 patients were registered out which 7 patients discontinued the treatment. In group A, 15 patients were administered 500mg *Basella rubra* capsule per day with milk for 1½ months. Patients of group B were given 500mg Calcium Sandoz per day with milk for 1½ months. Routine and other test which were done to exclude other pathological condition are Haemoglobin (gm%), Total Leucocyte count (TLC), Erythrocyte Sedimentation Rate (ESR), Serum calcium, Serum alkaline phosphatase, Blood glucose-Fasting, PPBS, Random, Bone Mineral Density.

The scoring pattern to the clinical signs & symptoms are enlisted below:-

**1. Asthivedana**

0. None
1. Only on movement
2. Without movement at rest
3. Pain even at night

**2. Katiswhoola**

0. No backache
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1. Occasionally
2. Relieves by medicine
3. Dependent on painkiller

**3. Sandhi Sula – (joint pain)**
0. No pain –
1. Mild pain of bearable nature come occasionally-
2. Moderate pain but no difficulty in joint movement appears frequently and requires some upashaya measures for relief
3. Slight difficulty in joint movement due to pain
4. More difficulty in moving the joint, severe pain and disturbing sleep

**4. Shrama**
0. No fatigue
1. Fatigue occasionally on doing heavy work
2. In carrying out routine work
3. Even without doing work

**Inclusion criteria**
1. Men and women of age over 45 years.
2. Women of age group 40 -60 years (perimenopausal and postmenopausal)
3. Person having joint pain.
4. Presenting one or more risk factors for developing osteoporosis.

**Criteria for Exclusion:**
1. Endocrinal disorder.
2. Chronic Renal Failure
3. Patient on prolonged corticosteroid therapy.
4. Tubercular bone disease
5. Hyperparathyroidism
6. Chronic diseases

**Observations and Results**

**Table I. Showing Effect Of Drug On Objective Parameters (A)**

<table>
<thead>
<tr>
<th>Group A</th>
<th>Mean ± S.D.</th>
<th>% change</th>
<th>± S.D.</th>
<th>S.E.</th>
<th>t</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FBS</td>
<td>86.14</td>
<td>84.76</td>
<td>1.378</td>
<td>.015</td>
<td>.79</td>
<td>.26</td>
<td>5.231</td>
</tr>
<tr>
<td>PPBS</td>
<td>113.28</td>
<td>112.6</td>
<td>.600</td>
<td>.52</td>
<td>.45</td>
<td>.15</td>
<td>4.00</td>
</tr>
<tr>
<td>Hb.</td>
<td>11.44</td>
<td>11.62</td>
<td>-.177</td>
<td>1.55</td>
<td>.16</td>
<td>.05</td>
<td>3.249</td>
</tr>
<tr>
<td>TLC</td>
<td>4960</td>
<td>5881.6</td>
<td>-921.6</td>
<td>.18</td>
<td>1219.2</td>
<td>385.54</td>
<td>2.390</td>
</tr>
<tr>
<td>Bas.</td>
<td>.100</td>
<td>.100</td>
<td>00</td>
<td>0</td>
<td>.47</td>
<td>.14</td>
<td>.000</td>
</tr>
<tr>
<td>Neut.</td>
<td>51.20</td>
<td>55.90</td>
<td>-4.700</td>
<td>9.17</td>
<td>6.05</td>
<td>1.91</td>
<td>2.454</td>
</tr>
<tr>
<td>Eos.</td>
<td>1.90</td>
<td>2.400</td>
<td>-.500</td>
<td>26.31</td>
<td>.849</td>
<td>.26</td>
<td>1.861</td>
</tr>
<tr>
<td>Lym.</td>
<td>42.20</td>
<td>42.40</td>
<td>-2.00</td>
<td>4.73</td>
<td>2.616</td>
<td>.82</td>
<td>2.659</td>
</tr>
</tbody>
</table>
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In Group A (*Upodika*) FBS percentage was decreased by (0.015%), PPBS percentage was decreased by (0.5297%), ESR percentage was decreased by 20.307%, Sr.Calcium percentage was increased by (1.360%). The results were highly significant. While Hb% (1.553%), TLC (0.185%), N (9.17%), Lymphocyte (4.739%), Monocyte (40.00%), ALP (9.359%) were highly significant.

### Table II. Showing Effect Of Drug On Objective Parameters (B)

<table>
<thead>
<tr>
<th>Group B</th>
<th>Mean score</th>
<th>% change</th>
<th>± S.D.</th>
<th>S.E.</th>
<th>t</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FBS</td>
<td>83.483</td>
<td>85.61</td>
<td>-2.133</td>
<td>2.55</td>
<td>3.960</td>
<td>1.143</td>
<td>1.866</td>
</tr>
<tr>
<td>PPBS</td>
<td>104.883</td>
<td>180.9</td>
<td>-76.008</td>
<td>72.46</td>
<td>259.23</td>
<td>74.834</td>
<td>1.017</td>
</tr>
<tr>
<td>Hb.</td>
<td>11.75</td>
<td>11.69</td>
<td>.058</td>
<td>0.49</td>
<td>.311</td>
<td>.090</td>
<td>.646</td>
</tr>
<tr>
<td>TLC</td>
<td>6733.33</td>
<td>6750</td>
<td>-16.667</td>
<td>0.24</td>
<td>38.925</td>
<td>11.23</td>
<td>.166</td>
</tr>
<tr>
<td>Bas.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Neut.</td>
<td>53.75</td>
<td>53.91</td>
<td>-.166</td>
<td>.31</td>
<td>.717</td>
<td>.20</td>
<td>.804</td>
</tr>
<tr>
<td>Eos.</td>
<td>1.25</td>
<td>1.166</td>
<td>.083</td>
<td>6.66</td>
<td>.288</td>
<td>.08</td>
<td>1.00</td>
</tr>
<tr>
<td>Lym.</td>
<td>32.75</td>
<td>33.25</td>
<td>-.500</td>
<td>1.52</td>
<td>2.611</td>
<td>.75</td>
<td>.663</td>
</tr>
<tr>
<td>Mon.</td>
<td>3.416</td>
<td>3.25</td>
<td>.166</td>
<td>4.87</td>
<td>.389</td>
<td>.11</td>
<td>1.483</td>
</tr>
<tr>
<td>E.S.R</td>
<td>23.417</td>
<td>21.75</td>
<td>1.667</td>
<td>7.11</td>
<td>2.498</td>
<td>.721</td>
<td>2.311</td>
</tr>
<tr>
<td>BMD</td>
<td>-2.241</td>
<td>-2.241</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>S.Ca</td>
<td>8.808</td>
<td>8.875</td>
<td>-.066</td>
<td>.74</td>
<td>.098</td>
<td>.028</td>
<td>2.345</td>
</tr>
<tr>
<td>ALP</td>
<td>169.05</td>
<td>182.4</td>
<td>-13.442</td>
<td>7.95</td>
<td>17.248</td>
<td>4.97</td>
<td>2.700</td>
</tr>
</tbody>
</table>

Group B (Calcium Sandoz) ESR percentage was decreased by 7.118%. Calcium percentage was increased by 0.743%.
ALP percentage increased by (9.359 %). The results were significant. While others parameters are insignificant.

Table III. Showing Effect Of Drug On Subjective Parameters (A)

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
<th>% Change</th>
<th>± S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B.T</td>
<td>A.T</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthivedna</td>
<td>2.900</td>
<td>1.500</td>
<td>1.400</td>
<td>48.275</td>
<td>.699</td>
<td>.221</td>
<td>36</td>
</tr>
<tr>
<td>Katisula</td>
<td>2.300</td>
<td>1.00</td>
<td>1.300</td>
<td>56.521</td>
<td>.674</td>
<td>.213</td>
<td>45</td>
</tr>
<tr>
<td>Sandhisula</td>
<td>2.900</td>
<td>1.500</td>
<td>1.400</td>
<td>48.275</td>
<td>.699</td>
<td>.221</td>
<td>45</td>
</tr>
<tr>
<td>Shrama</td>
<td>3.00</td>
<td>1.600</td>
<td>1.400</td>
<td>46.666</td>
<td>.966</td>
<td>.305</td>
<td>36</td>
</tr>
</tbody>
</table>

In Group A (Upodika) percentage change in Asthivedna (48.275%), Katisula (56.521%), Sandhishul (48.275%), Shrama (46.666%) which are highly significant.

Table IV. Showing Effect of Drug on Subjective Parameters (B)

<table>
<thead>
<tr>
<th>Group</th>
<th>Mean Score</th>
<th>% change</th>
<th>± S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B.T</td>
<td>A.T.</td>
<td>D.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asthivedna</td>
<td>2.33</td>
<td>1.58</td>
<td>0.75</td>
<td>32.147</td>
<td>.965</td>
<td>.27</td>
<td>47</td>
</tr>
<tr>
<td>Katisula</td>
<td>2.50</td>
<td>1.75</td>
<td>0.75</td>
<td>30</td>
<td>.866</td>
<td>.250</td>
<td>54</td>
</tr>
<tr>
<td>Sandhisula</td>
<td>2.50</td>
<td>1.91</td>
<td>0.58</td>
<td>23.32</td>
<td>.5149</td>
<td>.148</td>
<td>35</td>
</tr>
<tr>
<td>Shrama</td>
<td>2.16</td>
<td>1.58</td>
<td>0.58</td>
<td>23.32</td>
<td>.668</td>
<td>.193</td>
<td>28</td>
</tr>
</tbody>
</table>

On observing above table we see that in Group A patients shows (48.275%) relief in asthivedana, (56.521%) in katisul, (48.275%) in sandhishul and (46.666%) in shrama while in group B (32.147%) relief in asthivedna, 30% in katisul, (23.32%) in sandhishul and (23.32%)

Table V. Showing The Overall Effect Of Therapy.

<table>
<thead>
<tr>
<th>Improvement</th>
<th>Percentage of patients (A)</th>
<th>Percentage of Patients (B)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CURED</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>MARKED</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>MODERATE</td>
<td>50%</td>
<td>16.66%</td>
</tr>
</tbody>
</table>
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<table>
<thead>
<tr>
<th>MINOR</th>
<th>40%</th>
<th>66.66%</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNCHANGED</td>
<td>10%</td>
<td>16.66%</td>
</tr>
</tbody>
</table>

On the basis of the specific scoring pattern adopted, the total effect of therapy has been carried out which shows that in Group A, 50% patients show moderate improvement & 40% shows minor improvement, 10% patients remain unchanged at the end of therapy. In Group B 16.66% patients shows minor improvement 66.66% shows minor improvement while 16.66% remain unchanged.

Discussion

From the statistical analysis of the present dissertation it is noted that maximum percentage of relief katisool i.e (56.52%) & it shows moderate improvement in other symptoms like Asthivedana, sandhisool & shrama shows minor improvement i.e (43.47%), (0.48.27%) & (46.665%) relief respectively in groupA. Maximum percentage of relief was observed in asthivedna i.e (32.24%) followed by (30%) in katisool (23.32%) in sandhisool & shrama. Comparison between all the group in asthi kshyatamka lakshana indicates that Upodika (group A) has given maximum relief in all the symptoms followed by calcium sandoze (group B).

Probable Mode of action of Upodika

Madhura rasa and vipaka is vata shamaka & prthivi mahabhuta dominant. Asthi is also prthivi mahabhuta dominant, according to samayama vridhinama, it increase Prthivi mahabhuta in context to asthi ksaya and asthi sausirya. Picchila guna is just opposite to qualities of vata. Asthi kshaaya and shauṣriya is due to increase vata hence it suppress the vata. Snigdha guna is also having asthi vriddhi kara.[9][16].

Modern view

Upodika is rich source of calcium. The effect of Upodika on bone loss is due to its calcium content. Some phytoestrogens are also present which helps in better absorption. Calcium is main constituent of bone. If calcium intake is insufficient or if body doesn’t absorb enough calcium from diet, process of formation of bone hampers. It is rich source of iron, vitamin A, thiamine, riboflavin, niacin and ascorbic acid. Along with above it improves anabolic activity of the body.

Conclusion

Asthi ksaya and asthi sausirya seems to be similar to osteoporosis. It is a disabling disease, which renders women and men a bedridden life. Calcium deficiency is underlying cause of osteoporosis. It runs as chronic & silent in nature. Group A (Upodika) was more effective in some aspect than Group B (Calcium Sandoz).

Hence the outcome of the present study helps in improving the health of especially female and prevents her from unwanted complications.

References

सारांश
ऑस्ट्रोपोरोसिस एक चिकित्साल्प व्याधि है जिसके कारण अस्थियों में क्षय हो जाता है। इसमें अस्थियों के टूटने के साथ शरीर के मुद्रा पर भी प्रभाव पड़ता है। प्रस्तुत अध्ययन का मुख्य उद्देश्य उपोदिका का ऑस्ट्रोपोरोसिस में चिकित्साल्प प्रभाव देखना था। अस्थिशक्ति के 20 नैदानिक रोगियों को randomly सूचीबद्ध 2 समूहों पर किया गया। गुप्ता A में उपोदिका के सूचून की आयु के सूचून में आयुताय प्रयोग किया गया। गुप्ता B में कैशियम Sandoze को प्रयोग किया गया। गुप्ता A में १५—२५ वर्षीय स्त्रियाँ दिखाई दिए और उन पर ४५ दिन तक प्रयोग किया गया। प्रयोगिक चिकित्सा पूर्व एवं पश्चात के आधार पर किया गया। अन्तत: यह निष्कर्ष निकला कि उपोदिका सूचून दूसरे वर्ग की तुलना में अधिक प्रभावी प्रदर्शित की गई है।
A Comparative Clinical Study of Basti Karma and Kanchanara Guggulu in the Management of Vataastheela Mutraghata w.s.r. To Benign Prostatic Hyperplasia (B.P.H.)

*Dr. Rajendra Kumar, **Dr. J.P. Verma, ***Dr. B. Swapna, ****Kumar Hemantha P

*Ph.D Scholar, **Ex. Associate Professor, ***Assistant Professor, ****HOD & Professor,
Dept. of Shalya Tantra, National Institute of Ayurveda, Jaipur, Rajasthan

ABSTRACT

Benign Prostatic Hyperplasia (BPH) is a major geriatric problem which is described in Ayurveda classics as Vaataastheela, a one type of Mutraghata (obstructive uropathy). Total twelve types of Mutraghata are described as obstructive uropathy related to either upper or lower urinary tract. The Vataastheela Mutraghata reflects the symptoms of urinary retention, incomplete voiding, distension etc. These are features of Lower Urinary Tract Symptoms (LUTS) and can be co-related with Benign Prostatic Hyperplasia. In modern medicine, various conservative and surgical treatment modalities are available with the varying degree of success rate for the management of LUTS caused by enlarged gland. Similarly in Ayurveda, various researches are going on to find out a suitable and less invasive treatment modality for the same. In Sharangadhar Samhita, Kaanchara Guggulu was mentioned with Granthihar property for the treatment of Granthi. In the Sushruta Samhita, the choice of treatment for Mutraghata is Basti Karma as Shodhan Chikitsa. In this case series 30 well diagnosed cases of BPH were treated with Kaanchanar Guggulu and Yoga Basti Then patients were assessed on the basis of subjective parameters like International Prostate Symptom Score (IPSS), Quality of Life (QOL) Score and objective parameters like prostate size, post void residual urine volume (PVR) and peak urine flow rate (Qmax). After completion of treatment significant results were observed in both subjective and objective parameters. This case series highlights the fact that the BPH can be managed in Ayurveda by simple and minimal invasive measures.

Address of Correspondence:
Dr. Rajendra Kumar
PhD Scholar,
Dept. of Shalya Tantra
National Institute of Ayurveda Jaipur.
Email ID : rajanpaliwa25@gmail.com
Contact No : 9784361336


Keywords : Benign Prostatic Hyperplasia, Vaatashtee-la Mutraghata, Basti Karma

Introduction:

Vataastheela is a disease of Mutravahasrotas (urinary tract), one among the 12 types of Mutraghata (obstructive uropathy) disorders elaborated by Acharya Sushruta, closely resembles to Benign Prostatic Hyperplasia (BPH) of modern medicine in its signs and symptoms.

The Vataastheela Mutraghata reflects the symptoms of urine retention, incomplete voiding, dribbling, hesitancy, dysuria, straining during urination etc.[1]. These are features of Lower Urinary Tract Symptoms and can be co-related with Benign Prostatic Hyperplasia in modern parlance.

Benign Prostatic Hyperplasia (BPH) is a senile disorder and chiefly affects individuals above the age of 40 years. The overall incidence rate of BPH is 15 per 1000 men per year. At the beginning of 4th decade of life only 8% of men have histological evidence of BPH. 50% of men aged 51-60 years and 90% of men over the age of 80 years have histological evidence of BPH.[2]

Clinical features of BPH are increased frequency of micturition, nocturia, incomplete voiding, incomplete emptying of bladder, intermittency, urgency, hesitancy, weak stream of urine, straining during micturition etc. And often features of acute or chronic retention of urine and uraemia also occurs during progression of disease.

In modern medicine the management of BPH is either through a surgical approach (e.g., open prostatectomy, transurethral resection of prostate, cryotherapy, etc.) or by conservative treatment using drugs (e.g. chemotherapy, hormonal therapy, etc.).

Among the many approaches, prostatectomy is the best, but it is associated with many complications, e.g. postoperative morbidity, impotence, retrograde ejaculation etc.

The second most acceptable procedure is TURP, transurethral resection of prostate, which is also not free from complications, with the cumulative probability of re-operation estimated to be around 15% at 5–8 years after TURP.

In case of hormonal therapy, although there are some advantages, there are many complications like loss of libido, retrograde ejaculation, impotence, gynecomastia etc. Generally, the conservative treatments mentioned above have to be continued indefinitely and therefore, treatment can be expensive.

In this situation, it is possible that Ayurveda will be able to provide a treatment that is natural, safe, simple, less invasive, effective and free from any adverse effects.

The vata dosha is the main culprit to produce the vataastheela mutraghata (BPH). Hence the line of treatment instituted in BPH is vatashamak and vatanulomaka. And Bastikarma is best in management of vata dosha. That is why Bastikarma is selected in management of BPH. In Sharangadhar Samhita, Kaanchara Guggulu was mentioned with Granthi property for the treatment of Granthis.[3]

So here we present a case series of 30 patients with BPH who were managed effectively with the simple and less-invasive procedure, Kaanchnar Guggulu and Basti Karma.

Clinical Study

I. Study Design

- It was an randomized controlled clinical trial, with approval from IEC in 2015. (Ref No. 43) For this study 30 patients were take up in two group i.e. 15 patients in each group, the signs and symptoms before and after treatment were observed, and recorded in the mentioned proforma of the case sheet of BPH.

- Grouping - There will be two groups

Table I: Groups of Clinical Trial

<table>
<thead>
<tr>
<th>Arms</th>
<th>Assigned interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A - 15 patients</strong></td>
<td>1gm (2 tab of 500mg each) thrice a day with lukewarm water ½ hour before meal, Orally</td>
</tr>
<tr>
<td><strong>Kanchanar Guggulu</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Group B – 15 patients</strong></td>
<td>5 Anuvasana Basti and 3 Niruha Basti (2 settings)</td>
</tr>
<tr>
<td><strong>Experimental-Yoga Basti</strong></td>
<td></td>
</tr>
</tbody>
</table>

II. Time Frame: 3 months (Trial period: 1 month + Follow up - 2 months

III. Materials: Drugs used in this study for management of BPH

1. **Kanchanara Guggulu**
   - **Dose**: 1gm (2 tablets of 500 mg each)
   - **Dosage form**: Tablets of 500 mg
   - **Route of Administration**: Oral

   - **Time and of Administration**: Thrice a day before meal
   - **Duration**: for 1 month
   - **Anupana**: Lukewarm Water
   - **Packing form**: 30 gm per pack (60 tablets of 500 mg each), 3 packs/patient

2. **Yoga Basti** - combination of 3 Niruha Basti and 5 Anuvasana Basti

Table II: Niruha Basti[^1] With Dashmoola Kwatha

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Ingredients</th>
<th>Quantity</th>
<th>Altered Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Makshika/honey</td>
<td>3 palas (150ml)</td>
<td>150ml</td>
</tr>
<tr>
<td>2.</td>
<td>Saindhava lavana</td>
<td>½ karsa (7.5gm)</td>
<td>7.5gm</td>
</tr>
<tr>
<td>3.</td>
<td>Sneha (Eranda tail)</td>
<td>3 palas (150ml)</td>
<td>150ml</td>
</tr>
<tr>
<td>4.</td>
<td>Kalka (Satapushpa.)</td>
<td>2 palas (100gms)</td>
<td>30 gm</td>
</tr>
<tr>
<td>5.</td>
<td>Kashaya(dashmoola kashya)</td>
<td>10 palas (500 ml)</td>
<td>400ml</td>
</tr>
<tr>
<td>6.</td>
<td>Total (approximately)</td>
<td>18 palas (900ml)</td>
<td>700ml</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Ingredients</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Dhanvantara Taila</td>
<td>60 ml</td>
</tr>
<tr>
<td>2.</td>
<td>Saindhava Lavan</td>
<td>2 gm</td>
</tr>
<tr>
<td>3.</td>
<td>Shatapushpa Powder</td>
<td>4 gm</td>
</tr>
</tbody>
</table>

IV. Selection Criteria

- Diagnosis was made on the basis of symptoms of LUTS due to BPH such as increased frequency of urination, urgency, nocturia, intermittency, incomplete emptying of bladder, poor stream of urine, strangury, dribbling etc.
- Digital rectal examination suggestive of Prostatomegaly due to BPH.

Inclusion Criteria

- Patients with age above 40 years.
- Patients with International Prostate Symptoms Score (IPSS) > 7
- Rectal examination consistent with Benign Prostate Hypertrophy (BPH)
- Prostate volume > 15cc
- Prostate Specific Antigen (PSA) < 4ng/ml
- Urine flow rate of <15ml/sec for 2 voids
- Willing and able to participate in the study for 16 weeks

Exclusion Criteria

- Patients aged below 40 years
- Patients currently using any other conservative treatment for the BPH/Hair loss
- Patients having other urinary system pathology like severe urinary tract infection, urinary calculi, urethral stricture etc.
- Patients suffering from malignancy of urogenital system like Ca of Prostate..
- Patients having congenital deformity of urogenital tract.
- BPH with any obstructive uropathy.
- Serum Prostate Specific Antigen (PSA) > 4 ng/ml
- Chronic retention of urine (Post voidal urine volume > 300ml)

V. Lab Investigations

- Routine investigations (CBC, ESR, RBS, HIV, HBsAg, RFT, LFT, CUE)
- USG (KUB with PVR)
- Uro-flowmetry
- PSA (according to necessity)
- Urine C/S (according to necessity)

VI. Assesment Criteria

Subjective Criteria: IPSS: The severity of BPH can be determined with the International Prostate Symptom Score (IPSS)/American Urological Association Symptom Index (AUA-SI) plus a disease-specific quality of life (QOL) question. Questions on the AUA-SI for BPH concern the following:

- Incomplete emptying
- Frequency
- Intermittency
- Urgency
- Weak stream

- Straining
- Nocturia
- Residual urine volume
- Average flow rate by uro-flowmetry

### Objective Criteria

- Size of prostate

### Grading of Parameters of Assessment[^1]

### International Prostate Symptom Score (I-PSS)

**Patient Name: __________________ Date Of Birth: __________________ Date Completed: __________________**

<table>
<thead>
<tr>
<th>In the past month:</th>
<th>Not at all</th>
<th>Less than 1 in 5 Times</th>
<th>Less than Half the Times</th>
<th>About Half the Times</th>
<th>More than Half the Times</th>
<th>Almost Always</th>
<th>Your Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Incomplete emptying</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How often have you had the sensation of not emptying your bladder?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Frequency</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How often have you had to urinate less than every two hours?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Intermittency</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How often have you found you stopped and started again several times when you urination?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Urgency</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How often have you found it difficult to postpone urination?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Weak Stream</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How often have you had a weak urinary stream?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Straining</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>How often have you had to strain to start urination?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Nocturia</td>
<td>None</td>
<td>1 Time</td>
<td>2 Time</td>
<td>3 Time</td>
<td>4 Time</td>
<td>5 Time</td>
<td></td>
</tr>
<tr>
<td>How many times did you typically get up at night to urinate?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[^1]: Grading of Parameters of Assessment

<table>
<thead>
<tr>
<th>Total I-PSS Score</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Score:</td>
<td>1 - 7 Mild</td>
<td>8 - 19: Moderate</td>
<td>20 - 35: Severe</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Quality of Life Due to Urinary Symptoms</th>
<th>Delighted</th>
<th>Pleased</th>
<th>Most Satisfied</th>
<th>Mixed</th>
<th>Mostly Dissatisfied</th>
<th>Unhappy</th>
<th>Terrible</th>
</tr>
</thead>
<tbody>
<tr>
<td>If you were to spend the rest of your life with your urinary condition just the way it is now, how would you feel about that?</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Grading of Parameters of Assessment

1. International Prostate Symptoms Score (IPSS)
   - Grade 0 : Mild Score (1-7)
   - Grade 1 : Moderate Score (8-19)
   - Grade 2 : Severe Score (20-35)

2. Prostatomegaly
   - Grade 0 : <15gm
   - Grade I : 16-25gm
   - Grade II : 26-50gm
   - Grade III : 51-75gm
   - Grade IV : 76-100gm
   - Grade V : >100gm

3. Post Void Residual Volume of Urine (PVR)
   - Grade 0 : Nil
   - Grade I : up to 50ml
   - Grade II : 51-100ml
   - Grade III : 101-150ml
   - Grade IV : 151-200ml
   - Grade V : >200ml

4. Peak Urine Flow Rate (Qmax)
   - Grade 0 : >15ml/sec

Observations

For this study total 40 patients with LUTS were registered, among them 30 patients completed the treatment as 10 patients were withdrawn from study due to development of features of exclusion criteria. All the selected patients were thoroughly examined and diagnosed based on exclusive and inclusive criteria. All the 40 patients of BPH were analysed for their age, occupation, habitat, Prakriti, etc. Hence, observation of 40 patients and results of 30 patients are presented here.

In this series of male patients, maximum number of patients 26 (60%) were belong to age group of 51-70 years, maximum 25 (62.5%) patients were Hindu while 15 (37.5%) patients were Muslim, maximum 37 (92.5%) patients were married while 3 (7.5%) patient were unmarried, maximum 17 (42.5%) patients were from agriculture occupation, maximum patients of this series i.e. 17 (42.5%) came from lower middle class of the society. 23 (57.5%) patients were vegetarian, maximum 31 (77.5%) were having disturbed sleep, maximum 47.5% patients were with pitta-kapha prakriti, and maximum
Kumar R, Verma JP, Swapna B, Kumar HP, A Comparative Clinical Study of *Basti Karma* and *Kanchanara Guggulu* in the Management of *Vataastheela Mutraghata* w.r.t To Benign Prostatic Hyperplasia (B.P.H.), JOA XIII-2, 2019; 53 - 66

19 patients (47.50%) were having chronicity of lower urinary tract symptoms from 13-24 months.

Maximum of patients 62.5% were with severe form of disease. (IPSS Score 20-35) Maximum patients (40%) were mostly dissatisfied (QOL Score 4) from their poor quality of life due to symptoms of disease. In our study it was observed that maximum 17 patients (42.50%) of BPH had Grade II Prostatomegaly (Prostate weight 26-50gm).

In this study it was observed that maximum 12 patients (30%) were with grade III PVR (Post Void Residual Urine Volume 100-150ml). In Our study maximum 15 patients (37.5%) were with grade IV Qmax (urine flow rate 4-6 ml/sec). Among the 7 symptoms mentioned in IPSS score, Intermittency was most severe complaint of patients with 76% severity and Urgency was least severe complaint with 31.20% severity.

**Results**

Table IV- Results of Group A: Kaanchanar Guggulu

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Parameter of assessment</th>
<th>Mean Difference</th>
<th>% Relief</th>
<th>SD</th>
<th>SE</th>
<th>P Value S</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Incomplete emptying</td>
<td>2.60</td>
<td>2.33</td>
<td>0.2667</td>
<td>10.26</td>
<td>0.4577</td>
</tr>
<tr>
<td>2.</td>
<td>Frequency</td>
<td>3.53</td>
<td>3.20</td>
<td>0.3333</td>
<td>9.43</td>
<td>0.6172</td>
</tr>
<tr>
<td>3.</td>
<td>Intermittency</td>
<td>3.80</td>
<td>3.00</td>
<td>0.8000</td>
<td>21.05</td>
<td>0.8619</td>
</tr>
<tr>
<td>4.</td>
<td>Urgency</td>
<td>1.67</td>
<td>1.20</td>
<td>0.4667</td>
<td>27.99</td>
<td>0.6399</td>
</tr>
<tr>
<td>5.</td>
<td>Weak stream</td>
<td>3.53</td>
<td>2.87</td>
<td>0.6667</td>
<td>18.87</td>
<td>0.7237</td>
</tr>
<tr>
<td>6.</td>
<td>Straining</td>
<td>3.60</td>
<td>2.87</td>
<td>0.7333</td>
<td>20.36</td>
<td>0.7988</td>
</tr>
<tr>
<td>7.</td>
<td>Nocturia</td>
<td>3.60</td>
<td>3.27</td>
<td>0.4000</td>
<td>11.08</td>
<td>0.7368</td>
</tr>
<tr>
<td>8.</td>
<td>IPSS</td>
<td>1.80</td>
<td>1.47</td>
<td>0.3333</td>
<td>18.52</td>
<td>0.4880</td>
</tr>
<tr>
<td>9.</td>
<td>QOL</td>
<td>4.13</td>
<td>3.47</td>
<td>0.6667</td>
<td>16.13</td>
<td>0.7237</td>
</tr>
</tbody>
</table>

| 10. | Prostate size | 2.60 | 2.40 | 0.2000 | 7.69 | 0.4140 | 0.1069 | >0.05 | NS |
| 11. | PVR          | 2.47 | 2.13 | 0.3333 | 13.94| 0.6172 | 0.1594 | >0.05 | NS |
| 12. | Qmax         | 2.93 | 2.40 | 0.5333 | 18.20| 0.5164 | 0.1333 | <0.01 | VS |

Table V- Results of Group B: Yoga Basti

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameter of assessment</th>
<th>Mean Difference</th>
<th>% Relief</th>
<th>SD</th>
<th>SE</th>
<th>P Value</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
<td>Incomplete emptying</td>
<td>2.80</td>
<td>1.73</td>
<td>1.067</td>
<td>38.10</td>
</tr>
<tr>
<td>2.</td>
<td></td>
<td></td>
<td>Frequency</td>
<td>3.47</td>
<td>1.80</td>
<td>1.667</td>
<td>48.08</td>
</tr>
<tr>
<td>3.</td>
<td></td>
<td></td>
<td>Intermittency</td>
<td>3.80</td>
<td>2.60</td>
<td>1.200</td>
<td>31.57</td>
</tr>
<tr>
<td>4.</td>
<td></td>
<td></td>
<td>Urgency</td>
<td>1.47</td>
<td>0.87</td>
<td>0.600</td>
<td>40.89</td>
</tr>
<tr>
<td>5.</td>
<td></td>
<td></td>
<td>Weak stream</td>
<td>3.73</td>
<td>2.53</td>
<td>1.200</td>
<td>32.15</td>
</tr>
<tr>
<td>6.</td>
<td></td>
<td></td>
<td>Straining</td>
<td>3.60</td>
<td>2.53</td>
<td>1.067</td>
<td>29.64</td>
</tr>
<tr>
<td>7.</td>
<td></td>
<td></td>
<td>Nocturia</td>
<td>3.60</td>
<td>1.87</td>
<td>1.733</td>
<td>48.14</td>
</tr>
<tr>
<td>8.</td>
<td></td>
<td></td>
<td>IPSS</td>
<td>1.73</td>
<td>1.00</td>
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<td>1. Incomplete emptying</td>
<td>Group A</td>
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<td>0.4577</td>
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<td>8. IPSS</td>
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<td>&lt;0.1</td>
<td>N QS</td>
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<td>0.1533</td>
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Table VI- Results of Inter Group Comparison of Group A & Group B

Discussion

I. Discussion of Improvement in Parameter of Assessment

Effect of Kanchanara Guggulu and Yoga Basti on 30 patients of Vataastheela (BPH) are discussed below-

1. Incomplete Emptying

Group B showed better results on incomplete emptying with 38.10% than group A with 10.26% along with very significant variation on inter group comparison with P value <0.01.

2. Frequency of Urination

Group B showed better improvement on frequency of urination with 48.08% relief than group A with 9.43% relief along with statistically not significant variation on inter group comparison with P value >0.05.

3. Intermittency

Group B yielded better outcome with 31.57% relief on intermittency while group A 21.05% which have not significant variation statistically on inter group comparison with P value >0.05.

4. Urgency of Urination

Group B provided better improvement with 40.89% relief than group A with 27.99% which have not significant variation on inter group comparison with P value >0.05.

5. Weak Stream

Improvement in group B on weak stream was better with 32.15% than group A with 18.87% which have not shown significant difference on intergroup comparison with P value >0.05.

6. Straining

Straining was relieved much better in group B with 29.64% relief than group A with 20.36% along with no significant variation on intergroup comparison with P value >0.05.

7. Nocturia

Relief in nocturia was more in group B with 48.14% than group A with 11.08% which have very significant variation on intergroup comparison with P value <0.01.

Kaanchanar Guggulu showed significant improvement in obstructive symptoms (intermittency, weak stream, straining) while it had almost no effect on irritative symptoms (incomplete emptying, frequency, urgency, nocturia). This is probably due to granthihar and vatanuloman property of kaanchnar guggulu.

As granthihar property of kaanchnar guggulu was not reflected in assessment parameters as size of prostate gland was almost unchanged during trial and follow up period. But by observing clinical improvement in obstructive symptoms it can be concluded that it might
have done the vataanuloman of apana vaayu by pacifying the vitiated vata dosha.

As Apanana vaayu is responsible for all adhovega samyaka pravriti i.e. better unobstructed flow of urine, stool, semen and even child during delivery. And vitiation of vata dosha is main factor responsible for manifestation of BPH. Hence pacifying Vata Dosha by Vatanulomana resulted in better emptying of bladder with improved unobstructed flow of urine.

**Yoga Basti** showed very significant improvement in both type of symptoms either it obstructive or irritative. All of the seven symptoms of Prostatism or LUTS responded significantly after treatment with *basti karma*. This effect is probably due to systemic effect along with local effects of *yoga basti*.

Systemically *Yoga Basti* acted by rectal absorption of *Basti drvays* from internal and external haemorrhoidal plexus then interacting with enteric nervous plexus of intestine. According to ayurvedic ideology basti also works systemically as it is best Vatashamaka method for vata pacification.

Along with systemic effect *Basti* also have local effect on prostatic muscle fibres. *Basti* relived the prostatic muscle fibres spasm over bladder neck which resulted in proper improved flow of urine.

Hence *Basti* have both properties, vatashaman systemically and muscle fibres relaxation locally. That dual effects of basti might be responsible for the significant results obtained after treatment with *basti karma*.

**VII. International Prostate Symptoms Score (IPSS)**

IPSS Score was improved much better in group B with 40.74% relief than group A with 18.52 % along with not quite significant variation on intergroup comparison with P value <0.1.

Here we can conclude that *Kaanchanar Guggulu* and *Yoga Basti* both are effective in improvement on IPSS score. As *yoga basti* is more effective in improving IPSS score as it have both vatanulomana and prostatic muscle fibres relaxation property while *Kaanchanar Guggulu* only have vatanuloman property.

But statistically both group have not quite significant variation due to broad spectrum grading of IPSS Score. As *Yoga Basti* improved the IPSS score in better way than Kaanchanar Guggulu but it could not be reflected statistically in spite of significant reduction in IPSS score as the grading of IPSS Score was remained same due to broad spectrum grading.

**VIII. Quality Of Life (QOL) Score**

Improved in QOL score is more pronounced in group B with 39.13% relief than group A with 16.13% relief which have significant variation statistically on intergroup comparison with P value <0.05.

QOL score was improved significantly after treatment with Yoga Basti as it relieved both type of symptoms either irritative or obstructive while Kaanchanar Guggulu relieved only obstructive symptoms. So improvement in QOL score was more in Yoga Basti.

**IX. Size of Prostate**

Both group showed almost same results on size of prostate gland with group A, with 7.69% relief, is slightly better than group B with 4.9% relief which have not significant variation on statistical analysis on intergroup comparison with P value >0.05.

Hence these data shows that both groups showed no tendency towards reduction in size of prostate in response to treatment as difference between results in both the groups are not significant.

Most of the patients were improved clinically which was reflected in the form of their reduced IPSS Score or reduced PVR or improved Qmax but their size of prostate gland remained almost constant in entire trial period.

This concludes that prostate size has no significant role in severity and management of the disease and can be managed effectively without reducing the size of the prostate gland.
X. Post Void Residual Volume of Urine (PVR)

Group B showed significant improvement on PVR with 52.40% relief than group A with 13.94% which have very significant variation on intergroup comparison with P value <0.01

*Basti Karma* had shown better effect on PVR the probable mode of action and as it relieved the spasm of prostatic muscle fibres over bladder neck which lead to improved flow and better emptying of bladder during urination ultimately resulted in reduced Post void residual volume of urine.

XI. Peak Urine Flow Rate (Qmax):

Both group showed tendency towards improvement in Qmax as improvement was more pronounced in group B with 35.89% relief compared to group A with 18.20% relief which have significant variation on intergroup comparison with P value <0.05. This might be due to better relaxation of sphincter vasicae due to reduction in prostatic muscle fibres spasm.

**Probable Mode of Action of Kanchnar Guggulu**

*Kanchnara Guggulu* was selected for the present study which is mentioned, in the context of *Galaganda Chikitsa Prakaranam* in *Sharangdhar Samhita*.

- **Mode of Action of Drug**

*Kanchanra Guggulu* having *Granthihara* property and *Vatashteela* is having *Asheelaivat Unnata granthi* in between the *Basti* and *Shakrit Marga* leading to *mutraavarodha* and Vata is the main *Dosha* involved, it helped in relieving of obstruction in between the *Basti* and *Shakrit Marga* probably by its granthihar property. It increased the intra luminal pressure, relaxed the internal sphincter tone, and as it has *Katu Rasa*, it contains *Marga Shodhaka* property and helped in relieving obstruction and in easy flow of urine. It has *Vatakaphagna* property along with *vataanulomana*. Hence by pacification of the vata and *kapha dosha* along with *Vatanulomana* of *apaan vata*, it reduced the severity of Vataastheela.

So *Kaanchanar Guggulu* may be helpful in prevention of growth of prostate with reduction of its size and thereby improving flow rate. As 5-Alpha Reductase Inhibitors drugs need to be taken for at least 6 months to reflect this effect on therapeutically. When these drugs are taken for a year, they result in a 25 percent shrinkage of gland. So *Kaanchanar* Guggulu may have reduce the size of prostate also if it is taken for such type of long duration like one year.

**Probable Mode of Action of Basti**

The inferior mesenteric vein drains blood from the rectum, sigmoid colon and descending colon. It begins as the superior rectal vein from the upper part of the internal rectal venous plexus. In the plexus it communicates with middle and inferior rectal veins. The superior rectal vein continues upward as inferior mesenteric vein and open into splenic vein. The superior mesenteric vein and splenic vein form portal venous system. Based on the above mentioned facts we can explain that the active principle from Basti Dravyas inserted into the sigmoid colon via anus is absorbed through rectal veins and via portal vein it spreads to whole body and produces its effect.

- **Systemic Action of Basti:**

The *Virya* of *Basti* administered through the *Basti* into the *Pakvashaya* reaches the whole body through the channels (*Srotasa*), as the active principles in the water when poured at the root of the tree reaches the whole plant.

- **Eliminative or Purificative Action of Basti:**

*Basti* administered into *Pakvashaya* draws the *Dosha/Mala* from all over the body from the foot to the head by the virtue of its *Virya*, just as the sun situated in the sky draws the moisture from the earth by its heat.

- **Action of Basti on Vayu:**

*Vayu* is considered to be the main controller of the body. Now if *Vayu* alone or in combination with other *Dosha* get vitiated, then *Basti* by the way of evacuation or elimination normalizes the path of *Vayu* along with *Pitta, Kapha* and faecal matter.
Conclusion

BPH is age dependent disease which invariably manifests as man grow older as LUTS. LUTS are classified under two categories-

- **Obstructive Symptoms** (Intermittency, weak stream of urine, straining during urination)-These symptoms are caused by obstruction to the flow of urine due to pressure exerted over urethra either by enlarged prostate gland or prostatic spasm.

- **Irritative Symptoms** (Frequency of urination, urgency, nocturia, feeling of incomplete emptying)-These symptoms are caused by retained post void residual volume of urine either due to formation of post prostatic pouch in the bladder due to intra vesical projection of prostate or obstruction to the flow of urine.

- **Kaanchanra Gugglu** is significantly effective in controlling in obstructive symptoms however its efficacy was not observed in relieving the Irritative symptoms.

- **Yoga Basti** is significantly effective in controlling in obstructive symptoms as well as Irritative symptoms. Although its effectiveness is significant in relieving both type of symptoms, either obstructive or irritative but statistically it is more significantly effective in controlling the irritative symptoms than obstructive symptoms. Hence **Yoga Basti** is more effective than **Kaanchanar Guggulu** in the management of Vatashtheela Mutraghata

References

6. Shrilaxmipati Shastri, Yogaratnakara, Uttarardha, Chaukhambha publication, Chapter 8, Shloka 1-3, Page no. 60

Summary

Vataastheela Vrddhavastha me honane vali pramukh vadya he jo Aayurved Vaidham me vargita 92 prakar ke Mutraghata me se ek hae. Uchchh sha yadhna murtvah tanta ke Murtvarshah ko kulu 92 prakar ke Mutraghata ke rup me vargita kiya gaya hae. Murtv pratibhuti, Murtv Murtv nishkaran, Adhman Etdhadi vataastheela Mutraghata ke pramukh lakshan hae. Ye lakshan adhunik Chikitsa Vijnana me vargita Binaain Prosteakik Haidraplasa (BPH) ke niman murtvad shotas lakshan se mele khate hae. Antar vataastheela Mutraghata ko binain Prosteakik Haidraplasa se saha-samwadih kiya zala sakta hae. Adhunik Chikitsa Vijnana me ise vadya ke lakshan ke Chikitsa ke liye vishisht taraak ke veechad evam shast Chikitsa vishisht taraak ke paripatame ke saath pravartita hae. Aayurved me bhie ise vadya ke Chathita Chikitsa heut nisar vart sarusamvahe roh hae. Issi kram me ise Chikitsakulik Anusandhan me vataastheela de 30 roagio ke Chikitsa kaanchan gargulw aur yogan varti se ke hae. Sharanagrah sankirta me kaanchan gargulw guhadhar guharm de saah prabhat rong ke Chikitsa ke vargita hae. Sudrukt sankirta me vasit karm ko Mutraghata ke shodhan Chikitsa de rup me utsamat Chikitsa de rup me vargita kiya gaya hae. Iss Chikitsakulik Anusandhan me vataastheela de 30 roagio ke Chikitsa kaanchan gargulw aur yogan varti se ke hae. Fhir roagio ka Chikitsakulik Aankshan Antaragrdhik Prosteakik lakshan skorer, Jeevan ke guharm skorer, Prosteakik prabhat ke akakhir, Murtv nishkaran parchat mutraghata de sehat murtv ka aayatan, aur abhiyamant murtv prabhat dar de aayatan par kiya gaya hae. Chikitsa samapith ke parchat praat mahatvargun paripatame ka visleeran kar de ye nishkar nikaal gaya ke vataastheela Mutraghata ke Chikitsa kaanchan gargulw aur vasit karm de sahayata se utsamat rup se ke hae.
A Clinical Study on The Efficacy of Dashanga Haritaki and Tarpana in The Management of Timira With Special Reference to Myopia

*Dr. Renu Meena, **Dr. Prabhakar Vardhan

*Ayurveda Medical Officer, Govt. Ayurved dispensary Sadara, Distric- Ajmer,
**Assistant Professor, Department of Shalakya Tantra, National Institute of Ayurveda, Jaipur.

ABSTRACT

Vision is unarguably the most important of the five senses. Life without sight is unimaginable for those who have savoured the joys of visual splendour of the nature. Hence all sincere efforts should be made by men to protect the eyes, throughout the period of life. Timira is a disease, which starts with simple visual disturbance (avyakta darshana) but if unattended it may lead to complete loss of vision (linganaasha). On the basis of similarities in symptoms, involvement of anatomical structures, aetiology and prognosis, timira can be correlated with the refractive errors in general including myopia. Myopia or shortsightedness is a type of refractive error which is highly prevalent ophthalmic disease among the world. In Ayurveda, various treatment formulations are advocated for timira roga for enhancement of vision. Here dashanga haritaki/ triphala modaka was selected for present study along with local therapy of akshi tarpana with triphala ghrita. The clinical study was conducted on 30 subjects who were clinically diagnosed as timira (myopia) belonging to the age group of 8 to 40 year and randomly divided into two groups. For the diagnosis of timira subjective parameters like Avyakta-rupa-darshana (indistinct distance vision), Vihwala-darshana (blurred vision), Shirobhitapa (Headache), Netrayasa (Eye strain) and objective parameters like Visual Acuity/LogMAR, Value Autorefractometry/Retinoscopy, Keratometry, Ophthalmoscopy and A scan were used. The study was found to be very effective in controlling of myopia especially of low grade.

Keywords: Timira, Simple myopia, Dashanga haritaki/ Triphala Madaka, Tarpana.

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Address of Correspondence:
Dr. Renu Meena
Ayurveda Medical Officer,
Govt. Ayurved dispensary Sadara,
Distric- Ajmer
Email ID : renu.rajalwal1@gmail.com
Contact No : 9829367977
wealth\textsuperscript{[2]}. The diseases of eye were classified by 	extit{Sushruta} according to the site of lesion. Among them one group is known as 	extit{drishtigata rogas} which are responsible for visual impairment. 	extit{Timira} is one among the 	extit{drishtigata rogas} explained by all the Acharyas.

Myopia or short-sightedness is type of refractive error in which parallel rays of light coming from infinity are focused in front of the retina when accommodation is at rest. Myopia is a highly significant problem not only because of its high prevalence, but also because it can contribute to visual morbidity and increase the risk for vision-threatening conditions.

**Purpose of study:** Myopia is highly prevalent affecting at least 25\% of the adult population in the United States\textsuperscript{[3]} and is even more common in Asian countries, affecting up to 84\% of adolescents\textsuperscript{[4]}. Various surveys in India have found the myopia prevalence ranging from 6.9\% to 19.7\%\textsuperscript{[5],[6]}. In urban India, the prevalence of myopia is more as compare to rural\textsuperscript{[7],[8]}. Due to the significance of myopia as a global public health concern, it was chosen as a priority for Vision 2020, World Health Organization’s global initiative for the elimination of avoidable blindness by year 2020\textsuperscript{[9]}.

**Timira as a refractive error:** The progress of the disease 	extit{timira} has been mentioned in terms of involvement of successive patalas (layers of eye ball). When the vitiated 	extit{doshas} invade first 	extit{patala}, the patient complains of difficulty in distance vision\textsuperscript{[10]}. Accoding to acharya Vagbhatta, when the 	extit{malas} (doshas) moving in the 	extit{siras} get localized in the first 	extit{patala} the person sees the objects hazy and sometimes sees the objects clearly without any obvious causes\textsuperscript{[11]}. This is the common complaint of Myopia, hypermetropia, astigmatism and presbyopia of low diopteric deviation. When the vitiated 	extit{doshas} are situated in the second 	extit{patala} the patient complains confused visual perception and appearance of bees, flies, hairs\textsuperscript{[12]} etc. These symptoms are present in myopia also, where the degenerative changes occur. Appearance of distant objects as near and vice versa is mainly due to accommodative disorders. The inability to thread a needle denotes presbyopic changes and it is an age related accommodative failure. So considering these views, it can be concluded that 	extit{timira} at the stage of first and second 	extit{patala} involvement can be correlated to errors of refraction including myopia.

**Aims and Objective:**

1. To review the etiopathogenesis of 	extit{timira} in 	extit{Ayurveda} as well as in modern literature and to establish a correlation between 	extit{timira} and myopia.
2. To evaluate the efficacy of 	extit{dashanga haritaki} orally in patients suffering from 	extit{timira} (myopia).
3. To evaluate the efficacy of 	extit{tarpana} with 	extit{triphala ghrita} and 	extit{dashang haritaki} orally in patients suffering from 	extit{timira} (myopia).
4. To compare the efficacy of trial drugs.

**Materials and Methods:**

The approval from the institutional ethical committee (letter number F10(5)/EC/2014/7224 dated 7/11/2014) was obtained before starting the study. This clinical trial was also registered in Clinical Trials Registry of India (CTRI), Indian council of medical research (ICMR) before registration of first patient for trial.

**Sampling technique:** The patients were selected irrespective of caste, religion, income, sex, occupation etc. Random sampling technique via random number table was adopted.

**Inclusion Criteria:**

1. Patients presenting with signs and symptoms of 	extit{timira}, described as per Ayurvedic and modern science.
2. Patients diagnosed with simple myopia were selected for the trial.
3. Age between 8 to 40 years.

**Exclusion criteria:**

1. Patients having any other ocular pathology, e.g., cataract, corneal opacity, iridocyclitis, retinal disease etc.
2. Patients suffering from any systemic diseases.
3. Patients aged below 08 years and above 40 years.

4. Patients having a dioptre power more than 6.00 dioptre (Pathological myopia).

**Grouping of patients:** In the present study 32 clinically diagnosed patients of timira (myopia) were selected and randomly divided into two groups, out of these, 30 patients completed the trial.

**Group-A:** 16 patients of timira (myopia) were given dashanga haritaki/triphal modaka orally.

**Group-B:** 16 patients of timira (myopia) were triphala ghrita for tarpana and dashanga haritaki/ triphala modaka orally.

**Plan of Study:** Clinical study was accomplished in three phases:

1. **Diagnostic Phase:** Myopia patients were selected on the basis of clinical presentation and investigations and findings. These were recorded in the Performa prepared according to Ayurveda and modern parameters.

   (a) **Symptoms of patalgata timira (myopia):** Dosha predominance features, avyakta darshana, vihwala darshana and dwidha darshana were taken into account. Associated asthenopic symptoms e.g. headache, eye strain were also taken into consideration. Patient who complained such features were subjected to further diagnostic measures.

   (b) **Visual Acuity (Functional Examination of Eye):** Visual acuity was tested for distant and near objects. The visual acuity for distant central vision was tested by means of Snellen’s test chart with good illumination, kept at 6 meters distance from the patients. Each eye was tested separately without spectacle and with spectacle.

   (c) **External Examination:** A complete examination of lids, conjunctiva, sclera, cornea, iris, lens, pupil, lacrimal apparatus, ocular position and eye movements was done to rule out any abnormality.

   (d) **Haemogram:** Haemogram of all patients was done to know the level of Haemoglobin, E.S.R., TLC, DLC, RBS and Serum cholesterol was performed to know any active disease.

2. **Interventional Phase:** The study was intervened by the treatment with dashanga haritaki orally and triphal ghrita for tarpana.

**Drug schedule:**

A) **Dashanga haritaki**:

   **Dose:** 1 karsha (12gm) once a day orally for 30 days. Follow up done once in 15 days for a period of 45 days.

B) **Triphala ghrita** for tarpana:

   (a) **Purva karma:** Purification of body by triphala churana along with Snehana (dashmoola taila), swedana, nasya with 6-6 drops of anu taila followed by Kavala dharana with warm saline water for 3days.

   (b) **Pradhana karma:** Mild fomentation with cotton soaked in lukewarm water and Tarpana with triphala ghrita after 3 days of nasya.

   (c) **Paschata karma:** Eye is irrigated by lukewarm water fomentation. Then patient is advised to avoid direct exposure to excessive cold, heat, wind, lustrous and shiny things.

   **Duration:** 3 sittings of 5 days Tarpana each with interval of 5 days between the sittings (1000 vak matra/approx 30 min for each sitting).

   **Follow up:** Once in 15 days for a period of 45 days after completion of trial.

3. **Assessment phase:** For assessment of the efficacy of the trial therapy, following parameters were adopted-
Table I: Subjective Features and Their Grading

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<td>Dwidha Darshana/</td>
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</tr>
<tr>
<td>(Diplopia)</td>
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<td>Shiroobhitapa/</td>
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<td>Netrayasa/</td>
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<tr>
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<td>Netrasrava/</td>
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<td>Netradaha/</td>
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Objective parameters: Visual Acuity/LogMAR Value, Autorefractometry/Retinoscopy, Keratometry, Ophthalmoscopy and A scan were done to access the effect of therapy.

Observation and Results:

Table II: Effect of therapy in subjective parameters in Group-A (Wilcoxon matched paired single ranked test)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Subjective parameters</th>
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<th>% of Relief</th>
<th>S.D.</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Avyakta Darshana (30 eyes)</td>
<td>2.40</td>
<td>1.13</td>
<td>1.27</td>
<td>52.79</td>
<td>0.58</td>
<td>0.11</td>
<td>406</td>
</tr>
<tr>
<td>2</td>
<td>Vihwala Darshana/ Makshikadi abhuta dravya darshana (30 eyes)</td>
<td>0.47</td>
<td>0.07</td>
<td>0.40</td>
<td>85.71</td>
<td>0.50</td>
<td>0.09</td>
<td>78</td>
</tr>
<tr>
<td>3</td>
<td>Shiroabhitapa (15 patients)</td>
<td>1.07</td>
<td>0.13</td>
<td>0.93</td>
<td>87.47</td>
<td>0.46</td>
<td>0.12</td>
<td>91</td>
</tr>
<tr>
<td>4</td>
<td>Netrayasa (30 eyes)</td>
<td>1.80</td>
<td>0.53</td>
<td>1.27</td>
<td>70.39</td>
<td>0.58</td>
<td>0.11</td>
<td>406</td>
</tr>
</tbody>
</table>
Table III: Effect of Therapy in Objective Parameters in Group-A (Student Paired’t’ Test)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Objective parameters</th>
<th>Mean Score</th>
<th>% of Relief</th>
<th>S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>LogMAR value (30 eyes)</td>
<td>0.86</td>
<td>0.75</td>
<td>0.11</td>
<td>13.35</td>
<td>0.12</td>
<td>0.02</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2</td>
<td>K₁ (30 eyes)</td>
<td>42.81</td>
<td>42.91</td>
<td>-0.09</td>
<td>0.22</td>
<td>0.27</td>
<td>0.05</td>
<td>0.0612</td>
</tr>
<tr>
<td>3</td>
<td>K₂ (30 eyes)</td>
<td>43.38</td>
<td>43.53</td>
<td>-0.15</td>
<td>0.34</td>
<td>0.37</td>
<td>0.07</td>
<td>0.0375</td>
</tr>
<tr>
<td>4</td>
<td>A Scan (30 eyes)</td>
<td>23.42</td>
<td>23.43</td>
<td>-0.01</td>
<td>0.05</td>
<td>0.25</td>
<td>0.04</td>
<td>0.8093</td>
</tr>
<tr>
<td>5</td>
<td>Dioptric power/ clinical refraction (30 eyes)</td>
<td>-1.56</td>
<td>-1.50</td>
<td>-0.07</td>
<td>4.27</td>
<td>0.11</td>
<td>0.02</td>
<td>0.0029</td>
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Table IV: Effect of Therapy in Subjective Parameters in Group-B (Wilcoxon Matched Paired Single Ranked Test)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Subjective parameters</th>
<th>Mean Score</th>
<th>% of Relief</th>
<th>S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Avyakta Darshana (30 eyes)</td>
<td>2.53</td>
<td>0.67</td>
<td>1.87</td>
<td>73.71</td>
<td>0.63</td>
<td>0.11</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2</td>
<td>Vihwala Darshana/ Makshikadi abhuta dravya darshana (30 eyes)</td>
<td>0.60</td>
<td>0.07</td>
<td>0.53</td>
<td>88.88</td>
<td>0.51</td>
<td>0.09</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>3</td>
<td>Shiroabhitapa (15 patients)</td>
<td>1.13</td>
<td>0.20</td>
<td>0.93</td>
<td>82.37</td>
<td>0.46</td>
<td>0.12</td>
<td>0.0002</td>
</tr>
<tr>
<td>4</td>
<td>Netrayasa (30 eyes)</td>
<td>1.93</td>
<td>0.47</td>
<td>1.47</td>
<td>75.89</td>
<td>0.51</td>
<td>0.09</td>
<td>0.0001</td>
</tr>
</tbody>
</table>

Table V: Effect of Therapy in Objective Parameters in Group-B (Student Paired’t’ Test)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Objective parameters</th>
<th>Mean Score</th>
<th>% of Relief</th>
<th>S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>LogMAR Value (30 eyes)</td>
<td>0.79</td>
<td>0.52</td>
<td>0.27</td>
<td>34.30</td>
<td>0.13</td>
<td>0.02</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>2</td>
<td>K₁ (30 eyes)</td>
<td>43.40</td>
<td>43.46</td>
<td>-0.06</td>
<td>0.13</td>
<td>0.29</td>
<td>0.05</td>
<td>0.2816</td>
</tr>
<tr>
<td>3</td>
<td>K₂ (30 eyes)</td>
<td>44.00</td>
<td>43.97</td>
<td>0.03</td>
<td>0.07</td>
<td>0.25</td>
<td>0.05</td>
<td>0.5210</td>
</tr>
<tr>
<td>4</td>
<td>A Scan (30 eyes)</td>
<td>23.29</td>
<td>23.25</td>
<td>0.03</td>
<td>0.15</td>
<td>0.28</td>
<td>0.05</td>
<td>0.4967</td>
</tr>
<tr>
<td>5</td>
<td>Dioptric power/ clinical refraction (30 eyes)</td>
<td>-1.58</td>
<td>-1.41</td>
<td>-0.17</td>
<td>11.05</td>
<td>0.13</td>
<td>0.02</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>
Meena R, Vardhan P, A Clinical Study on The Efficacy of Dashanga Haritaki and Tarpana in The Management of Timira With Special Reference to Myopia, JOA XIII-2, 2019; 67 - 75

Table IV: Intergroup Comparison Of Subjective Parameters Of Timira (Myopia) (Mann Whitney Test)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Subjective parameters</th>
<th>Mean</th>
<th>S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>G_A</td>
<td>G_B</td>
<td>G_A</td>
<td>G_B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Avyakta Darshana (30 eyes)</td>
<td>1.27</td>
<td>1.87</td>
<td>0.58</td>
<td>0.63</td>
<td>658</td>
<td>0.0007</td>
</tr>
<tr>
<td>2</td>
<td>Vihwala Darshana/Makshikadi abhuta dravya darshana (30 eyes)</td>
<td>0.40</td>
<td>0.53</td>
<td>0.50</td>
<td>0.51</td>
<td>510</td>
<td>0.3088</td>
</tr>
<tr>
<td>3</td>
<td>Shiroabhitapa (15 patients)</td>
<td>0.93</td>
<td>0.93</td>
<td>0.46</td>
<td>0.46</td>
<td>112.50</td>
<td>0.9763</td>
</tr>
<tr>
<td>4</td>
<td>Netrayasa (30 eyes)</td>
<td>1.27</td>
<td>1.47</td>
<td>0.58</td>
<td>0.51</td>
<td>526</td>
<td>0.1987</td>
</tr>
</tbody>
</table>

Table VII: Intergroup Comparison Of Objective Parameter Of Timira (Myopia) (Student Unpaired ‘t’ Test)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Objective parameters</th>
<th>Mean</th>
<th>S.D.</th>
<th>S.E.</th>
<th>W</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>G_A</td>
<td>G_B</td>
<td>G_A</td>
<td>G_B</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>LogMAR value (30 eyes)</td>
<td>0.11</td>
<td>0.27</td>
<td>0.12</td>
<td>0.13</td>
<td>4.83</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>2</td>
<td>K_1 (30 eyes)</td>
<td>-0.09</td>
<td>-0.06</td>
<td>0.27</td>
<td>0.29</td>
<td>0.51</td>
<td>0.6080</td>
</tr>
<tr>
<td>3</td>
<td>K_2 (30 eyes)</td>
<td>-0.15</td>
<td>0.03</td>
<td>0.37</td>
<td>0.25</td>
<td>2.17</td>
<td>0.0341</td>
</tr>
<tr>
<td>4</td>
<td>A Scan (30 eyes)</td>
<td>-0.01</td>
<td>0.03</td>
<td>0.25</td>
<td>0.28</td>
<td>0.68</td>
<td>0.4999</td>
</tr>
<tr>
<td>5</td>
<td>Dioptic power/ clinical refraction (30 eyes)</td>
<td>-0.07</td>
<td>-0.17</td>
<td>0.11</td>
<td>0.13</td>
<td>3.40</td>
<td>0.0012</td>
</tr>
</tbody>
</table>

Discussion:

Maximum patients were found between 17-32 years of age. Most of the patients were students belong to urban areas having positive family history. The patients selected for study were in the age group of 8-40 years because according to our acharayas nasya karma is essential before tarpana karma for shiras shuddhi and nasya karma is indicated after 7 years of age or after 8 years of age while above 40 year the disease prevalence is less. Previous studies shows that the near work and education highly correlate with myopia, in this study we also found the same.

Effect of therapy on subjective parameters:

1. Effect on avyakta darshana (30 eyes): Relief in the symptom of avyakta darshana was observed 52.79% in Group A (p<0.0001) (Table 2), and 73.71% in Group B (p=0.0001) (Table IV), All these values were statistically extremely significant. However there was extremely significant difference between BT and AT scoring of two groups (p=0.0007), even though Group B showed 20.92% more relief than Group A (Table VI). As this symptom was assessed on subjective feeling of visual improvement, indicated the combined effect of tarpana and dashanga haritaki is better than only dashanga haritaki on visual feeling.

2. Effect on vihwala darshana/makshikadi abhuta dravya darshana (30 eyes): Relief in the symptom of vihwala darshana/makshikadi abhuta dravya darshana was observed 85.71% in group A (p=0.0005) (Table 2) and 88.88% in Group B (p<0.0001) (Table IV) and all these values were statistically extremely
significant. However there was no significant (P=0.3088), difference was found between BT and AT scoring of two groups, even though Group B showed 3.71% more relief than Group A (Table VI).

3. Effect on shiroabhitapa (15 patients): Relief in the symptom of shiroabhitapa was observed 87.47% in group A (p=0.0002) (Table II), and 82.37% in group B (p=0.0002) (Table 4) and all these values were statistically extremely significant. However there was no significant difference (p=0.9763) between BT and AT scoring of two groups, even though Group A showed 5.1% more relief than Group B (Table VI).

4. Effect on netrayasa (30 eyes): Relief in the symptom of netrayasa (70.39%) was observed in group A (p=0.0001) (Table II), and 75.89% in group B (p=0.0001) (Table 4) and all these values were statistically extremely significant. However there was no significant difference between BT and AT scoring of two groups (p=0.1987), even though Group B showed 5.5% more relief than Group A (Table VI).

On the basis of above results we can say that the improvements in the subjective feeling are same in both groups except avyakta darshana. Therefore we can infer that the drug dashanga haritaki is very effective for the improvement of subjective feeling like vihwala darshana/makshikadi abhuta dawya darshana, shiroabhitapa, netrayasa etc and specially tarpana have very good result in the improvement of avyakta darshana.

This effect was achieved due to toning up of eye musculature as well as good rasa and rakta circulation under the drug effect. Drugs having chakshushya and rasayana effects must have diminished vihwala darshna and other symptoms. The symptom like netrayasa was relieved due to good nutritional substance in the drug and proper nourishment of dhatu thus, getting rid of the fatigue factor.

Effect of therapy on objective parameters:

Effect on LogMAR value (30 eyes):

Statistically extremely significant relief were found in LogMAR value was observed 13.35% in Group A (p<0.0001) (Table 3), and 34.30% in Group B (p<0.0001) (Table 5). However there was extremely significant difference between BT and AT scoring of two groups (p<0.0001) with Group B showing 20.95% more relief than Group A (Table VII).

Group A- Drug dashanga haritaki contains triphala, yastimadhu and satavari, these herbs are described in chakhushya varga in Ayurveda texts thus these drugs are very helpful in restoration of vision. Triphala also has rich in rasayana property. Loha bhasma and vanga bhasma have very good rasayana which are increase dhatu. So these drugs are very effective in timira.

Group B- In this group the drug have all the systemic effect like group A and tarpana has topical effect on the eye. So these two methods worked in a synergistic manner and have better results than group A. The above result showed that tarpana with triphala grita is effective in improving the unaided visual acuity.

Effect on K1 (30 eyes): In this trial insignificant result was observed in K1 in intra group comparison before treatment and after treatment. In inter group comparison insignificant difference was observed in K1.

Effect on K2 (30 eyes): On intra group comparison significant result (p=0.0375) was observed in K2 in group A, while it was insignificant in group B. In inter group comparison significant difference (p=0.0341) was observed in K2. In this study significant difference was observed only in K2 while on K1 it was insignificant. On the basis of these finding we cannot infer that the corneal curvature was altered by tarpana or dashanga haritaki as the sample size was small.

Effect on A scan (30 eyes): In this trial insignificant result were observed in A Scan in intra group comparison before treatment and after treatment. In inter group comparison insignificant differences were observed in A Scan.

Effect on dioptric power/ clinical refraction:

On intra group comparison, effect on dioptric power/ clinical refraction was found to be very significant result (p=0.0029) in group A (4.27%) (Table 3), while it was
extremely significantly (p<0.0001) in group B (11.05%) (Table V). However there was very significant difference between two groups (p=0.0012) statistically with Group B showing 6.78% more relief than Group A (Table VII).

**Effect of therapy on laboratory parameters:** In this trial insignificant result were observed in Hb, TLC, neutrophils, lymphocytes, eosinophils, monocytes, ESR and serum cholesterol in intra group comparison. In random blood sugar significant differences (P=0.0149) were observed in group A but the variation in blood sugar is within the normal range so this result is not having any clinical significance, while in group B it was statistically insignificant. Therefore we can assume that the drug *dashanga haritaki* and *tarpana* have no effect on these laboratory parameters.

Clinically eye ailments are managed via topical and systemic measures. Among these the topical applications play essential role, may be due to the limitation of systemic formulations inability of reaching the target organ due to blood ocular barriers. With the advent of science it has been proved that the systemic medicines are unable to cross the blood-retinal barriers so topical applications are unavoidable in ophthalmology.[18] Among the many contributions of *Ayurveda* in drug delivery system “kriyakalpa,” has a very superior position as it is tissue targeted, fast acting, simple but innovative method of drug administration to various parts of eyes including the posterior segment, the optic nerve and visual pathway also. In this study the group B have better results because in this group we have used both systemic and topical therapy.

**Conclusion:**

- On the basis of similarities in symptoms, involvement of anatomical structures, aetiology and prognosis, *timira* can be correlated with the refractive errors in general including myopia.
- The study shows that *dashanga haritaki* (orally) alone was effective in alleviating symptoms of *timira* (simple myopia) but combination of the drug *dashanga haritaki* and *triphala ghrita* (tarpana) had much greater potential to ameliorate the symptoms of *timira* (simple myopia).
- The study showed that local therapy combined with systemic therapy give better result in *timira* (simple myopia).

**References**

13. Vrindamadhava, Edited and translated by Dr. Premvati Tewari,
Meena R, Vardhan P, A Clinical Study on The Efficacy of *Dashanga Haritaki* and *Tarpana* in The Management of *Timira* With Special Reference to Myopia, JOA XIII-2, 2019; 67 - 75


**Saransh**

पांच इन्द्रियों में दृष्टि निर्माण सबसे महत्वपूर्ण है। दृष्टि के बिना जीवन की कल्पना करना मुश्किल है, इसलिए मनुष्य द्वारा संपूर्ण जीवन भर नैत्र की सुधार के समय प्रयास जितने जितने नहीं होते हैं। लक्षण, संरचना तथा सहायता अपने आप पर किसी दो दोष से दृष्टि की जब आगे आएगी है। निकटाः दोष एक परार्थना जन्य दोष है जोकी आजकल समसूर्ण विष में शीघ्रता से फैल रहा है। आयुर्वेद में तितितिर दोष के लिए बहुत सी आयुर्वेदियों बताई गई है जो कि निकटाः दोष को दूर करती है। इस शोध कार्य में तितितिर दोष के लाभकारी लक्षणों के साथ विज्ञानीय एक्शन, रेटिनालीकरण, कड़ी चुनावी प्रयोगों एवं ए-रेटिना द्वारा ग्रहण रोगीयों का निर्धारण कर 8 से 40 वर्ष तक की आयु के 30 रोगीयों को दो समूहों में विभाजित कर शोध किया गया। समूह “A” को दशांग हरितकी एवं समूह “B” को दशांग हरितकी तथा तर्पणायण जितला धूत का प्रयोग कराया गया। यह शोध कार्य निकटाः दोष (तितितिर से) की गाराम्बिक अवस्था में ज्यादा प्रभावी पाया गया।
A Clinical Study of Efficacy of Snuhayadi Tailam on Khalitya

*Dr. Rohit Kumar Khatik, **prof. Anita Sharma

*Ayurveda Medical Officer, Dept. of Agad Tantra, Govt. Ashtang Ayurveda College, Indore (M.P.)

**Professor, Department of Agad Tantra, National Institute of Ayurveda, Jaipur.

ABSTRACT

In Ayurveda medical science, gradual falling of hair is termed as Khalitya. Today’s life style is very poor from health point of view because of lack of nutritional diet, unhealthy food and manner of diet, improper sleep polluted environment and Genetic cause also. The basic principle of pathogenesis of Khalitya, is Dushti of Chatur dosha elevated Pitta along Vata Dosha and Rakta kapha Dushti. Snuhayadi Tailam is indicated in Khalitya (hairs fall) as local application on scalp. The contents of Snuhayadi Tailam have Laghu, Rukhsha, Tiksna, Katu, Ushna, Kushthaghna, Krimighana properties can help the breakdown the pathogenesis of Khalitya. Shiro-Abhyanga is one of the types of Murdha Taila means (direct application of medicated oil on scalp). Shiro Abhyanga is done on 45 patients of Khalitya for 60 days in 5 ml per day dose with follow up of every 15 days. Patients having following signs and symptom Keshashatan (hair falls), Kesharukshatava (roughness), Daurnaka (dandruff), Keshabhumikandu (itching on scalp) and hair pull test. Result found 12 (26.6%) patients showed marked improvement, 14 (31.1%) patients showed moderate improvement, 13 (28.8%) patients showed mild improvement and 6 (13.3%) patient remain unchanged.

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Address of Correspondence:

Dr. Rohit Kumar Khatik
Ayurveda Medical Officer,
Dept. of Agad Tantra
Govt. Ayurved dispensary Sadara, Distric- Ajmer
Email ID : drrohitnia@gmail.com
Contact No : 9691191648

Keywords: Khalitya, Snuhayadi Tailam, Shiroabhyanga

Introduction:

Hair is one of the most important organs of body with cosmetic importance. Healthy hairs are not improves only personality as well as also cause of attraction. But nowadays hair fall is very common ailments in any age and any sex. Unfortunately no reliable or complete successful curative treatment is established. For better treatment of hair fall are under study and many research in process in every field of medicine. In the field of Ayurved some work on Khalitya was done by Charak in Aaravadhiiya Adhayaya[6], Sushrut in Kshudraroga[2], Ashtanga Samgrah in Shirokapalgat Vyadhi[3], Acharya Chakrapani also described Khalitya as kshudraroga in Chakradatta. Samprapti (Pathogenesis) of khalitya
is well defined by Aacharya Sushruta in Kshudravaga in NidanSthan as stated “Pitta situated in hair follicles and associated with vata falls hairs, thereafter kapha mixed with rakta creates obstruction therein resulting in non-appearance of others”. Shiroy-Abhyanga is one of the types of Murdha Taila means direct application of medicated oil on scalp. The study drug Snuhayadi Tailam was selected from Chakradatta which is indicated in Kshudra Roga Chikitsa. Chakradatta is one of the practical book of Ayurved which include as clinical experience by Acharya Chakrapani in eleven century. Ingredients of Snuhayadi Tailam are Snhu, Arka, Bhringaraj, Langali, Vatsanabh, Gunja, Indravaruni, Sarsup Tail, Gomutra and Ajamutra. It is multi herbal preparation, theoretically possible Ayurvedic qualities are Usna, Tikshna, Katu, Laghu, Sukshma, Vikashi, and may have potency to breakdown of Khalita pathogenesis.

Aims and Objective

This study has these objectives:

1. Re-evaluation of effect of Snuhayadi tailam on Khalita
2. Re-evaluation of claim of Chakradutta of 11th century about Snuhayadi Tailam

Materials and method

These are embodied as materials for the presented study

- Research proforma to note all in information clinical Symptoms & sign demographic.
- Test drug is Snuhayadi tailam
- The Snuhayadi tailam was prepared in the pharmacy of N.I.A. Jaipur.
- Plan of study- It was an open trial method.
- This study approved by Institutional Ethics Committee (Letter No. F10/5/EC/2014/7222 date 07/11/2014 And F/Agad Tantra/PG/2016/230 date 26.03.2016)

A. Selection of cases

Source - For the present study patients with Khalita were screened out from OPD & IPD of NIA, Jaipur.

Age group - Patients of all age groups were considered for study.

Number of cases - 45 Patients was registered from OPD & IPD of NIA Jaipur.

B. Criteria of patient selection

Inclusion criteria

- Patient of Khalita specially affected on scalp.
- Patients having following signs and symptoms
  - Keshashatan (hair fall)
  - Kesarukshatava (roughness)
  - Daurnaka (dandruff)
  - Keshabhumikandu (itching on scalp)
- Patients of any age groups.
- Patients of either sex.
- Patient willing for the treatment.

Exclusion criteria

- Patient associated with other systemic disorder will be excluded.
- Alopecia totalis and Alopecia universalis patients will be excluded.
- Cicatricle alopecia patients will be excluded.

Discontinuation criteria

- Patient not willing to continue.
- Appearance of any severe complication.
- Any other severe acute illness.

Side effect and adverse effect assessment criteria

To rule out the possible adverse effect of studied drug, clinical criteria were adopted. It incorporate the records of information from the patient on each & every follow up, related to the features as swelling, redness, pain, blister formation, severe itching, hair fall after the application of the drug & other nonspecific symptoms.

Management of Patients

All the patients selected for the clinical trial were
prescribed following regimen

✓ Oil- Snuhyadi Tailam (local application)
✓ Dose- 5 ml per day
✓ Duration- 60 days
✓ Followed up- every 15 days

Criteria for assessment

Cessation of hair fall was counted as a main feature to assess the effect of therapy. Other associated symptoms like Kesharuskshatva, Darunaka and Keshabhoomi kandu, were also considered but main emphasis was laid on the stoppage of hair fall. To facilitate the statistical analysis of the effect of therapy, scoring system was adopted.

A. Subjective criteria- Some grading included here

i. Keshshatan (hair fall)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Absent (no hair fall)</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Mild (hair fall on washing)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Moderate (hair fall on combing)</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Severe (hair fall without any manipulation)</td>
<td>3</td>
</tr>
</tbody>
</table>

ii. Kesharukshatava (dry hair)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Smooth hair</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Mild dry hair</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Moderate dry hair</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Severe dry hair</td>
<td>3</td>
</tr>
</tbody>
</table>

iii. Darunaka (dandruff)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No dandruff</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>Mild dandruff</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>Moderate dandruff</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>Severe dandruff</td>
<td>3</td>
</tr>
</tbody>
</table>

iv. Keshbhumi kandu (itching on scalp)

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No itching on scalp</td>
</tr>
<tr>
<td>1</td>
<td>Mild itching on scalp</td>
</tr>
<tr>
<td>2</td>
<td>Moderate itching on scalp</td>
</tr>
<tr>
<td>3</td>
<td>Severe itching on scalp</td>
</tr>
</tbody>
</table>

v. Hair pull test

<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No hair in test</td>
</tr>
<tr>
<td>1</td>
<td>1-5 hair in test</td>
</tr>
<tr>
<td>2</td>
<td>6-15 hair in test</td>
</tr>
<tr>
<td>3</td>
<td>Above 16 hair in test</td>
</tr>
</tbody>
</table>

Assessment of total effect

Assessment Score

✓ Complete Cure 100%
✓ Marked Relief > 60%
✓ Moderate response > 40-60%
✓ Mild improvement > 20-40%
✓ No response ≤ 20%

General Observations

Various demographic parameters viz. age, religion, marital status, socio-economic status, occupation etc. along with specific features of nature of work, chronicity, nidana, hair care etc. were analyzed in the present trial.

Statistical Analysis

Data were analyzed using appropriate statistical test. For Nonparametric Data Wilcoxon matched-pair signed rank test was used and results calculated.

Table no.I Statistical Analysis of Effect of Snuhayadi Tail on Cardinal Symptoms of Khalitya In 45 Patients

<table>
<thead>
<tr>
<th>Cardinal Sign and Symptoms</th>
<th>B.T. Mean</th>
<th>A.T. Mean</th>
<th>Mean Diff.</th>
<th>% Relief</th>
<th>SD</th>
<th>SE</th>
<th>P</th>
<th>W</th>
<th>Significance</th>
</tr>
</thead>
</table>

Journal of Ayurveda Official publication of National Institute of Ayurveda, Jaipur, Rajasthan
Khatik RK, Sharma A, A Clinical Study of Efficacy of Snuhayadi Tailam on Khalitya, JOA XIII-2, 2019; 76 - 81

Table No.II Overall Effect Of Therapy In 45 Patients Of Khalitya

<table>
<thead>
<tr>
<th>Effect</th>
<th>No. of Patients</th>
<th>Percentage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Markedly improvement</td>
<td>12</td>
<td>26.6%</td>
</tr>
<tr>
<td>Moderate improvement</td>
<td>14</td>
<td>31.1%</td>
</tr>
<tr>
<td>Mild improvement</td>
<td>13</td>
<td>28.8%</td>
</tr>
<tr>
<td>Unchanged</td>
<td>06</td>
<td>13.3%</td>
</tr>
</tbody>
</table>

Discussion

Ancient samhitas contain many references relating the treatment of Khalitya. It is the need of the hour to have evidence based approach to these therapeutic formulations mentioned in our ancient samhitas. In view of globalization, the therapeutic agents used for treatment should be safe, easily available, cost-effective and free from toxicity.

In such circumstances, for the treatment of khalitya which has a high prevalence in the society, Snuhayadi Taila preparation prescribed by Chakradutta (55/104-106) has been selected. Ingredients of Snuhayadi Tailam have theoretically possible properties Usna, Tikshna, Katu, Laghu, Sukshma, Vikashi, and pharmacological properties like Keshya, Vishaghna, Daurgandhyahara, Jantughna and Kandughna. The qualities have potency to breakdown of Khalitya’s pathogenesis.

Table no. III

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Name of drugs</th>
<th>Possible properties to breakdown the pathogenesis of khalitya</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Snuhi Ksheer</td>
<td>Vishaghna, Raktashodhak, Twagadoshahar</td>
</tr>
<tr>
<td>2</td>
<td>Arka Ksheer</td>
<td>Kushtaghna, Jantughna, Keshya,</td>
</tr>
<tr>
<td>3</td>
<td>Bhringraj</td>
<td>Sweadjanan, Twachya, Kshudraroganashak, Keshya</td>
</tr>
<tr>
<td>4.</td>
<td>Langali</td>
<td>Krimighna, Kshobhak, Raktashodhaka</td>
</tr>
<tr>
<td>5.</td>
<td>Vatsnabha</td>
<td>Sweadajanan, Kushtagna</td>
</tr>
<tr>
<td>6.</td>
<td>Gunja</td>
<td>Kushtagna, Keshya, Twachya, Vishaghna</td>
</tr>
<tr>
<td>7.</td>
<td>Indravaruni</td>
<td>Keshya, Vishaghna, Khalityanashak</td>
</tr>
<tr>
<td>8.</td>
<td>Sarsup tail</td>
<td>Kushtagna, Jantughna, Kandughna, Varnya</td>
</tr>
<tr>
<td>9.</td>
<td>Gomutra</td>
<td>Kushtagna, Krimighna, twagadoshaghna</td>
</tr>
<tr>
<td>10.</td>
<td>Ajamutra</td>
<td>Twagadoshaghna</td>
</tr>
</tbody>
</table>

**Probable Mode Of Drug Action**

Ayurveda pharmacology is based on the theory of Rasa, Guna, Virya, Vipaka and Prabha (Rasapanchaka) which is the simplest parameters in those days to ascertain the action of the drug. *Samprapti Vigahatana* is said to be the treatment. Therefore the drug should dismantle the *Samprapti Ghataka* so as to treat the disease.

**Samprapti Vigahatana**

**On the basis of Rasa**

Tikta and katu rasa are present in maximum drugs. Tikta rasa has Keshya, Kledashoshaka and Chhedana properties. The Katu Rasa has Kaphashamak, Srotovis-pharaka (clears the obstruction in channels), Kandughna and Jantughna properties. By virtue of these properties katu and tiktaraasa pacifies the vitiated kapha and facilitates the process of Shrotosodhana.

**On the basis of Virya**

Maximum drugs including Sarshup Taila have Ushna Virya. Ushna Virya has Vatakaphashamaka properties and also causes Kledavishyandana.

**On the basis of Vipaka**

The drug has Madhura Vipaka and does Vatashanamak.

**On the basis of Guna**

Maximum contents have Laghu, Tikshan and Snigdha property. Laghu and tikshna, guna acts on vitiated Kapha while Snigdha Gunas have Vatashamak properties, ushna Viryatva, Laghu, Tikshna Gunas of drug are helpful in removing the obstruction of the Shrotas by decreasing the Picchila Gunas of Kapha and facilitating the process of Kapha Vishyandana. It results in clearing up of the obstruction caused by vitiated Kapha so as to offer growth of new hair. Ushna Virya and Madhura Vipaka also does Vata Shaman.

Vishaghna, Kandughna and Jantughna property removes the local infection and helps in checking the hair fall and thus help in cessation of the further process of Khalitya. The application of Taila on the scalp with finger tips leads to increase the local blood circulation and promotes the absorption of the drug.

**Conclusion**

1. Snuhayadi Tailam is found effective on Khalitya (P value 0.0132). In symptom Keshashatan, it is found significant. Application of Snuhayadi Tailam showed highly significant result in Kesharuksana (roughness of hair). Application of Snuhayadi Tailam is found highly significant in Darunaka (dandruff) and Keshabhumi Kandu (itching on scalp). In hair pull test, the result was found significant.

2. The present study support the claim of Chakradutta about application of Snuhayadi Tailam in 11th century.

**References**


5. Tripathi Brahmanand, Astang Hridayam Nirmala Hindi commentary, Chaukhamba Sanskrit Pratishthan Delhi, reprint edition 2003, p; 260

6. TripathiIndradev, Vaidyaprabha Hindi Commentary of Chakra-
सारांश
आयुर्वैदिक चिकित्सा विज्ञान में केंद्रों के क्रमिक निर्माण का खालित्व कहा गया है। आज की जीवन शैली में इसके निदान में मुख्यतः पोषण विभीषण खाद्य-पदार्थ, अविचि पूर्वक आहार सेवन, अनिति, प्रदूषित वातावरण एवं आनुवाषिकता है। खालित्व के सम्बन्ध में त्रिदोष के साथ-साथ भी दूषित होता है। अध्ययन औषधि के रूप में सनुहादि तेल का स्थानिक प्रयोग किया गया।

सनुहादि तेल के आयुर्वैदिक गुणकर्म लघु, रक्त, शीतल, कटु, उष्ण, कुटुंबन, क्रिमिन है, जो कि खालित्व संप्राप्ति विधान में सहायक है। अध्ययन हेतु 45 रोगी को 60 दिवस के लिये, शिरोअम्बर एवं दिया गया तथा खालित्व के साथ-साथ केंद्रक्षता, दारुणक, केंद्रमूमकण, हेपर-पुल टेस्ट का भी अध्ययन किया गया, जिसमें परिणाम सार्थक पाये गये।
A randomized open clinical study on the efficacy of Vamana karma, Virechana karma and Parisheka with Siddharthak Snanokta dravya in the management of Mandal kustha w.s.r. to psoriasis

*Dr. Sarvesh kumar singh, **Dr. Kshipra rajoria, ***Dr. Satyapraksh Insaan, ****Dr. Anurag Kushal, *****Dr. Krishna Gupta

*Assistant professor, ** Lecturer, Department of Panchkarma, National Institute of Ayurveda, Jaipur, ***Ayurvedic Medical Officer, Rajashtan Government, ****PG Scholar, ***** PG Scholar, Department of Panchkarma, National Institute of Ayurveda, Jaipur

ABSTRACT

Context - Psoriasis is a major skin disease prevalent in India. There is no satisfactory management available in modern medicine. This skin disease is treated on the line of management of Kustha (psoriasis) since a long time. Here an effort was made to evaluate the Ayurvedic classical method to manage the Mandal kustha w.s.r. to psoriasis. Aims and Objective - The primary aim of the study was to evaluate the individual efficacy of Vamana karma, Virechana karma and Parisheka with Siddharthak snanokta dravya in the management of Mandal kustha w.s.r. to psoriasis. Material and Method - Total 30 patients of either sex were randomly allocated in 3 groups comprising 10 patients in each of the group. In Group A Vamana karma, in Group B Virechana Karma and in Group C Parisheka with Siddharthak snanokta dravya were done. In Group A and Group B trial duration was upto the completion of Sansarjan karma. The dose of Siddharthak snanokta dravya was 160 ml for Vamana karma and 80 ml for Virechana karma. In group C whole body Parisheka for 1 hour was done for 21 days. Outcome assessment - Outcome was assessed on PASI scoring. Wilcoxon test and ANOVA (Kruskal Wallis test) were used for statistical analysis. Result - Significant result was found in all the groups. Group A was most effective then Group B and Group C. Group B was more effective than Group C. Conclusion - Mandal kustha can be better managed with Ayurvedic treatment. Siddharthak snanokta dravya are useful in the treatment of Mandal kustha by Shodhan karma and Parisheka.

Keywords: Mandal kustha, Parisheka, Siddhartha snanokta dravya, Vamana karma, Virechana karma

Address of Correspondence:

Dr. Sarvesh Kumar Singh
Assistant professor,
Dept. of Panchkarma
National Institute of Ayurveda, Jaipur
Email ID : sarveshksingh21@gmail.com
Contact No : 8739860237

How to Site the Article : Singh SK, Rajoria K, Insaan S, Kushal A, Gupta K, A randomized open clinical study on the efficacy of Vamana karma, Virechana karma and Parisheka with Siddharthak Snanokta dravya in the management of Mandal kustha w.s.r. to psoriasis, JOA XIII-2, 2019; 82 - 87
Introduction:
Psoriasis is a papulo squamous disorder of the skin, characterized by sharply defined erythemato-squamous lesions. It is notoriously chronic and is well known for its course of remission and exacerbation. It affects 3.5% of the world’s population in a time span[^1]. In India, the prevalence of psoriasis varies from 0.44% to 2.8%; it is twice more common in males compared to females, and most of the patients are in their 3rd or 4th decade at the time of presentation.[^2]

Ayurveda texts do not give a direct reference towards a single disease which can be compared with psoriasis. Many entities like Kitibha, Charmadala, Ek-Kusthaand Mandal kushtaare compared with it. Further Mandal kushta is stated to be Tridoshaja with the dominance of Kapha dosha.[^3] The description & characteristic features of Mandal kushta are near to the Psoriasis. Mandal kushta consists of the signs and symptoms i.e. Suklarakta abhivasani (erythematous papules or plaques), Sukla rom-rajisantanini (silvery scale), Stayana and Utsana (induration), Mandala or Parimandal (circular patches), Ananonya sansatat mandala (patches joined with each other), Kandu (May be attended with itching), Krichhasadhya (difficult to treat)[^4][^5] which can be compared with psoriasis and hence it had been taken as the analogue to psoriasis in the present research work. The present study was designed to assess the individual and relative efficacy of Vamana, Virechana and Parisheka in Mandal kushta using Siddharthak snanokta dravya.

Materials and Methods:
In this study 30 patients, satisfactory fulfilling the inclusion criteria for Mandal kushta were randomly placed in three groups of 10 patients each from O.P.D. and I.P.D. wing of P.G. Department of Panchakarma, National Institute of Ayurveda Jaipur. An elaborate case taking proforma was specially designed for the purpose of incorporating all aspects of the disease in the Ayurvedic and modern parlance. All the Patients fulfilling the diagnostic criteria of age range between 16-70 years of Mandal kushta irrespective of religion, age, sex, Occupation etc., with controlled Hypertension and DM type-2 were included in the study, after assessing their fitness for Vamana, Virechana and Parisheka karma. Patients below 16 years and above 70 years were excluded. The other criteria of exclusion were active Tuberculosis, paralysis, Renal disorders and malignant disease, Pregnant women, lactating mother, uncontrolled Hypertension, cardiac problem, Diabetes Mellitus, unfitness for Vamana, Virechana and Parisheka Karma. To rule out exclusion criteria investigations carried out were Hb%, TLC, DLC, Erythrocyte Sedimentation Rate, Blood Sugar( FBS,PP), Urine examination (Routine and Microscopic), Renal Function Test (Blood Urea, S. Creatinine), Lipid Profile (S. Triglycride, S. Cholesterol). Protocol was approved by the Institutional Ethical Committee of N.I.A. Jaipur. Prior Written informed consents were taken from each patient. Improvement was assessed on PASI Score (Psoriasis Area & Severity Index score), it covers Scaling, Erythema, Indurations and Coverage area. Wilcoxon test and ANOVA test (Kruskal Wallis test) were used for Statistical analysis.

Study medication procedures and dosage
The selected patients were allocated in groups by simple randomization method. In Group A Vamana with Siddarthaka Snanokt dravyas was administered. In Group B Virechana with Siddarthaka Snanokt dravyas was administered. In Group C Parisheka with Siddarthaka Snanokt dravyas was administered for 21 days. Follow up was conducted after two months.
Singh SK, Rajoria K, Insaan S, Kushal A, Gupta K, A randomized open clinical study on the efficacy of Vamana karma, Virechana karma and Parisheka with Siddharthaka Snanokta dravya in the management of Mandal kustha w.s.r. to psoriasis, JOA XIII-2, 2019; 82 - 87

Table No. I Procedure Protocol

<table>
<thead>
<tr>
<th>Panchkarma procedures</th>
<th>Steps of Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vamana Karma</strong></td>
<td>1. Pachana with Panchkola Churna 3 gm BD - Till appearance of Niram Lakshana</td>
</tr>
<tr>
<td></td>
<td>2. Snehpana with -Murcchita Go Grhit-Till Samyak Snigdha Lakshana</td>
</tr>
<tr>
<td></td>
<td>3. Sarvanga abhyanga, (with Dashmoola oil) Sarvanga vashpa swedana (with Dashmoola kwath vashpa)- 2 days</td>
</tr>
<tr>
<td></td>
<td>4. Vamana karma - With decoction of Siddharthaka Snanokt Dravyas 160 ml (Mandanaphala &amp; Kalingayava 2-2 parts, rest drugs one part each), Saindhava 2 gm &amp; honey Q.S. as Vamaka Yoga - Samyak vamana lakshan appeared</td>
</tr>
<tr>
<td></td>
<td>5. Dhoompan and Samsarjan Krama - According to shuddhi</td>
</tr>
<tr>
<td><strong>Virechanakarma</strong></td>
<td>1. Pachana with Panchkola Churna 3 gm BD- Till appearance of Niram Lakshana</td>
</tr>
<tr>
<td></td>
<td>2. Snehpana with –Murcchita Go Grhit-Till Samyak Snigdha Lakshana</td>
</tr>
<tr>
<td></td>
<td>3. Sarvanga abhyanga, (with Dashmoola oil) Sarvanga vashpa swedana (with Dashmoola kwath vashpa)- 4 days</td>
</tr>
<tr>
<td></td>
<td>4. Virechana with decoction of Siddharthaka Snanokt Dravyas 80 ml (Aragvadha &amp; Haritaki 2-2 parts, rest drugs one part each) was given empty stomach at 9-10 am.- Samyak virechan lakshana appeared</td>
</tr>
<tr>
<td></td>
<td>5. Sansarjana karma - According to shuddhi</td>
</tr>
<tr>
<td><strong>Parisheka Karma</strong></td>
<td>Siddharthaka Snanokt Dravya was used. 4 lts. of Kashaya was used for most of the patients and if the lesions were confined to local part then sufficient quantity (less) of Kashaya was taken. Parisheka was done for Sava Muhurta (1 hour) every day.- For 21 days</td>
</tr>
</tbody>
</table>

Result- It was found that the mean score of Total PASI in Group A was 28.440 before treatment which reduced up to 5.460 after treatment with 80.80% relief, which was statistically significant (P<0.01). Before treatment mean score of Total PASI in Group B was 28.810 which was reduced up to 7.250 after treatment, this way treatment provided 70.77% relief, which was statistically significant (P<0.01). It was found that the mean score of Total PASI in Group C was 28.810 before treatment and after the completion of the course it was reduced up to 16.980 This 41.06% relief was statistically significant (P<0.01).
Singh SK, Rajoria K, Insan S, Kushal A, Gupta K. A randomized open clinical study on the efficacy of Vamana karma, Virechana karma and Parisheka with Siddharthak Snanokta dravya in the management of Mandal kustha w.r.t. psoriasis, JOA XIII-2, 2019; 82 - 87

Table No. II Clinical Improvement in Total PASI in Patients of All The Three Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Mean</th>
<th>Relief %</th>
<th>S.D. (±)</th>
<th>S.E. (±)</th>
<th>W</th>
<th>P</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>BT</td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>10</td>
<td>28.440</td>
<td>5.460</td>
<td>22.980</td>
<td>80.80</td>
<td>12.385</td>
<td>3.917</td>
<td>55</td>
</tr>
<tr>
<td>B</td>
<td>10</td>
<td>24.810</td>
<td>7.250</td>
<td>17.560</td>
<td>70.77</td>
<td>6.666</td>
<td>2.108</td>
<td>55</td>
</tr>
<tr>
<td>C</td>
<td>10</td>
<td>28.810</td>
<td>16.980</td>
<td>11.830</td>
<td>41.06</td>
<td>5.891</td>
<td>1.863</td>
<td>55</td>
</tr>
</tbody>
</table>

Thus, Vamana proved more effective in reducing total PASI score of Psoriasis. When all three groups compared with each other it was observed that there was no difference in Statistical significant (P>0.05) between group A & B and group B & C, while significant difference (P<0.05) was found between group A & C. Mean difference of group A was greater than group C. This implies that clinically group A is better than group C.

Table No. III - Dunn's Multiple Comparisons Test-

<table>
<thead>
<tr>
<th>Comparison</th>
<th>Mean Rank</th>
<th>Difference</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A vs. Group B</td>
<td>1.134</td>
<td>NS</td>
<td>P&gt;0.05</td>
</tr>
<tr>
<td>Group A vs. Group C</td>
<td>9.250</td>
<td>S</td>
<td>P&lt;0.05</td>
</tr>
<tr>
<td>Group B vs. Group C</td>
<td>8.116</td>
<td>NS</td>
<td>P&gt;0.05</td>
</tr>
</tbody>
</table>

Marked improvement was observed in 4 patients only in Group A. Moderate improvement was observed in 50% patients in Group A, 100% in Group B and 20% in group C. Mild improvement was observed in 10% patients in Group A and 80% in Group C.

Table No. IV - Showing Overall Effect Of Therapy In All Three Groups

<table>
<thead>
<tr>
<th>Result</th>
<th>Group A</th>
<th>Group B</th>
<th>Group C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.of patient</td>
<td>%</td>
<td>No.of patient</td>
</tr>
<tr>
<td>Improvement /controlled</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Marked Improvement</td>
<td>4 40</td>
<td>0 0</td>
<td>0 0</td>
</tr>
<tr>
<td>(&gt;75% relief)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Moderate Improvement</td>
<td>5 50</td>
<td>10 100</td>
<td>2 20</td>
</tr>
<tr>
<td>(50-75% relief)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Discussion- In this clinical trial psoriasis was compared with mandal kustha which is a type of Mahakustha. Kustha roga which are in milder form comes under Kshudra Kustha and when the presentation of Kustha are severe with generalized lesion then termed as Maha Kustha. Kustha is said as Deeryha roga(chronic disorder) which is produced invariably by the vitiation of seven factors i.e. Doshas and Dushyas and have Tridoshaja in origin. Adhisthana of Kustha roga are Twak (skin), Rakta (blood and lymph), Mamsa (deep cutaneous tissue) and Lasika (sweat gland apparatus). Kustha roga also mentioned in Rakta Pradoshaja disorders. Many researchers have tried to attribute psoriasis with one or other types of Kustha, maximum of them correlated it with Kitibha, Ekakustha, Sidhma and Mandal Kustha. In Kitibha the lesions are vritta (circular), Ghana (solid), Krishna (black) in colour, with kandu (itching) & Sravi (exudation). However in Psoriasis the lesions are larger, dry and Shyavavarna. In Ekakustha Asvedanam (without sweat) is Characteristic features but it is not present in Psoriasis. Ekakusha & Kitibha both comes under Kshudra Kustha. In Sidhma (Mahakustha) the lesions are mostly found in Urdhvakayya (Upper portion of body) and raja like scaling present but in psoriasis the lesion are distributed all over the body. Thus psoriasis is nearer to Maha Kustha which excludes Ekakusha, Kitibha & Sidhma.

In this study it was observed that Vamana karma was more effective in controlling Head Erythema, Head Scale, Arm Erythema, Trunk Erythema, Trunk Induration, Leg Erythema and Daha. Parisheka karma is found effective in controlling Chinta. By these processes morbid Dosha; the root cause of diseases are eliminated from main seat of lesion and thus the main cause of disease is eradicated. Charaka advised Sarpipanam, Vamana Karma and Virechana Karma with Rakta mokshana (blood letting) for Vataja, Kaphaja and Pittaja Kustha respectively. The Bahirparimarjana Chikitsa (externalapplication) also plays an important role in the context of Kustha Chikitsa. The drug applied over the skin directly reaches the site of pathology. The utility of anointing the body before the Parisheka, as told by the Acharyas is promote the easy absorption of oil which provides the cutaneous hydration due to direct contact with the Twachasthita Bhrajaka Pitta. The drugs which used in this study had Tikta and Kashaya Rasa that is opposite to Kapha, the main Dosha for Kandu (itching) along with Vrana Ropana Guna and have pharmacological activity of Kaphavatahara and some are Tridoshahara. The main pathology in psoriasis is increase in the rate of mitosis of keratinocytes which is interpreted as increased Guna and Karma of vata dosha. Siddharthaka Yoga Kashya Parisheka decrease Vata by the Swedana effect, which is the choice of treatment for the Vata. The Snehana (oil application) before the Swedana (sweating) also help the process. The Anga Gourava (heaviness in body) is Poorvaroopa of Kustha might get relieved by the virtue of Swedana effect. The other pathology of Kustha is told as retention of excessive Kleda in the body because of Svedavaha Srootavarodha, this Avarodha can be relieved by Swedana. The drugs of the Siddharthaka Snana have Kushhtagha and Kandugnata Prabhava.
Conclusion- Mandal kushta can be managed satisfactorily with Ayurvedic treatment. Shodhan karma and Parisheka with Siddharthak sanokta dravya are useful in the treatment of Mandal kushta, as it is safe, effective & free from any adverse effects. It also considerably prevents the relapse.

References


ORIGINAL RESEARCH ARTICLE - CLINICAL STUDY

Effect of Arka Tail and Panchnimba Ghana Vati in The Management of Vicharchika

*Dr. Shakuntala Nagar, **Dr. Chudasama Hardik Y, ***Dr. C. R. Yadav

*Ayurveda Medical Officer, Sahjanpur Baran, Rajasthan Govt., ** P.G. Scholar, *** Associate Professor,
Dept. of Sharir Kriya, National Institute of Ayurveda, Jaipur

ABSTRACT

Skin is the largest protective organ of the body. A healthy skin is the mirror image of good health. Skin diseases though afflicts bodily but gives lot of psychological conflicts and can harm affected individual in a number of ways like discomfort, disfigurement, disability and death. Though the disease, Vicharchika is not a life threatening, it makes the patient worried due to its appearance, severe itching, disturbing routine and its chronic nature. In this clinical study efficacy of ‘Panchnimba Ghana Vati (orally 500mg BD) and Arka Tail (Local Application)’ has been assessed in the management of Vicharchika. Thirty patients without single dropout were selected from Arogyashala hospital Jaipur, with classical symptom of Vicharchika for 30 days with regular 07 days of follow up without any single relapse. The assessing symptoms are Kandu, Srava, Pidikotpatti, Vaivaranyata, Ruja and Sveda Pravruti by Darshana and Prashna pariksha followed by haematological test. For statistical analysis we applied the ‘Wilcoxon signed rank sum test’ for evaluation of subjective data and paired ‘t’ test for evaluation of objective data. The symptoms like Kandu, Srava, Pidikot patti had very significant results (p<0.01) and Ruja had significant results (p<0.05). The objective parameter had significant result (p<0.05) in ESR and Neutrophils. Conclusion shows that, Panchnimba Ghana Vati and Arka Tail can be used as safe and effective ‘Therapeutic Agent’ in the management of Vicharchika.

Keywords: Vicharchika, Panchnimba Ghana Vati, Arka Tail

Address of Correspondence:
Dr. Shakuntala Nagar
Ayurveda Medical Officer,
Sahjanpur Baran, Rajasthan Govt. (Raj.)
Email ID : nagarshkuntala@gmail.com
Contact No : 9785564108

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Introduction:

Skin is the largest protective organ of the body. A healthy skin is the mirror image of a good health. The colour of the skin is important biologically, cosmetically and socially. The unbroken skin is the nature’s dressing over the body. It acts as an effective barrier against the entry of diseases. Skin diseases though afflicts bodily but gives lot of psychological conflicts and can harm...

affected individual in a number of ways like discomfort, disfigurement, disability and death. Though the disease, *Vicharchika* is not a life threatening, it makes the patient worried due to its appearance, severe itching, disturbing routine and its chronic nature. Almost all the scholars of *Ayurveda* of modern era consider *Vicharchika* as eczema in modern parlance. *Vicharchika* is described under Kshudra-Kustha[1] in *Ayurveda* textual also mentioned as a curable disease, yet the relapsing nature of this disease makes it much harassment for patient and troubles some for physician too.

The global burden of diseases (GBD) Study 2010 estimated the GBD attributable to 15 categories of skin disease from 1992 to 2010 for 187 countries and eczema fell in to top 50 diseases. Globally eczema affected approximately 230 million people (3.5% of population as of 2010). The burden of skin conditions was high in both high and low income countries, these results argue strongly to include skin disease prevention and treatment in future global health strategies as a matter of urgency.

In this clinical study efficacy of ‘*Panchnimba Ghana Vati*’[2] (orally) and *Arka Tail*[3] (Local Application)’ has been assessed in the management of *Vicharchika*.

**Materials & Methodology -**

**Selection of Patients**

The study will be conducted on 30 clinically and pathologically diagnosed patients of *Vicharchika* from OPD/IPD of Aarogyashala NIA Jaipur, and Seth Surjmal Bambaiwala hospital.

**Ethical Clearance –** Institutional ethical committee

**Approval number –** F10 (5)/EC/2014/7223

**Approval Date –** 07/11/2014

**Inclusion Criteria**

- Age between 16- 70yr.
- Either sex
- Patients having clinical sign & symptoms of *Vicharchika* according to *Ayurveda* and Eczema according to modern system of medicine.
- Patients who are ready to sign the consent form.
- Patients having complaints less than 5 year of duration.

**Exclusion criteria**

- Patients below the age of 16 years and above 70 years.
- Patients with long term steroid end cytotoxic treatment.
- Patients is suffering from serious illness of any of system.

**Scoring criteria for *Vicharchika* Sign and Symptoms[4]:**

1. **Kandu** (pruritis)

   0. No itching
   1. Mild itching not disturbing normal activity
   2. Occasional itching disturbs normal activity
   3. Itching present continuously & even disturbing sleep

2. **Srava** (oozing)

   0. No discharge
   1. Occasional discharge after itching.
   2. Occasional oozing without itching.
   3. Excessive oozing making clothes wet

3. **Pidikot patti** (eruption)

   0. No eruption in the lesion
   1. Scanty eruptions in few lesions
   2. Scanty eruptions in at least half of the lesion
   3. All the lesions full of eruption

4. **Vaivaranyata** (Discolouration)

   0. Nearly normal skin colour
   1. Brownish red discolouration
   2. Blackish red discolouration
   3. Blackish discolouration
5. **Ruja (Pain)**

0. No pain
1. Mild pain
2. Moderate pain
3. Severe pain

6. **Sweda Pраврuti (Sweating)**

0. No / less sweating
1. Normal sweating (no wetting of cloths)
2. Mild sweating (wet cloths + No foul odour)
3. Severe sweating (wet cloths + foul odour + stain cloths)

**Assessment Criteria**

Effect of the therapy was assessing on the individual signs and symptoms of **Vicharchika**. The overall effect of the therapy was derived by a specially designed scoring system by considering some of main subjective parameters of **Vicharchika** for assessment.

**Objective Criteria**

The general routine laboratory investigation CBC and ESR were performed before and after treatment.

**Selection of Drug**

**Panch Nimba Ghana Vati** (from **Madanpal Nighantu**) and **Arka Taila** (from **Vangsen Samhita**) were used for the treatment of **Vicharchika** in this study.

**Drug Dose**

- **Panch Nimba Ghana Vati** - 500mg two times in a day (orally)
- **Arka Taila** - Local Application (As per Requirement)

**Duration** - 1 Month

**Follow up** - 7 days

**Statistical Analysis**

‘**Wilcoxon signed rank sum test**’ was applied for evaluation of subjective data and paired; t-test (using Instat Graph Pad 3) was applied for evaluation of objective data. The obtained results were interpreted as $\text{P}>0.05$ - insignificant (NS), $\text{P}<0.05$ - significant (S), $\text{P}<0.01$ - very significant (VS).

**Table No. - I Effect of Arka Tail & Panch Nimba Ghana Vati” On Clinical Features**

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Mean</th>
<th>Diff.</th>
<th>% of Change</th>
<th>SD</th>
<th>SE</th>
<th>P</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Kandu</strong> (pruritis)</td>
<td>1.80</td>
<td>0.53</td>
<td>29.44</td>
<td>0.68</td>
<td>0.12</td>
<td>0.0039</td>
<td>VS</td>
</tr>
<tr>
<td><strong>Srava</strong> (oozing)</td>
<td>1.10</td>
<td>0.56</td>
<td>50.9</td>
<td>0.81</td>
<td>0.14</td>
<td>0.0023</td>
<td>VS</td>
</tr>
<tr>
<td><strong>Pidikotpatti</strong> (eruption)</td>
<td>1.56</td>
<td>0.40</td>
<td>25.64</td>
<td>0.56</td>
<td>0.10</td>
<td>0.0023</td>
<td>VS</td>
</tr>
<tr>
<td><strong>Vaivaranayata</strong> (Discolouration)</td>
<td>1.70</td>
<td>0.20</td>
<td>11.76</td>
<td>0.48</td>
<td>0.088</td>
<td>0.0547</td>
<td>NS</td>
</tr>
<tr>
<td><strong>Ruja</strong> (Pain)</td>
<td>0.93</td>
<td>0.30</td>
<td>32.15</td>
<td>0.53</td>
<td>0.097</td>
<td>0.0137</td>
<td>S</td>
</tr>
</tbody>
</table>
Table No - II Effect Of Therapy On Laboratory Investigations

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Mean BT</th>
<th>Mean AT</th>
<th>Diff</th>
<th>% of Change</th>
<th>SD ±</th>
<th>SE ±</th>
<th>‘t’ value</th>
<th>P value</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hb%</td>
<td>13.33</td>
<td>13.11</td>
<td>0.22</td>
<td>1.65</td>
<td>0.63</td>
<td>0.11</td>
<td>1.90</td>
<td>0.067</td>
<td>NS</td>
</tr>
<tr>
<td>TLC</td>
<td>6736.7</td>
<td>6660.0</td>
<td>76.66</td>
<td>1.13</td>
<td>228.46</td>
<td>41.71</td>
<td>1.838</td>
<td>0.076</td>
<td>NS</td>
</tr>
<tr>
<td>ESR</td>
<td>12.80</td>
<td>11.76</td>
<td>1.03</td>
<td>8.04</td>
<td>2.60</td>
<td>0.475</td>
<td>2.172</td>
<td>0.038</td>
<td>S</td>
</tr>
<tr>
<td>Neutrophils</td>
<td>57.90</td>
<td>58.83</td>
<td>-0.93</td>
<td>1.60</td>
<td>2.243</td>
<td>0.4095</td>
<td>2.279</td>
<td>0.0302</td>
<td>S</td>
</tr>
<tr>
<td>Lymphocyte</td>
<td>35.53</td>
<td>34.86</td>
<td>0.66</td>
<td>1.85</td>
<td>1.788</td>
<td>0.3264</td>
<td>2.043</td>
<td>0.0503</td>
<td>NS</td>
</tr>
<tr>
<td>Eosinophils</td>
<td>3.66</td>
<td>3.90</td>
<td>-0.23</td>
<td>6.28</td>
<td>0.773</td>
<td>0.141</td>
<td>1.651</td>
<td>0.1094</td>
<td>NS</td>
</tr>
<tr>
<td>Monocytes</td>
<td>3.60</td>
<td>3.50</td>
<td>0.10</td>
<td>2.77</td>
<td>0.6074</td>
<td>0.1109</td>
<td>0.901</td>
<td>0.3746</td>
<td>NS</td>
</tr>
<tr>
<td>Basophiles</td>
<td>0.100</td>
<td>0.033</td>
<td>0.066</td>
<td>66.00</td>
<td>0.3651</td>
<td>0.0666</td>
<td>1.00</td>
<td>0.3256</td>
<td>NS</td>
</tr>
</tbody>
</table>

(Hb – Haemoglobin, TLC – Total Leucocytes count, ESR – Erythrocyte sedimentation rate)

Discussion:

As per the description available in Ayurveda texts, therapeutic effect of a drug depends on certain pharmacodynamics properties of its particular content. These pharmacodynamics properties are- Rasa, Guna, Virya, Vipaka and Prabhava.

According to Ayurveda Pharmacodynamics, the action of a drug is not endowed to any one of the pharmacodynamics properties. A drug performs its action partially due to Rasa, Guna, Veerya and so on respectively.

In pharmacodynamic study of Panchnimba Ghana Vati reveals that it has dominance of Tikta-Kasaya Rasa; Ruksha & Laghu Guna; Sheeta Virya; Katu Vipaka & Kapha-Vatashamaka properties. The ingredients of Arka- Taila are Arka, Haridra and Sarshapa Tail and it is observed that the majority of ingredients of Arka Tail having Tikta-Katu Rasa(100%), Laghu (100%)-Ruksha(66.67%) Guna, Ushna Virya (100%), Katu Vipaka(6) (100%).

This implies that these medications have therapeutic effects like Kustaghna, Kandughna, Lekhaniya and Varnya(5).

This process explains the symptomatic relief from Vicharchika. The Katu, Tikta-Kasaya Rasa and Ruksha Guna reduces Srava. Ushana Virya and Kandughna property reduces Kandu and Vrana-Shodhaka, Ropaka and Antibacterial property helps in management of Pidika.

Probable mode of action of panchnimb Ghanvati

Nidana sevana   ↔   Nidana parivarjana

Agnimandya   ↔

Deepana, Pachana, by Tikta, Katu rasa Dominancy of Panchnimba ghanvati

Ama formation  
\[ \rightarrow \]  
Tikta, Katu rasa, Ushna veerya and Laghu, Ruksha guna of Vati will arrest Ama formation

Dosha dushti  
Tridosha prakopa  
(Vata-kapha mainly)  
\[ \rightarrow \]  
Breaks pathogenesis Kapha-vatahara proper the trial drug.

Rasensaha mishribhuya  
\[ \rightarrow \]  
Clearing of srotas by Srotoshodhaka guna, Katu, tikta rasa, laghu and ushna guna of drug.

Tiryagasira gamana  
\[ \rightarrow \]  
Maintain equilibirium through kaphavata shamaka property of the drug..

Dushya dushti and dosha dushya sammurchana  
\[ \rightarrow \]  
Dilates srotas by ushna veerya and Srotoshodhaka property of katu rasa

Srotodushti  
(Rasavaha, Raktavaha, Mamsavaha and Swedavaha)  
\[ \rightarrow \]  
Helps in management of Vicharchika Kushtaghna kandughana prabhava of the drug

Vyadhi uttpati  
\[ \rightarrow \]  
Hypothetical action of Oil on textual references: –

Tail application  
\[ \rightarrow \]  
Release of active principles  
\[ \rightarrow \]  
Entry at proper site in skin\(^8\) (Su. Su. 18/4)  
\[ \rightarrow \]  
Absorption  
\[ \rightarrow \]  
Pachana by Bhrajakagni\(^6\)  
(AH.Su.12/14. Arundutta)  
\[ \rightarrow \]  
New metabolites formation
Conclusion:

- According to Acharya Charak Vicharchika disease is caused mainly by Kapha dosha. It has the symptoms like Kandu (Itching) and Bahushrava (excessive secretion) etc.

- Administration of Panchnimba Ghana Vati relieves symptoms due to its properties like Tikta-Kasaya Rasa; Ruksha & Laghu Guna; Sheeta Virya; Katu Vipaka and Abhyanga of Arka Tail relieves symptoms due to its properties like Katu-Tikta Rasa; Ruksha-Laghu Guna; Ushana Virya; Katu Vipaka in Vicharchika and increased Vishada Guna.

- Trial drug (Panchnimba Ghana Vati and Arka Tail) has very significant result in Kandu, Srava, Pidikotpatti. Significant result in Ruja. It has insignificant result in Vaivaranyata, Sweda Pravruti. Slight improvement in Hemoglobin% but it was statistically non-significant. Slightly reductions were seen in the values of TLC, Lymphocytes but it was not significant improvement. Significant reduction in ESR which is supposed to be an inflammatory mediator proves potent anti-inflammatory action of Trial drug.

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ABSTRACT

Klaibya is emerging as one of the burning problems in now days. Klaibya refers to impotency i.e a man who is unable to perform sexual intercourse, being powerless, helpless or the inability to carry out sexual activities. The Male Sexual Dysfunction(MSD) has been elaborately described as Klaibya in Ayurvediya classics. MSD includes all sorts of disturbances of coital performance and sexual congress in male.

The incidence of sexual dysfunctions increases with age. About 5% of 40 year old men and between 15% and 25% of 60 year old men experience sexual dysfunctions. Hence the present study has been planned to evaluate the efficacy of Kapikacchu white seeds in the management of Klaibya. A clinical trial on 15 patients having Klaibya was carried out. The trial drug i.e. Kapikacchu white seeds churna in the dose of 5 gm twice daily with anupana of luke warm milk was administered to all the patients for 1 month.

Result of study shown that there is highly significant result in sexual desire, total sperm count and rapid linear progressive (RLP) motility of sperms. So it can be concluded that Kapikacchu white seeds churna is safe and effective reedy in the management of Klaibya patients.

Keywords: Klaibya, Male sexual dysfunction, Kapikacchu churna, white seeds

How to Site the Article : Sharma T, Ramamurthy A, Nathani S, Role Of Kapikacchu White Seeds In The Management Of Klaibya: A Clinical Study, JOA XIII-2, 2019; 94 - 101

Introduction:

Healthy Sexual functioning plays essential role in maintaining the harmony and happiness in marital life. Among various phase of sexual response, the most essential is the achieving of normal erection with sufficient rigidity for penetrative intercourse, the absence of which ends in failure and dissatisfaction. This condition has been elaborately described as “Klaibya” in
the Ayurvediya classics and as “Male sexual dysfunction” (MSD) in the modern texts. The Male sexual dysfunction (MSD) includes all sorts of disturbances of coital performance and sexual congress in male.

Acharya Charaka has given a very justified definition of “Klaibya” as-A person even on having sexual desire and a willing partner, is not able to have coitus with her due to lack of erection or lack of rigidity of the penis. Even if he manages to have an erection, his anxiety will cause attacks of dyspnoea and profuse sweating and his attempt of having sex will result in failure. This deformity is defined as “Klaibya” (Male sexual Dysfunctions)[1].

MSD is a broad spectrum terminology, under which Erectile Dysfunction is one of the major component. It is estimated that in 1995 there were over 152 million men worldwide who had erectile dysfunction and in 2025 the number of men with erectile dysfunction will be approximately 322 million, an increase of nearly 170 million men[2]. Infertility is another component under the heading of MSD and approximately 15-20 % of all cohabiting couples are infertile. Of these, in up to 50 percent of cases it is the male factor or the husband who is responsible for the infertility.

Discovery of modern medical techniques and costly treatment are inaccessible to the persons of middle lower economic strata who are more affected with the above problems. Kapikacchu (Mucunapruriens (L.)DC.) is a common plant which is easily available throughout the whole India. It is used as Balya, Vrishya, Brihankaraka and for Vatashamana[3]. It is described as Vrishya Dravya in Samhita[4] as well as Nighantus. It’s seeds are used for the purpose of Vrishya Karma. In market two types of seeds (black seeds[5] and white seeds[6]) are available and are being used in the name of Kapikacchu.

Black seeds have been proved efficacious for Vrishya Karma[7] but no data is available regarding aphrodisiac action of Kapikacchu white seeds till date. So the present study has been planned to fulfill the following aim.

Aim and Objectives:
1. To evaluate the efficacy of Kapikacchu white seeds churna in the management of Klaibya.
2. To provide low cost and effective treatment.

Materials and Methods:

Collection and processing of drug

White seeds of Kapikacchu were collected from field after proper identification. Seeds were purified, dried, powdered and taken for further study.

Method of Purification

Purification of Kapikacchu white seeds is done by Swendana vidhi which is mentioned in Vanari gutika prakarana in Bhaisajya Ratnawali[8]. One Kudavamatra of kapikacchu seeds have been taken and dip into one Prasthamatra of Go-dugdha (1 Prastha = 4 Kudava). Then boiled it in medium heat for an hour. When the solution gets concentrated then Kapikacchu seeds separated out from the Go-dugdha. After then seed coat of Kapikacchu removed from seeds. These seeds are purified seeds of Kapikacchu.

Selection of patients:

For the present study, 15 male patients fulfilling the clinical criteria for diagnosis of Klaibya were selected from OPD of National Institute of Ayurveda Hospital and Seth Soorajmal Bambaiwala Hospital, Jaipur irrespective of religion, cast, occupation etc.

Inclusion criteria:
1. Male patients having the age of 18-60 years.
2. Male patients having sign and symptoms of Klaibya

Exclusion criteria:
1. Patients below 18 yrs and above 60 yrs.
2. Patients with chronic disease like severe hypertension, IHD, COPD, etc.
3. Patients with primary and secondary azoospermia.
4. Patients having any sexually transmitted diseases.
5. Erectile dysfunction due to nerve damage ex. Accidental injury like spinal cord injury and due to surgery of colon, prostate, bladder and rectum.
Method of study (protocol of Study):
The study was cleared by the Institutional Ethics Committee of National Institute of Ayurveda, Jaipur, Rajasthan. Ethical clearance no. is F10(5)/EC/2014/7221. The study is carried out as per International conference of Harmonization-Good Clinical Practices Guidelines (ICH-GCP). Written informed consent was taken on prescribed format, from each patient willing to participate, before the start of study. They are briefed about merits and demerits of research plan before taking consent. Patients were free to withdraw from the study at any time without giving any reason. A detailed case sheet was prepared incorporating Ayurveda as well as modern parameters. Observations were made according to the standard Ayurveda parameters selected and findings were recorded in well-designed case sheet.

Concept of management:
The selected patients were given Kapikacchu white seeds churna, in the dose of 5 gm twice daily, with luke warm milk for a period of 1 month.

Criteria for assessment:
The assessment of the patients was done based on subjective as well as objective criteria during the course of trial. The final assessment was done on the basis of the both parameters and by comparing the laboratorial investigation before and after the treatment.

Subjective criteria:
The International Index of Erectile Function 15 items (IIEF-15) was used at baseline day, day 15 and day 30. IIEF-15 questionnaire[9] was adopted to rule out the sexual problems in the individual and for the assessment of the result.

Objective criteria:
Semen analysis was done on baseline and final day of study.

Observations and Results:

Demographic profile:
A majority of Klaibya patients i.e. 53.33% were in the age group of 20–30 years, 93.33% of the patients belonged to Hindu religion, 53.33% were educated up to graduation, 46.66% belonged to middle class, 66.66% were living in urban areas and 66.66% patients had the history of being vegetarian regarding their food habit. A major proportion of the patients i.e. 46.66% of the patients were involved in desk work. 46.66% patients had sound sleep and 40% patients had the addiction of tea and few patients had the history of smoking, tobacco and alcohol consumption.

In this study, majority of patients i.e. 66.66% patients were of Vatta-Pitta type of Sharirika Prakriti where as 80% patients were of Rajasika type of Mansika Prakriti. The maximum number of patients had Manda Agni (53.33%), Madhyama Kostha (66.66%), Madhyama Sara (60%), Madhyama Samhanana (60%), Madhyama Pramana (46.66%), Madhyama Satmya (60%), Avara Sattva (60%), Madhyama Ahara Shakti (40%) and Avara Vyayama Shakti (53.33%).

Results:
All the Results were calculated by using Software: InStat GraphPad 3.

For Nonparametric Data Wilcoxon matched-pairs signed ranks test is used while for Parametric Data Paired ‘t’ Test is used and results Calculated in each group.

The results were considered as bellow-
Insignificant/Non significant : P >0.05
Significant : P <0.05
Highly significant : P < 0.01, P < 0.001, P<0.0001

Effect of drug in subjective parameters: Effect of kapikacchu white seeds churna on subjective parameters has been depicted in table no.I. (Graph no. 1)
Table No.I: Showing Effect of Drug on Subjective Parameters (Wilcoxon Matched Paired Single Ranked Test)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Mean Diff.</th>
<th>% Relief</th>
<th>SD±</th>
<th>SE±</th>
<th>p value</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Erectile function</td>
<td>14.80</td>
<td>17.66</td>
<td>2.86</td>
<td>19.32%</td>
<td>0.51</td>
<td>0.13</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Orgasmic function</td>
<td>7.26</td>
<td>7.53</td>
<td>0.27</td>
<td>3.71%</td>
<td>1.10</td>
<td>0.28</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Sexual desire</td>
<td>6.33</td>
<td>8.06</td>
<td>1.73</td>
<td>27.33%</td>
<td>0.96</td>
<td>0.24</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Intercourse satisfaction</td>
<td>4.13</td>
<td>3.66</td>
<td>0.47</td>
<td>11.38%</td>
<td>1.30</td>
<td>0.33</td>
<td>&gt;0.05</td>
</tr>
<tr>
<td>Overall satisfaction</td>
<td>4.40</td>
<td>5.20</td>
<td>0.80</td>
<td>18.18%</td>
<td>0.94</td>
<td>0.24</td>
<td>&lt;0.05</td>
</tr>
</tbody>
</table>

(HS: Highly Significant   S: Significant   NS: Non Significant)

**Effect of drug on Erectile function score:**
The mean score before treatment was 14.80 which increase upto 17.66 after treatment, with SD±0.51 giving a relief of 19.32% which was statistically highly significant (p < 0.0001).

**Effect of drug on Orgasmic function score:**
The mean score before treatment was 7.26 which increased upto 7.53 after treatment, with SD±1.10 giving a relief of 3.71% which was statistically non-significant (p >0.05).

**Effect of drug on Sexual desire score:**
The mean score before treatment was 6.33 which increased upto 8.06 after treatment, with SD±0.96 giving a relief of 27.33% which was statistically highly significant (p < 0.0001).

**Effect of drug on Intercourse satisfaction score:**
The mean score before treatment was 4.13 which lowered down to 3.66 after treatment, with SD±1.30 giving a relief of 11.38% which was statistically non-significant (p >0.05).

**Effect of drug on Overall satisfaction score:**
The mean score before treatment was 4.40 which increased upto 5.20 after treatment, with SD±0.94 giving a relief of 18.18% which was statistically significant (p < 0.05).

**Graph no. 1: Showing effect of drug on Subjective Parameters**
Effect of drug in objective parameters: Effect of *kapikacchu* white seeds *churna* on objective parameters has been depicted in table no. II. (Graph no. 2)

**Table no. II: Showing effect of drug on seminal parameters/objectives parameters: (paired ‘t’ test)**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Mean Diff.</th>
<th>% Relief</th>
<th>SD±</th>
<th>SE±</th>
<th>t value</th>
<th>P value</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semen volume (In ml.)</td>
<td>2.30</td>
<td>2.36</td>
<td>0.06</td>
<td>2.60%</td>
<td>0.41</td>
<td>0.10</td>
<td>0.619</td>
<td>&gt; 0.05</td>
</tr>
<tr>
<td>Semen pH</td>
<td>7.66</td>
<td>7.75</td>
<td>0.09</td>
<td>1.17%</td>
<td>0.54</td>
<td>0.14</td>
<td>0.614</td>
<td>&gt; 0.05</td>
</tr>
<tr>
<td>Total Sperm count (Million/ml)</td>
<td>23.13</td>
<td>26.26</td>
<td>3.13</td>
<td>13.53%</td>
<td>2.94</td>
<td>0.76</td>
<td>4.115</td>
<td>&lt; 0.001</td>
</tr>
<tr>
<td>RLP (In %)</td>
<td>48.00</td>
<td>51.33</td>
<td>3.33</td>
<td>6.93%</td>
<td>2.44</td>
<td>0.62</td>
<td>5.292</td>
<td>&lt; 0.0001</td>
</tr>
<tr>
<td>SLP (In %)</td>
<td>19.33</td>
<td>20.33</td>
<td>1.00</td>
<td>5.17%</td>
<td>3.87</td>
<td>1.00</td>
<td>1.000</td>
<td>&gt; 0.05</td>
</tr>
<tr>
<td>NP (In %)</td>
<td>12.00</td>
<td>10.00</td>
<td>2.00</td>
<td>16.66%</td>
<td>2.53</td>
<td>.65</td>
<td>3.214</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td>IM (In %)</td>
<td>20.66</td>
<td>18.66</td>
<td>2</td>
<td>9.68%</td>
<td>4.14</td>
<td>1.06</td>
<td>1.871</td>
<td>&gt; 0.05</td>
</tr>
</tbody>
</table>

(RLP-Rapid linear progressive, SLP- Sluggish linear progressive, NP- Non progressive, IM- Immotile)

**Effect of drug on Semen volume:**
The mean score before treatment was 2.30 which increased upto 2.36 after treatment, with SD±0.41 giving an improvement of 2.60% which was statistically non-significant (P >0.05).

**Effect of drug on Semen pH:**
The mean score before treatment was 7.66 which increased upto 7.75 after treatment, with SD ± 0.54 giving an improvement of 1.17% which was statistically non-significant (P >0.05).

**Effect of drug on Total Sperm Count:**
The mean score before treatment was 23.13 which increased upto 26.26 after treatment, with SD±2.94 giving an improvement of 13.53% which was statistically highly significant (P <0.001).

**Effect of drug on RLP score:**
The mean score before treatment was 48.00 which increased upto 51.33 after treatment, with SD±2.44 giving an improvement of 6.93% which was statistically highly significant (P <0.0001).

**Effect of drug on SLP score:**
The mean score before treatment was 19.33 which increased upto 20.33 after treatment, with SD±3.87 giving an improvement of 5.17% which was statistically non-significant (P >0.05).

**Effect of drug on NP Score:**
The mean score before treatment was 12.00 which lowered down to 10.00 after treatment, with SD±2.53 giving an improvement of 16.66% which was statistically significant (P <0.05).

**Effect of drug on IM Score:**
The mean score before treatment was 20.66 which lowered down to 18.66after treatment, with SD±4.14 giving an improvement of 9.68% which was statistically non-significant (P >0.05).
**Graph no. 2: Showing effect of drug on Objective Parameters**

**Discussion:**

The demographical profile of present study shows that *Klaibya* is prevailing within the people of 20-30 years. On an average, it is ascertained that active sexual life begins at 25 years and once a series of satisfactory sexual acts, due to presence of anxiety, mental stress and strain, it is more prevalent within the people 20-30 and therefore the sexual behaviour is greatly affected which ends in sexual dysfunction. Maximum numbers of patients were from graduation group. The probable cause may be that in this period people are keen on their future, thus they might be in more stress thus resulting in *Klaibya*. Maximum numbers of patients were from the middle class community. Middle class cannot afford current costly diagnostic test and drug treatment thus they like Government Hospitals wherever within the drug treatment and therefore the tests are at very reasonable price or almost free. Maximum patients belonged to urban habitat. Maximum patients were having Avara Vyayama Shakti. Hence it are often deduced that sedentary lifestyle predominant in urban surroundings is more likely to precipitate the disease. Majority of patients belonged to Vata-Pitta prakriti. *Vata prakrti Purusha* can have Alpa Santana\(^1\). *Pitta prakrti Purusha* can have Alpa Shukra, Alpa Vyavaya Shakti & can have Iby virtue of Katu-Amla Rasa of Pitta Dosha\(^2\). Thus it’s going to be inferred that either *Vata* or *Pitta* association in *Sharira Prakriti* may build the person more susceptible for *Klaibya*.

*Kapikacchu* white seeds *churna* provided statistically significant relief within the symptoms of erectile function, sexual desire and overall satisfaction whereas no relief was seen in orgasmic function, intercourse satisfaction, statistically. *Kapikacchu* white seeds *churna* also showed statistically significant improvement in total sperm count, rapid linear progressive (RLP) motility and non-progressive (NP) motility of sperms however improvement of other seminal parameters like semen volume, sluggish linear progressive (SLP) motility of sperms and in immotile (IM) sperms were statistically non-significant.

*Kapikacchu* seeds possess Guru-Snigdha Guna, Madhura Rasa, Madhura Vipaka and Sheeta Virya. Acharya Charaka has mentioned Guru-Snigdha Guna and Madhura Rasaamongst the six qualities of *Vrishya Dravya*\(^3\). Here Guru-Snigdha Guna and Madhura Rasa are similar to the properties of *Shukra*\(^4\). Therefore it will increases the *Shukra* by *Samanya Visesha Siddhanta*. *Kapikacchu* possesses Madhura Rasa which is called as *Sharira Satmya, Marutaghna* and Shukrabhi vardhana, the efore it directly will increase *Shukra*, will be utilized in *Shukra dusti* specially *Vataja Shukra dusti*. It has Madhura Vipaka which is called as *Shukrala* and *Sristavin mutra* and therefore acts as *Vrishya* and helps to increase as well as ejaculate *Shukra*. It has Sheeta Virya, therefore it can be used to delay ejaculation just in case of premature ejaculation. *Kapikacchu* gives better effect on sexual parameters by assuaging the *Vata Dosha* due to its *Guru* and *Snigdha Guna*, which is the root cause in the manifestation of *Klaibya*. So due to properties like *Guru-Snigdha Guna* and *Madhura Rasa*, *Kapikacchu* seeds...
demonstrate *Vrishya, Balya, Brihana, Vajikara* actions. *Kapikacchu* works as *Shukra vaha Srotoshodhaka* (clears the blocked channels), balances the vitiated *Vata*, there by improving the sexual behaviour and hence can be used as a drug of choice in treating the disease.

Treatment with Mucuna pruriens ameliorated psychological stress and seminal plasma lipid peroxide levels significantly together with improved spermatozoa count and motility. Treatment additionally restored the amount of SOD, GSH, catalase and ascorbic acid in seminal plasma of infertile men[^4]. Mucuna pruriens therapy rectifies the distressed alanine, histidine, citrate and phenyl alanine content in seminal plasma and improves the seminal fluid quality[^9]. It indicates that M. pruriensis supports in the management of stress and improves semen quality.

**Conclusion:**

Present study revealed that *Kapikacchu* white seeds *churna* showed a highly significant increase in erectile function and sexual desire. It has also showed highly significant increase in total sperm count and rapid linear progressive (RLP) motility of sperms. *Kapikacchu churna* was well tolerated by all the patients and no side effect was observed during the course of clinical study. So it can be said that *Kapikacchu* white seeds is safe and effective remedy in the management of *Klaibya* patients. Sexual dysfunctions and infertility being the results of both psychological and physical factors as a whole, psychological support will also prove beneficial in the patients of *Klaibya*.

**References**


शारांश
आधुनिक परिपथ में क्लेय क्रिया एक बहुत ही ज्यादा रोग के रूप में उभरा है। क्लेय नागुनस्तरा को इंगित करता है, जिसका अर्थ है वह योग्य विशेष जो की मैदन में असामर्थ्य और शक्ति हो। आयुर्वैदिक सहितियों में पुरुष यौन विकृति को विस्तृत रूप से क्लेय के रूप में वर्णित किया है। पुरुष यौन विकृति के अंतर्गत मैदन क्षिति के समय आने वाली सत्स्याओं को समावेश किया गया है। आयु के बढ़ने के साथ साथ यौन विकृति की सम्भावना भी बढ़ने लगती है। 40 वर्ष की आयु के व्यक्ति में लगभग 5 प्रतिशत और 60 वर्ष की आयु के व्यक्ति में लगभग 15 से 25 प्रतिशत यौन विकृति का होना पाया गया है। जिसके अंतर्गत 15 क्लेय के रोगियों को लेकर चिकित्सकीय शोध कार्य प्रारंभ किया गया। सभी रोगियों को कपिकच्चु स्वेद बीज 3 ग्राम की मात्रा में दिन में 2 बार कोण्ण द्राक्ष के अनुपान से। माह के लिए दिया गया। अध्ययन के परिणाम से पता चला मैदन की इच्छा, कुल शुक्राणु संख्या, शुक्राणु की तीव्र रेखीय गतिशीलता में अस्तित्व हजारों परिणाम प्राप्त हुये। इसलिए यह निष्कर्ष निकाला जा सकता है की क्लेय के रोगियों के लिये कपिकच्चु स्वेद बीज 3 ग्राम सुरक्षित और भ्रामीय चिकित्सा है।
Clinical evaluation of efficacy of 'Trayodashang guggulu', 'Rasnadi Kwath' and 'Nirgundipatra-Pindasweda' in the management of 'Katigatavata Roga' (Lumber Spondylosis).

*Dr. Usha Jangid, **Prof. Chandra Bhanu Sharma, ***Dr. Harish Bhakuni

*AMO, Govt. of Raj., PHC borda, Bhilwara, ** Professor, ***Assistant Prof., Department of Kayachikitsa, National Institute of Ayurveda, Jaipur

ABSTRACT
Faulty dietary habits and irregular lifestyle is responsible for early degenerative changes in body tissues and play a vital role in the manifestation of such degenerative disorder. To arrest the vata vyadhi as like Asthigata vata Ayurveda has taken the foremost place in the management of like ‘Katigatavata Roga’ which can be correlated with Lumber spondylosis due to its clinical appearance. Due to wide spectrum of disease, much prevalence in the society and lack of effective medicament, the disease is being chosen for the study. The study was conducted in 30 clinically diagnosed patients of 'Katigatavata Roga’. These patients were divided into three groups of 10 patients each. In group A 10 Patients were treated by Trayodashan guggulu 2 tab. (each tab.of 500 mg) three times in a day with lukewarm water and Rasnadi Kwath 50 ml two times in a day for 30 days. In group B 10 Patients were treated by ‘Nirgundipatra-Pindasweda’ with ‘Rasna-Dashamoola tail’ and ‘Nirgundi patra’ for 40 minutes daily once a day for 15 days. In group C 10 Patients were treated by Trayodashan guggulu 2 tab. (each tab. Of 500mg) three times in a day with lukewarm water and Rasnadi Kwath 50 ml two times in a day for 30 days and Nirgundipatra-Pindasweda with Rasna Dashamoola Taila for 40 minutes daily once a day for 15 day. From the observations and results it can be concluded that better results were obtained in Group C than Group A and Group B on the basis of percentage relief.

Keywords: Katigatavata Roga, Trayodashan guggulu, Rasnadi Kwath, Nirgundipatra-Pindasweda, Rasna Dashamoola Taila, Lumber spondylosis

Introduction:
Ayurveda is an ancient system of medicine in which imbalance of Dosha is termed as Roga. Among Tridosha, Vata is responsible for maximum diseases and Katigatavata Roga is one of them. It can be correlated with Lumber spondylosis in modern medical science.
through its clinical appearance. It is one of the known crippling and degenerative disorders that is now becoming a significant threat to the working population. Which also affect the productivity at work place.

Low back pain (LBP) is about 60% and the greatest prevalence is between age 45 and 65 years. The incidence in the industrial sector in India is 11% in textile workers. Chronic low back pain, defined as pain symptoms persisting beyond 3 months, affects an estimated 15–45% of the population. At least 50% of people will recover within 2 weeks and 75% of these people within a month. But recurrences are frequent and have been reported in 40–70% of the patients. Lumbar Spondylosis is most common in the third to sixth decades of life and occurs about one to three times more frequently in men than in women.

Disease named katigatavata roga is not directly mentioned in 80 types of vata vyadhi. Disease named Prishtha Graha, trik Graha mentioned in 80 types of vata vyadhi. Many drugs indicated for Katishool and Asthigatavata in Chakradutta like Rasna Saptak Kwath, Trayodashang Guggulu etc. Acharya as advocated the Nomenclature of the disease is based on site of deformity & manifestation like kukshi shool and kati shool where vata affect kukshi and kati respectively. A general term given by Acharya Charak for Asthi dhatu kshaya janya vata vyadhi is “Asthigata Vata” So on the basis of pathological cascade as per site involvement and vitiated vata dosha involvement clinical manifestations can be termed as Kati Gata Vata and as per site involvement and Dhatu (Dushya) involvement clinical manifestations can be termed as Kati Asthigata Vata. Shool in bones is the distinctive features of Asthigata vata. Katishool is the distinctive features of Katigatavata. In Katigatavata Roga vitiated vata dosha afflicts the kati Prades producing Bheda Asthi parvnam (Pain in bones and little bones (facet joints), Sandhi Shool (intervertebral disc) on flexion, extension pain), Mans Bala Kshya (muscle and power weakness) Santata Ch Ruk (continuous pain).

For the management purpose Acharya charak describe external and internal use of sneha in Asthigatavata.

Acharya Sushruta has describe Abhyang, Snigdha Sweda, Upnah, Agnikarma, Bandhana, Mardan. Acharya Vagbhata prescribes Sneha, Sweda, Mridu samshodhana along with Madhura, Amla and Lavana Dravyas, Veshntana, Trasana, Madhya, Sneha Siddha with Deepana and Pachana Drugs

So, in the present study, a trial has been done to study the various aspects of the disease in the perspective of Shamana drugs as Trayodashanga guggulu and Rasnadi Kwatha long with special procedure as Nirgundipatra-pindasweda’.

Aims and Objectives of Study

1. Conceptual and clinical study on ‘Katigatavata Roga’ (Lumber Spondylosis).
2. To evaluate the efficacy of ‘Trayodashanga guggulu’ and ‘Rasnadi kwatha’ in the management of ‘Katigatavata Roga’ (Lumber Spondylosis).
3. To evaluate the efficacy of ‘Nirgundipatra-Pindasweda’ in the management of ‘Katigatavata Roga’ (Lumber Spondylosis).
4. To evaluate the combined efficacy of ‘Trayodashanga guggulu’, ‘Rasnadi kwatha’ and ‘Nirgundipatra-pindasweda’ in the management of ‘Katigatavata Roga’ (Lumber Spondylosis).

Material & Methods

Selection of cases - The study was conducted on 30 clinically diagnosed patients of ‘Katigatavata Roga’ (Lumber Spondylosis) selected from Arogyashala OPD & IPD of National Institute of Ayurveda, Jaipur.

- Study Design – It was Single centre, Open label and Randomized clinical trial.

- Inclusion criteria
  - Patients of age group 30 to 70 years of either sex.
  - Patients having sign and symptoms of ‘Katigatavata Roga’ (Lumber Spondylosis).
  - Patients with Chronicity of less than 10 years.
• Patients willing to signature the consent form for the clinical trial.

❖ **Exclusion criteria**

• Patients below age of 30 years and over age of 70 years

• Patients with Chronicity of more than 10 years

• Patients suffering with T.B. spine, tumors of spine, focal neuropathy and any septic or infectious disease of spine.

• Patients suffering with Diabetes or Diabetic neuropathy, Gout, Rheumatoid Arthritis and fracture of hip bone.

❖ **Administration of drug**

30 clinically diagnosed and registered patients of *katigatavata roga* (Lumber Spondylisis) were divided randomly in three groups 10 patients were included in each group.

**Group A** 10 Patients were treated by *Trayodashang guggulu* 2 tab. (each tab of 500 mg) three times in a day with lukewarm water and *Rasnadi Kwath* 50 ml two times in a day for 30 days.

**Group B** 10 Patients were treated by *‘Nirgundipatra-Pindasweda’* with ‘Rasna-Dashamoola tail’ and ‘Nirgundi patra’ for 40 minutes daily once a day for 15 days.

**Group C** 10 Patients were treated by *Trayodashang guggulu* 2 tab. (each tab. Of 500mg) three times in a day with lukewarm water and *Rasnadi Kwath* 50 ml two times in a day for 30 days and *Nirgundi patra-Pindasweda* with Rasna Dashamoola Taila for 40 minutes daily once a day for 15 day

❖ **Criteria for withdrawal**

During the course of trial, if any serious condition or any serious adverse effects which required urgent treatment or if patient himself wants to withdraw from trial.

**Trial drugs**

1. *Trayodashang Guggulu*[^10](Table No. I)

(७५वत्त्वत्त्वत्कल्याणी | यात्र व्यावसायिक्षणी | (२६/९८-१०१♀)

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Drugs</th>
<th>Botanical Name</th>
<th>Part Used</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Aabha</td>
<td>Acacia Arabica</td>
<td>Bark</td>
<td>1 Part</td>
</tr>
<tr>
<td>2</td>
<td>Ashvagandha</td>
<td>Withania somnifera</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>3</td>
<td>Habusha</td>
<td>Juniperus communis</td>
<td>Fruit</td>
<td>1 Part</td>
</tr>
<tr>
<td>4</td>
<td>Guduchi</td>
<td>Tinospora cordifolia</td>
<td>Stem</td>
<td>1 Part</td>
</tr>
<tr>
<td>5</td>
<td>Shatavari</td>
<td>Asparagus recemosus</td>
<td>Rhizome</td>
<td>1 Part</td>
</tr>
<tr>
<td>6</td>
<td>Gokshur</td>
<td>Tribulus terrestris</td>
<td>Fruit</td>
<td>1 Part</td>
</tr>
<tr>
<td>7</td>
<td>Vriddhadaram</td>
<td>Argyreia speciose</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>8</td>
<td>Rasna</td>
<td>Pluchea lanceolata</td>
<td>Leaf</td>
<td>1 Part</td>
</tr>
<tr>
<td>9</td>
<td>Shatahva</td>
<td>Foeniculum vulgare</td>
<td>Fruits</td>
<td>1 Part</td>
</tr>
<tr>
<td>10</td>
<td>Shati</td>
<td>Hedychium spicatium</td>
<td>Rhizome</td>
<td>1 Part</td>
</tr>
<tr>
<td>11</td>
<td>Yamani</td>
<td>Trachyspermum ammi</td>
<td>Fruit</td>
<td>1 Part</td>
</tr>
<tr>
<td>12</td>
<td>Nagar</td>
<td>Zingiber officinale</td>
<td>Rhizome</td>
<td>1 Part</td>
</tr>
<tr>
<td>13</td>
<td>Shuddha Guggulu</td>
<td>Commiphora mukul</td>
<td>Resin</td>
<td>12 Part</td>
</tr>
<tr>
<td>14</td>
<td>Gou ghrit</td>
<td></td>
<td></td>
<td>6 Part</td>
</tr>
</tbody>
</table>
2. Rasnadi Kwath\textsuperscript{[1]} (भावप्रकाश | मध्यखंड | 24/342 | चिकित्सा प्रकरण 8)

\textit{(Table No. II )}

\textbf{Kwath dravya (Yavakut)}

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Drugs</th>
<th>Botanical Name</th>
<th>Part Used</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rasna</td>
<td>Pluchea lanceolata</td>
<td>Leaf</td>
<td>1 Part</td>
</tr>
<tr>
<td>2</td>
<td>Punarnava</td>
<td>Boerhavia diffusa</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>3</td>
<td>Shunthi</td>
<td>Zingiber officinale</td>
<td>Rhizome</td>
<td>1 Part</td>
</tr>
<tr>
<td>4</td>
<td>Guduchi</td>
<td>Tinospora cordifolia</td>
<td>Stem</td>
<td>1 Part</td>
</tr>
<tr>
<td>5</td>
<td>Erand</td>
<td>Ricinus communis</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
</tbody>
</table>

3. Rasna Dashamoola Taila (Kalpit Yoga for “Nirgundipatra-Pindasweda”)

\textit{(Table No. III)}

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Drugs</th>
<th>Botanical Name</th>
<th>Part Used</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Rasna</td>
<td>Pluchea lanceolata</td>
<td>Leaf</td>
<td>2 part</td>
</tr>
<tr>
<td>2.</td>
<td>Bilva</td>
<td>Aegle marmelos</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>3.</td>
<td>Agnimanth</td>
<td>Premna mucronata</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>4.</td>
<td>Shyonak</td>
<td>Oroxylum indicum</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>5.</td>
<td>Patla</td>
<td>Stereospermum suaveolance</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>6.</td>
<td>Gambhari</td>
<td>Gmelina arborea</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>7.</td>
<td>Shalparni</td>
<td>Desmodiumgangeticum</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>8.</td>
<td>Prishniparni</td>
<td>Uraria picta</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>9.</td>
<td>Brihati</td>
<td>Solanum indicum</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>10.</td>
<td>Kantakaari</td>
<td>Solanum surattense</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>11.</td>
<td>Gokshur</td>
<td>Tribulus terrestris</td>
<td>Moola</td>
<td>1 Part</td>
</tr>
<tr>
<td>12.</td>
<td>TilaTaila</td>
<td>Sesamum indicum</td>
<td>Seed’s Oil</td>
<td>As require</td>
</tr>
</tbody>
</table>

\textbf{Duration of Clinical Trial & Follow up Study}

1. Duration of clinical trial will be 30 days and Nirgundipatra-Pindasweda for 15 days.

2. Patients will be followed once in a week regularly.

\textbf{D) Criteria Of Assessment}

1. **Subjective parameters** - The following sign and symptoms of Katigatavata Roga were assessed for any improvement after the course of therapy.

**Sign & Symptoms**

1. Ruk (Pain) :- Assessment of pain will be by Visual Analogue Scale
   a. Pain with rest
   b. Pain on movement

2. \textit{Stabdharma} (Stiffness)

3. \textit{Toda} (Tingling sensation)

4. \textit{Anidra} (Diminish Sleep)

5. \textit{Suptata} (Numbness)

6. Mansa balakshaya (weakness on muscle)
Grading of Pain - The assessment of pain was done under Visual Analogue Scale (VAS).

Rest of the symptoms were assessed by following scoring system-

- **None** (Symptom is not present at all) 0
- **Mild** (Symptom is present but not bothering) 1
- **Moderate** (Symptom is bothering, but tolerable & need medicine occasionally) 2
- **Severe** (Symptom is not tolerable & need Continuous medication) 3
- **Verysevere** (Symptom is not relieved at all) 4

2. Objective Criteria

Following functional aspects and investigations were looked for any improvement after the course of therapy

(A). Functional assessment-
- **Lumber movement (S.L.R,Femoral Test,Schobar Test)**
  1) **S.L.R. (Straight leg raising) test**

<table>
<thead>
<tr>
<th>Grades</th>
<th>S.L.R. test</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No pain at 90 degree</td>
</tr>
<tr>
<td>1</td>
<td>Pain at 71-90 degree</td>
</tr>
<tr>
<td>2</td>
<td>Pain at 51-70 degree</td>
</tr>
<tr>
<td>3</td>
<td>Pain at 30 -50 degree</td>
</tr>
<tr>
<td>4</td>
<td>Pain below 30 degrees</td>
</tr>
</tbody>
</table>

- **Assessment of CRP findings**
  - Positive – 1
  - Negative – 0

- **Assessment of Femoral Test**
  - Positive – 1
  - Negative – 0

2) **Walking time** - Time taken to cover the distance of 30 meters.

3) **Lab Parameters** –

For **Exclusion of other diseases** - CBC (Complete blood count), RA Factor, RBS (Random blood sugar), X-Ray L-S Spine (AP & Lateral view).

For **Assessment of disease or possible side effects**
- ESR (Erythrocyte Sedimentation Rate), CRP (C-reactive protein), Serum Creatinine

**Observation & Results**:–

In demographic profile we found that maximum number of patients were from 30-40 age group (66.67% patients), Female gender (86.67% patients), High school (33.33% patient), Hindu religion (76.67% patients), middle class (76.67% patients), Married (all patients), House wives (63.33%), Vegetarian society (56.67% patients), Vishamashan (60% patients) and with no any addiction (60% patients).

In constitutional profile we found that maximum number of patients were having Alpa Nidra (70% patients), Madhyam Koshtha (60.00% patients), Vishamagni (50% patients), regular menstruation history (61.54% patients), Vata-Kaphaj Deha Prakriti (56.67% patients), Rajas Maanas Prakriti (46.68% patients), Madhyam
Saar (83.33% patients), Madhyam Samhanan (76.67% patients), Madhyam Pramaan (100% patients), Madhyama Satmya (80% patients), Madhyama Satva (60% patients), Madhyam Aharshakti Shakti (70% patients), Madhyam Jaaran Shakti (50%) Vyayam Shakti (53.33%).

In clinical profile we found that maximum number of patients were having chronicity between 0-5 years (70% patients).

In study of Nidana wise distribution we got that the Kriya Atiyoga(Prolonged Standing) as nidaan was maximum in 73.33% patients, than Ruksha, Sheeta and Laghu Aahar was second common cause in 63.33% patients, than Vega Vidharan was present in 50.00% patients, than 36.67% having Katu, Tikta, Kashay Aahar, followed by 33.33% patients having. Ratri jagaran

In study of Chief complaints wise distribution we got that all the patients were suffering with Ruk (Pain on Rest and Movement) 100%, than stabdhata 93.33% and Toda was in 90% patients, followed by Suptata that was in 86.66% patients, than Anidra was in 66.66% patients, followed by 40% patients having Weakness on muscle. In CRP investigation 16.67% patients were of positive in study of current Trial.

X-Ray findings we got that the osteophytes were found in 46.66% patients. 40% patients were having reduced space in between L5-S1 disc. While 30% patients were having space reduced between L4-L5 levels. 30% patients were found with reduced space in between both L4-L5 and L5-S1 (Both)

Table No. (IV) Showing effect of Therapy in Subjective Parameters (Wilcoxon Matched Pairs Signed Ranks Test)

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Gr.</th>
<th>Mean score</th>
<th>Difference</th>
<th>% relief</th>
<th>S.D±</th>
<th>S.E±</th>
<th>p value</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain with rest</td>
<td>A</td>
<td>6.10</td>
<td>3.30</td>
<td>2.80</td>
<td>45.90</td>
<td>0.78</td>
<td>0.24</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>5.70</td>
<td>2.60</td>
<td>3.10</td>
<td>54.38</td>
<td>0.73</td>
<td>0.23</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>4.60</td>
<td>2.00</td>
<td>2.60</td>
<td>56.52</td>
<td>0.69</td>
<td>0.22</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Pain on movement</td>
<td>A</td>
<td>4.90</td>
<td>2.10</td>
<td>2.80</td>
<td>57.14</td>
<td>1.135</td>
<td>0.35</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>5.90</td>
<td>2.30</td>
<td>3.60</td>
<td>61.01</td>
<td>1.17</td>
<td>0.37</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>5.80</td>
<td>2.20</td>
<td>3.60</td>
<td>62.06</td>
<td>1.17</td>
<td>0.37</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Stabdhata (Stiffness)</td>
<td>A</td>
<td>1.50</td>
<td>0.88</td>
<td>0.77</td>
<td>51.85</td>
<td>0.44</td>
<td>0.14</td>
<td>&lt; 0.05</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.80</td>
<td>1.00</td>
<td>1.80</td>
<td>64.28</td>
<td>0.42</td>
<td>0.13</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>2.60</td>
<td>0.70</td>
<td>1.90</td>
<td>73.07</td>
<td>1.101</td>
<td>0.34</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td>Toda (Tingling sensation)</td>
<td>A</td>
<td>1.40</td>
<td>0.60</td>
<td>0.80</td>
<td>57.14</td>
<td>0.42</td>
<td>0.13</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.10</td>
<td>0.90</td>
<td>1.20</td>
<td>57.14</td>
<td>0.42</td>
<td>0.13</td>
<td>&lt; 0.01</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>2.20</td>
<td>0.90</td>
<td>1.30</td>
<td>59.09</td>
<td>0.67</td>
<td>0.21</td>
<td>&lt; 0.01</td>
</tr>
</tbody>
</table>
Jangid U, Sharma CB, Bhakuni H, Clinical evaluation of efficacy of 'Trayodashang guggulu', 'Rasnadi Kwath' and 'Nirgundipatra-Pindasweda' in the management of 'Katiagatavata Roga' (Lumber Spondylosis.), JOA XIII-2, 2019; 102 - 112

| Anidra (Diminished Sleep) | A | 0.40 | 0.10 | 0.30 | 75.00 | 0.15 | 0.15 | > 0.05 | NS |
| B | 1.40 | 0.50 | 0.90 | 64.28 | 0.73 | 0.23 | <0.05 | S |
| C | 1.60 | 0.40 | 1.20 | 75.00 | 0.78 | 0.24 | < 0.01 | HS |

| Suptata (numbness) | A | 1.70 | 0.80 | 0.90 | 52.94 | 0.31 | 0.10 | <0.01 | HS |
| B | 1.60 | 0.80 | 0.80 | 50 | 0.42 | 0.13 | <0.01 | HS |
| C | 1.80 | 0.60 | 1.20 | 66.67 | 0.78 | 0.24 | <0.01 | HS |

| Weakness on muscle (mansabalak shaya) | A | 0.70 | 0.40 | 0.30 | 42.85 | 0.48 | 0.15 | > 0.05 | NS |
| B | 0.80 | 0.40 | 0.40 | 50 | 0.51 | 0.16 | > 0.05 | NS |
| C | 0.50 | 0.20 | 0.30 | 60 | 0.48 | 0.15 | > 0.05 | NS |

NOTE: HS - Highly Significant, S - Significant, NS - Non Significant

Intergroup Comparison

- **Subjective Parameters**
  
  On intergroup comparison *Stabdhata* showed statistically highly significant results (P < 0.01) and *Anidra* showed statistically significant results (P < 0.05) while Pain on Rest and Movement, *Toda, Suptata* and Weakness on muscle showed nonsignificant results. (P > 0.05)

In Dunn multiple comparisons posttests better results (significant, P<0.05) were found in Group C and Group B than Group A in *Stabdhata* and while better results (significant, P<0.05) were found in Group C than Group A in *Anidra*.

<table>
<thead>
<tr>
<th>Table No. (V): Showing Effect of Therapy on Objectives Parameters (Paired ‘T’ Test)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable</td>
</tr>
<tr>
<td>WALKING TIME</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>ESR</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>SERUM CREAT.</td>
</tr>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
</tbody>
</table>
**Discussion**

**Probable mode of action of Trayodashanga Guggulu:**

Trayodashang guggulu is described in ‘Bhaishajya Ratnavali’ (Vata vyadhi rogadhikar). Katigatavata roga is a Vata Pradhan Vyadhi and Vata Dosha vitiation may be due to Dhatushaya or Margavarodha. The property of it can be considered as Rasa Katu, Tikta, Virya Ushna and Vata-kapha doshaghnata. Katu and Tikta Rasa possess an antagonistic property to that of Ama and Kapha which are the chief causative factor in this disease. Because of their Agni vriddhikara property, they increase digestion power, which also digest Ama Rasa and reduce the excessive production of Kapha and also remove the obstruction of Srotasa. Because of Ushna Virya, it also alleviates vitiated Vata, hence pain, tenderness and stiffness in joint were reduced.

Aabha has a Pitta Kapha shamaka property due to Kashaya Rasa. Hauber and Gokshura is Vata-Pitta Shamak, Vrishya, Mutral and Rasayana. The ethanolic extract of this drug inhibits the expression of mediators like inflammatory cytokines and possess inflammatory. Guduchi is a well-known Rasayana and Tridoshaghna drugs considering chronic nature of the disease. Satavari has a Vata- pittashamaka property, so it helps in relief of pain and Daha. Vridhdharuka is mentioned in Bhavaprakasha as a Shothahara in Amavata. Rasna is a Param Vedana Sthanapa drugs. Gokshura is Vata-Pitta Shamak, Vrishya, Mutral and Rasayana Charaka is also mentioned as a Sarva Vata Roga. Satpushpa is Jwaranashaka, Shulahara and Dahashamaka. Kachura has anti-inflammatory action, in Charka Samhita mentioned as Rochana Deepana drugs. Yamani have an anti-inflammatory action and it improves the digestion power also. Sunthi is described by Charka as a Grahi drug which increase the Agni. Guggulu which is also a known...
drug as Vedanasthapak and Vatashamak. It pacifies Kapha Dosha by its Katu, Tikta Rasa and Laghu Gunas and corrects Vata dosha Gunas through its Ushna Virya. According to Doshkarma it works as Tridoshshamak and specially Vata-Kapha Shamak. Study shows that individual herbal extract of Guggulu and its combined extract as anti-inflammatory and analgesic activities, which are beneficial for pain, stiffness and other related symptoms of Katigata vata Roga.

Probable mode of action of Rasnadi Kwath:

Rasnadi Kwath is a combination of five drugs named as Rasna, Punarnava Shunthi, Guduchi, Erand In Rasnadi Kwatha 100% drugs have Ushna Virya. Which pacify both Vata and Kaphadosha. It has Ashupaka property through which it acts quickly at minute channels. The drug Rasna, due to its Tikta Rasa, Katu Vipaka and Ushna Virya, pacifies vitiated Kapha and Aama Dosha. Guru Guna and Ushna Virya pacifies Vata Dosha resulting in reduction of Toda, Shula and other related symptom Rasna also increases dhatuagni by its Tikta Rasa leading to proper nutrition of Dhatu. Punarnava is Vata kapha shamak, Vatanuloman, Shothahar and Mutrala. Shunthi is Kaphavata Shamak drug and helps in digestion of Ama and improve the Agni as having Ushna Virya, Katu Rasa and Laghu, Snigdha Guna. It provides relief from pain. Amrit (Guduchi) is a well-known Rasayana and Tridhoshaghana drug. Being Rasayana this drug improved the quality of Dhatu production and also brought the Dushta Dhatu (Dusya) to a normal state. As a consequence, this Rasayana drug improved the Vyadhikshamatva in the patients. Eranda is Rechana, Vedana Sthapan and Vrishya drug. It is drug of choice for the Avrita Vata

Out of Five drugs 60% have Tikta Rasa, 40% have Madhura Rasa and 40% having Kashaya Rasa. It helps in digestion of Ama & in pacifying Vata Dosha. Madhura Rasa balances the Ushna, Tikshna & Ruksha Guna of other drugs by its Sheeta, Snigdha, Picchila and Guru Guna.

Maximum 40% drugs have Guru Guna and 80% drugs having Madhura Vipaka, which helps to control the Vata Dosha, which is main causative factor for Katigata Roga. As Doshkarma 80% drugs are Vata-Kapha Shamak and 20% drugs are Vatapitta shamak. All these factors show Vatahar and Kaphahara action of this Kwath along with Strotoshodhan and Amahara properties. It breaks the pathogenesis behind Vatakaphaj Katigatavata Roga and work on symptoms Vatahar action reduces Rak, Toda, Stabdhata. Various studies show analgesic[12], antispasmodic[13] antinociceptive[14] and antinflammatory[15] activities of contents of Rasnadi Kwath.

Probable mode of action of Rasna Dashmooloo Taila and Nirgundipatra Pindasweda:

This is the oil for Abhyanga and Nirgundipatra pindasweda, preparation of 11 different drugs. This is an Oil preparation, prepared by Rasna, Dashamoola and Tila taila. Dashamooloo is mentioned as Shothahara, Shoolahara and Vedanashamaka. Among the 11 Dravyas of Dashmooloo 7 Dravyas (63.63%) have Vata-Kapha Shamak property, 4 Dravyas (36.36%) have Tridosagha property. It means, in this drug all Dravyas (100%) have Vata Shamak property and 11 Dravyas (91.66%) have Vata-Kapha Shamak property. Therefore, it will be a potent Vata Shamak, Vata-Kaph Shamak and Tridosagha compound. In Ayurvedic texts, also mentioned, “Dashmoolam Tridosaghnam Kapmarut Nashanam” and “Tailam Vataharam param”.

Nirgundi Patrapinda Sweda provided better improvement especially in pain, stiffness, restricted movements and dosha dusti. This improvement is owing to Stambhagna, Gauravaghn, Sheetaghna properties of Swedana karma and cell membrane is lipid in Nature, the higher the lipid solubility of the drug the stuper the concentration gradient within the membrane and thus greater will be the driving force for the diffusion of the substance across the membrane. Nirgundi also produces its anti-inflammatory, analgesic effect during Patrapinda Sweda Due to Vedanasthapana, properties of Nirgundi helps in reducing the symptoms like shoola, shootha.

So, above drugs and procedure possess almost all the
qualities required to treat the *Katigata vata roga*.

**Conclusion**

1. *Katigata vata roga* is one of the *Vatavyadhi* in which *Vitiated Vata Dosha* (especially *Vyana & Apana Vayu*) is the main causative factor and many times *Kapha* remains as *Anubandhi Dosha*.

2. On the basis of their clinical manifestations it can be correlated with Lumbar spondylosis described in modern medical science.

3. *Trayodashanga guggulu* and *Rasnadi Kwath* were effective drugs in all diagnosed cases of *Katigata vata roga* (Lumbar spondylosis).

4. *Nirgundipatra-Pindaswedana* as local Swedan therapy and fomentation showed prompt relief in most of the symptoms of *Katigata vata roga* (Lumbar spondylosis).

5. Best therapeutic response was noted in combined therapy (oral drugs and *Nirgundipatra-Pindaswedana*) on the basis of percentage relief.

6. On the basis of various observations and results obtained after completion of current research work, it can be concluded that *Trayodashanga guggulu*, *Rasnadi Kwath* and *Nirgundipatra-Pindaswedana* with *Rasna Dashamoola Taila*, may be used separately or simultaneously in the management of *Katigatavata roga* (Lumbar spondylosis).

7. Therefore, it can be concluded that, combined therapy in the form of administration of *Trayodashanga guggulu*, *Rasnadi Kwath* and *Nirgundipatra Pindaswedanawith Rasna Dashamoola Taila* is a safe and effective *Ayurvedic* treatment for the management of *Katigatavata roga* (Lumbar spondylosis).

**References**

1. Andrew R Houghton and david grey,chamberlans symptoms and sighns in clinical medicine, edition 13, page no.245
2. API text book of medicine, edition 9 th, volume 2
सारांश
dोषपूर्ण आहार की आदतों और अनियमित जीवन शैली शरीर के ऊतकों में जल्दी अपश्चाय परिवर्तन के लिए सिम्प्लैक्स है और इस तरह के अपश्चाय विकार की अधिकार्यता में एक महत्वपूर्ण भूमिका निभाते हैं। अस्थिगतबत्त की तरह के वात व्यापि, कटिगत वात रोग को रोकने के लिए आयुर्वेद ने चिकित्सा में अपर्णय स्थान ले लिया है। आयुर्वेद के लक्ष्य उपस्थिति की वजह से कटिगत वात रोग लम्बे समय द्वितीय सेख के साथ सहसंबंध होया जा सकता है। प्रक्षेपन में सामने आने वाले जमाव ले ली है। बीमारी के ध्वनि स्पेक्ट्रम के कारण, समाज और प्रभावी दवा के अभाव में ज्यादा व्यापकता, बीमारी अवधारणा के लिए चुना जा रहा है। प्रस्तुत चिकित्सीय अध्ययन में कटिगत वात रोग के 30 रोगियों पर जागतिक अध्ययन किया गया। इन रोगियों में 30 रोगियों में से प्रत्येक के तीन समूहों में विभाजित किया गया ए में 10 रोगियों त्रयोदशाङ्ग गुंगुल 2 गोली (प्रत्येक गोली 500 मि.ग्र.) दिन में तीन बार गुणहृद दानी और रासनादि क्वाल 50 मि.ली. दिन में दो बार 30 दिन के लिए दिया गया। भर्ति b के 10 रोगियों को 15 दिन तक सप्तन हरिनार देस निर्मुख पत्र पिंड स्वेद किया गया। तथा भर्ति c के 10 रोगियों को त्रयोदशाङ्ग गुंगुल 2 गोली (प्रत्येक गोली 500 मि.ग्र.) दिन में तीन बार, रासनादि क्वाल 50 मि.ली. दिन में दो बार 30 दिन और सप्तन हरिनार देस निर्मुख पत्र पिंड स्वेद 15 दिन तक दिया गया और यह निष्कर्ष निकाला जा सकता है कि इस चिकित्सीय अध्ययन में यह पाया गया की भर्ति c में भर्ति a और b की तुलना में अधिक सुधार प्रतिशत एवं बेहतर परिणाम मिले।
A Randomized clinical trial of Navaka Guggulu and Amritadi Guggulu on obesity (Sthaulya) in adolescents

*Dr. Sachin Kumar, **Prof. Pawankumar Godatwar, ***Dr. Reetu Sharma

*Research Officer, ministry of Ayush, New Delhi, **Professor & HOD, ***Assistant professor, Department of Roga Evam Vikriti Vigyan, National Institute of Ayurveda, Jaipur

ABSTRACT

In this modern era, the rising incidence of lifestyle diseases is a global issue. Sthaulya (obesity) is one of them. This disorder has instigated a major epidemic in the initial decades of the 21st century. Many theory and medicament put toward us for the management of the disease but till now perfect remedy for this problem is not found in modern medicine also. So people are expecting solution from Ayurveda. In the present trial, 67 Patients identified in the Nidanatmaka study as suffering from Sthaulya were randomly divided in 2 groups. Patients were administered with Navaka Guggulu in group A and Amritadi Guggulu in group B. Navaka Guggulu showed: Very significant effects on- Daurbalya, Kshudadhikya & Snigdhagata. Significant effects on- Chalaudara, Jawoparodha, Pipasaatijoga, Nidradhikya & Gauravata. Amritadi Guggulu showed: Very significant effects on- Chalaudara, & Kshudadhikya. Significant effects on- Jawoparodha, Daurgandhya, Gauravata, Snigdhagata. Both Navaka Guggulu and amritadi guggulu showed statistically Highly Significant results on Body weight & BMI (p< 0.0001) while Significant results on % FAT (p<0.05). Navaka Guggulu showed significant results on Serum cholesterol while Amritadi Guggulu showed significant results on Serum Triglycerides.

Keywords: Obesity, Sthaulya, Navaka Guggulu, Amritadi Guggulu

How to Site the Article: Kumar S, Godatwar PK, Sharma R, A Randomized clinical trial of Navaka Guggulu and Amritadi Guggulu on obesity (Sthaulya) in adolescents, JOA XIII-2, 2019; 113 - 124

Introduction:

Obesity has taken place of an epidemic, still majority of people are not aware of the factors that welcomes this problem and the results that are obtained after one gets into this problem[1]. At least 2.6 million people each year die as a result of being overweight or obese[2]. According to the W.H.O. Overweight and obesity
is the fifth leading risk for global deaths.\cite{3}

According to W.H.O 2008, more than 1.4 billion adults with age 20 yrs. and older, were overweight, of these over 200 million men and nearly 300 million women were obese.\cite{4} 35% of adults aged 20 and over were overweight in 2008, and 11% were obese. In 2011, more than 40 million children under the age of five yrs. were overweight. Overall more than one in ten of the world’s adult population was obese and women were more likely to be obese than men.\cite{5}

According to a study report, the obesity epidemic in India has increased by almost 20% from 1998 to 2005. Currently almost 1 in 5 men and over 1 in 6 women are overweight. In some urban areas the rates are as high as 40%.\cite{6}

Adolescence with its stormy period of rapid growth has its own peculiar set of physical, mental and psychosocial problems. In India, adolescents constitute about 22% of the total population. With growing realization of their vital role in the future of the nation and the society, a lot of interest is generated of late, in the hitherto untreated area of adolescent health.

Among physical challenges of this age group, obesity is fast taking the leading position with prevalence of 8 to 15%.\cite{7} Asian and particularly Indian population is proved to be genetically more predisposed to obesity.\cite{8}

The long-lasting and dire consequences of obesity, in the form of hypertension, diabetes, dyslipidemia together make the deadly quartet with its high morbidity and mortality.\cite{9} In addition, obesity brings with it many psycho-social consequences such as: Lack of self-esteem, feeling of guilt, shyness, behavioral problems, eating disorders, anxiety, depression etc.\cite{10}

In the pathology of Sthaulya, Kapha is main Dosha and Meda is main Dushya, while Agnimandya takes place at Medodhatvagni level. So, that type of drug therapy should be selected which have Kapha and Medanashaka property and have efficacy to correct the function of Medodhatv agnimandya. In Navaka Guggulu and Amritadi Guggulu maximum ingredient have Rasa- Katu, Virya - Laghu, Ruksha and Ushna, Vipaka- Katu, Vata -Kaphashamaka may be effective to control Sthaulya. Therefore, these two drugs have been selected as trial drug.
Materials & Methods:

Following materials & methods were adopted for conducting the present clinical trial.

(1) Selection Of Sthaulya Patients:

For the assessment of the efficacy of trial drugs on *Sthaulya* 67 Patients identified in the Nidanatmaka study as suffering from *Sthaulya* and willing to participate in the Upshayatmaka trial were selected for the Upshayatmaka study after due process of informed consent. These Patients were randomly divided into 2 groups as per parallel design -

**Group A:** Patients were administered with *Navaka Guggulu* (250mg. twice a day) for one month.

**Group B:** Patients were administered with *Amritadi Guggulu* (250mg. twice a day) for one month.

This protocol was followed after getting clearance by Institutional Ethical Committee as per no. F10 (5)/EC/2014/7276.

Aims & Objectives

1. To study the efficacy of *Navaka Guggulu* in the management of *Sthaulya*.
2. To study the efficacy of *Amritadi Guggulu* in the management of *Sthaulya*.
3. To compare the efficacy of *Navaka Guggulu* & *Amritadi Guggulu* in the management of *Sthaulya*.

(2) Inclusion Criteria

- Obese patients of age group 10 to 19 years.
- Patient having sign and symptoms of Obesity like, large body frame, having extra fat around the waist, difficulty in doing daily activities, lethargy, breathlessness, increased weight, heavy sweating, difficulty while sleeping etc.
- Body Mass Index (BMI) > 30 Kg/m2

(3) Exclusion Criteria:

- Uncooperative patients.
- Patients less than 10 yrs. & more than 19 yrs. of age.
- Obesity due to endocrinal disorder or drug induced obesity.
- Patients suffering from major illness

(4) Withdrawal Criteria:

It was planned that if, any cases developed any side effect by Dravyabhuta Cikitsa or not followed the instructions given, were to be withdrawn from trial. However, no patient was withdrawn from study due to adverse effects.

(5) Study Design:

Randomized, controlled, parallel, single blind study.

(6) Sample Size:

Total number of patients taken for study was 67.

(7) Follow Up Schedule:

Assessment was done once before the start, and then after every 15 days till the end of the trial. Total duration of the trial was 1 months.

(8) Criteria For Assessment

(A) Subjective criteria:

Most of the symptoms and signs of *Sthaulya*, described in *Ayurveda*, are subjective in nature. To give results objectively and for statistical analysis, multidimensional scoring pattern was adopted. This score was obtained before and after the treatment through statistical analysis and percentage relief was taken out to assess the efficacy of therapy. The details of the score adopted for the main signs and symptoms in present study were as follows:
1. (Chala Sphika Udara Stana) Visible Movement In Hip-Abdomen-Breast

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of chalatva</td>
<td>0</td>
</tr>
<tr>
<td>Little visible movement (in the areas) after fast movement</td>
<td>1</td>
</tr>
<tr>
<td>Little visible movement (in the areas) even after moderate movement</td>
<td>2</td>
</tr>
<tr>
<td>Movement (in the areas) after mild movement</td>
<td>3</td>
</tr>
<tr>
<td>Movement (in the areas) even after changing posture</td>
<td>4</td>
</tr>
</tbody>
</table>

2. Javoprodha/ Utsahahani (Laziness/ Lack of Enthusiasm)

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Alasya or Lack of Enthusiasm (doing work satisfactorily with proper vigour in time)</td>
<td>0</td>
</tr>
<tr>
<td>Doing work satisfactorily with late initiation</td>
<td>1</td>
</tr>
<tr>
<td>Doing work unsatisfactorily under mental pressure and takes time</td>
<td>2</td>
</tr>
<tr>
<td>Not starting any work on his own responsibility and doing little work very slowly</td>
<td>3</td>
</tr>
<tr>
<td>Does not take any initiation and does not want to work even after pressure</td>
<td>4</td>
</tr>
</tbody>
</table>

3. Kshudra Shvasa/Ayase Shvasa (Dyspnoea On Exerion)

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dyspnoea after heavy work (movement) but relieved soon and up to tolerance</td>
<td>0</td>
</tr>
<tr>
<td>Dyspnoea after moderate work but relieved later and up to tolerance</td>
<td>1</td>
</tr>
<tr>
<td>Dyspnoea after little work but relieved later and up to tolerance</td>
<td>2</td>
</tr>
<tr>
<td>Dyspnoea after little work but relieved later and beyond tolerance</td>
<td>3</td>
</tr>
<tr>
<td>Dyspnoea in resting condition</td>
<td>4</td>
</tr>
</tbody>
</table>

4. Daurbalyata-Alpa Vyayama (Weakness)

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Can do routine exercise</td>
<td>0</td>
</tr>
<tr>
<td>Can do moderate exercise without difficulty</td>
<td>1</td>
</tr>
<tr>
<td>Can do only mild exercise</td>
<td>2</td>
</tr>
<tr>
<td>Can do mild exercise with difficulty</td>
<td>3</td>
</tr>
<tr>
<td>Cannot do even mild exercise</td>
<td>4</td>
</tr>
</tbody>
</table>

5. Daurgandhya (Body Odor)

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absence of body odor</td>
<td>0</td>
</tr>
<tr>
<td>Occasional body odor removed after bathing</td>
<td>1</td>
</tr>
<tr>
<td>Persistent body odor limited to closed areas difficult to suppress with deodorants</td>
<td>2</td>
</tr>
<tr>
<td>Persistent body odor limited felt from long distance not suppressed withdeodorants</td>
<td>3</td>
</tr>
<tr>
<td>Persistent body odor limited felt from long distance not tolerated even by patient himself</td>
<td>4</td>
</tr>
</tbody>
</table>

6. Atikshudha (Excess Hunger)

<table>
<thead>
<tr>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totally unwilling for meal.</td>
<td>0</td>
</tr>
<tr>
<td>Unwilling for food, but could take the meal</td>
<td>1</td>
</tr>
</tbody>
</table>
Kumar S, Godatwar PK, Sharma R, A Randomized clinical trial of Navaka Guggulu and Amritadi Guggulu on obesity (Sthaulya) in adolescents, JOA XIII-2, 2019; 113 - 124

| Willing towards only most liking food & not to other.                              | 2 |
| Willing towards only one among Katu/Amla/Madhura food stuffs.                  | 3 |
| Willing towards some specific Ahara/Rasa vishesa.                               | 4 |

7. **Atipipasa** (Excess Thirst)

| Normal thirst                                                                  | 0 |
| Upto 1 litre excess intake of water                                            | 1 |
| 1 to 2 litre excess intake of water                                            | 2 |
| 2 to 3 litre excess intake of water                                            | 3 |
| More than 3 litre excess intake of water                                       | 4 |

8. **Nidradhikya** (Excess sleep)

| Normal sleep 7 hrs per Night                                                   | 0 |
| Sleep up to 8-10 hrs per day with Angagaurava                                  | 1 |
| Sleep up to 8-10 hrs per day with Angagaurava and Jrimbha                      | 2 |
| Sleep up to 8-10 hrs per day with Tandra                                       | 3 |
| Sleep more than 10 hrs per day with Tandra and Klama                           | 4 |

9. **Angagaurava** (Heaviness in the Body)

| No heaviness in the body                                                        | 0 |
| Feels heaviness in the body but it does not hamper routine work                 | 1 |
| Feels heaviness in the body which hampers daily routine work                   | 2 |
| Feels heaviness in the body which hampers movement of the body                 | 3 |
| Feels heaviness in the body along with flabbiness which causes great distress to | 4 |

10. **Snigdhangata** (Oily Body luster)

| Normal body lustre                                                             | 0 |
| Oily lustre of the body in summer season                                       | 1 |
| Oily lustre of the body in dry season                                          | 2 |
| Excessive oily lustre of the body even in dry season which is removed with     | 3 |
| Difficulty                                                                      | 4 |

11. **Angasada** (Fatigue)

| No fatigue                                                                     | 0 |
| Little fatigue in doing hard work                                              | 1 |
| Moderate fatigue in doing routine work                                         | 2 |
| Excessive fatigue in doing routine work                                        | 3 |
| Excessive fatigue even in doing little work                                    | 4 |
(B) Objective Criteria:

It was assessed on the basis of Body weight, BMI (Body Mass Index), % FAT and Biochemical investigations like Random Blood Sugar (RBS), LIPID PROFILE, done before starting the treatment and after completion of treatment in terms of percentage change and statistical evaluations.

Observation & Results

Demographic observation

50% patients of obesity were of Bala Vaya (10 -16 yrs) and 50% patients were of Vivardhamana Vaya (17-19 yrs). 53% patients were male while 47% patients were female. The patients of Hindu religion were 85% while Muslims and Jains were 6.66% both. Maximum i.e. 53.33% patients were Higher Secondary educated. Maximum 71.66% subjects were from middle class. Maximum 60% patients use to take Niramisha diet. Maximum 51.66% patients had habit of Adhyashana. Majority of the patients were found to be of Rajas Prakriti i.e. 60%.

Causative Factors

Ahara Nidana (Dietary Factors) 83.33% patients had Madhuradi Sevana, 75% had bread/ fast food, 68.33% patients had Guruvadi & Ksheer sevana, 60% patients had Navanna sevana, 55% patients had Sarpi Sevana, 53.33% patients had Snigdhadi sevana, 41.66% patients had Atibhojana Sevana, as causative factors.

Madhura Rasa is Snigdha, Sheeta and Guru in nature and is known to increase Kapha Dosa and all the Dhatus including Meda. It gives nourishment & strength to the body. On excessive use due to a direct result of vitiation of Kapha Dosha it is known to cause Sthaulya, Alasya, Gaurava which were seen to be the chief complaints of maximum patients.

As Kapha and Meda are both Guru and Snigdha in nature due to similarity of attributes they result in a direct increase in Kapha Dosha and Medo Dhatu.

2) Viharaja Nidana: 73.33% patients had Aashya Sukha Viharaja Nidana, 83.33% patient had Avyayama, and 71.66% patient had Diwaswapna.

3) Mansika Nidana: 80% patients had Harsha & Achinta both as causative factors. Mansika nidana may act in two ways, mental tendency like Nityaharsha & Achintana leads to mental satisfaction & Sthairya, which may to increase Manda, Stimita, Sandra & Guru Guna of Kapha. While Atichintana & chintita (stress & anxiety) helps to diminish the function of Rasa Vaha Srotas & also decreases normal digestive power which ultimately decreases Jatharagni & Medodhatvagni, which causes Ajirna hence leading to Ama formation thus deteriorating the pathogenesis further.

<table>
<thead>
<tr>
<th>Sr. No</th>
<th>Variable (BT)</th>
<th>Mean Score</th>
<th>% Change</th>
<th>SD±</th>
<th>SE±</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>AT</td>
<td>Diff.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Chala –sfika</td>
<td>Gp-A</td>
<td>0.55</td>
<td>0.40</td>
<td>0.15</td>
<td>22.58</td>
<td>0.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>0.60</td>
<td>0.46</td>
<td>0.14</td>
<td>32.25</td>
<td>0.35</td>
</tr>
<tr>
<td>2</td>
<td>Chala-udara</td>
<td>Gp-A</td>
<td>1.26</td>
<td>1.03</td>
<td>0.23</td>
<td>18.25</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>1.36</td>
<td>1.03</td>
<td>0.33</td>
<td>24.26</td>
<td>0.47</td>
</tr>
<tr>
<td>3</td>
<td>Chala-stana</td>
<td>Gp-A</td>
<td>0.70</td>
<td>0.63</td>
<td>0.06</td>
<td>8.57</td>
<td>0.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>0.80</td>
<td>0.73</td>
<td>0.06</td>
<td>7.50</td>
<td>0.25</td>
</tr>
</tbody>
</table>
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Table No. I shows that In Gp.- A Navaka Guggulu showed: Very significant effects on- Daurbalya, Kshudadhikya & Snigdhangata.

Significant effects on- Chalaudara, Javoparodha, Pipasatiyoga, Nidradhikya & Gauravata.

Non-significant effects on – Chalsfika, Chalstana, Daurgandhya, Kshudraswasa, & Angasada.

In Gp.-B Amritadi Guggulu showed: Very significant effects on- Chalaudara, & Kshudadhikya.

Significant effects on- Javoparodhda, Daurgandhya, Gauravata, Snigdhagata.

Non-significant effects on- Chalsfika, Chalstana, Daurbalya, Kshudraswasa, Nidradhikya, Pipasatiyoga, & Angasada.

Table No. II shows that Navaka Guggulu (Gp.-A) showed statistically Highly Significant results on Body weight & BMI (p< 0.0001) while Significant results on % FAT (p<0.05).
Amritadi Guggulu (Gp-B) showed statistically Highly Significant results on Body weight, & BMI (p<0.0001) while significant results on % FAT (p< 0.05).  

Table-III Showing Effect Of Therapy In Group- A & B On 60 Patients Of Sthaulya (Biochemical Parameters)

(Parametric Data Paired ‘t’ Test is used)

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Parameters</th>
<th>Groups</th>
<th>Mean</th>
<th>% Change</th>
<th>SD±</th>
<th>SE±</th>
<th>“t”</th>
<th>P</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Random Blood Sugar (RBS) (mg/dl)</td>
<td>Gp-A</td>
<td>88.66</td>
<td>87.66</td>
<td>1.0</td>
<td>1.12</td>
<td>2.9</td>
<td>0.54</td>
<td>1.85</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>89.20</td>
<td>87.96</td>
<td>1.2</td>
<td>1.34</td>
<td>3.45</td>
<td>0.63</td>
<td>1.95</td>
</tr>
<tr>
<td>2</td>
<td>Serum Cholesterol (mg/dl)</td>
<td>Gp-A</td>
<td>184.8</td>
<td>181.5</td>
<td>3.2</td>
<td>1.73</td>
<td>8.16</td>
<td>1.49</td>
<td>2.19</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>181.5</td>
<td>178.83</td>
<td>2.6</td>
<td>1.43</td>
<td>7.39</td>
<td>1.35</td>
<td>1.97</td>
</tr>
<tr>
<td>3</td>
<td>Serum Triglyceride (mg/dl)</td>
<td>Gp-A</td>
<td>146.8</td>
<td>144.0</td>
<td>2.8</td>
<td>1.90</td>
<td>8.0</td>
<td>1.46</td>
<td>1.91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>140.3</td>
<td>136.7</td>
<td>3.6</td>
<td>2.56</td>
<td>8.99</td>
<td>1.64</td>
<td>2.21</td>
</tr>
<tr>
<td>4</td>
<td>High Density Lipoproteins (HDL) (mg/dl)</td>
<td>Gp-A</td>
<td>48.70</td>
<td>49.36</td>
<td>0.66</td>
<td>1.35</td>
<td>2.89</td>
<td>0.52</td>
<td>1.26</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>48.30</td>
<td>49.43</td>
<td>1.1</td>
<td>2.27</td>
<td>3.95</td>
<td>0.72</td>
<td>1.57</td>
</tr>
<tr>
<td>5</td>
<td>Low Density Lipoproteins (LDL) (mg/dl)</td>
<td>Gp-A</td>
<td>105.6</td>
<td>103.3</td>
<td>2.2</td>
<td>2.08</td>
<td>6.11</td>
<td>1.11</td>
<td>1.98</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>103.8</td>
<td>101.5</td>
<td>2.3</td>
<td>2.21</td>
<td>7.13</td>
<td>1.30</td>
<td>1.80</td>
</tr>
<tr>
<td>6</td>
<td>Very Low Density Lipoproteins (VLDL) (mg/dl)</td>
<td>Gp-A</td>
<td>30.50</td>
<td>28.78</td>
<td>1.71</td>
<td>5.60</td>
<td>4.19</td>
<td>0.76</td>
<td>2.23</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gp-B</td>
<td>29.34</td>
<td>27.89</td>
<td>1.45</td>
<td>4.94</td>
<td>5.76</td>
<td>1.05</td>
<td>1.38</td>
</tr>
</tbody>
</table>

Table No. III shows that Navaka Guggulu showed significant results on Serum cholesterol and VLDL, while the effect was non-significant on RBS, Serum Triglycerides, HDL & LDL.

Amritadi Guggulu showed significant results on Serum Triglycerides, while the effect was non-significant on RBS, Serum cholesterol, HDL, LDL & VLDL.

Intergroup Comparison

To access the efficacy of two therapies intergroup comparison was done. As the variables are nonparametric in subjective and objective parameters so we used Mann-Whitney Test. The results are as follows.
Kumar S, Godatwar PK, Sharma R, A Randomized clinical trial of *Navaka Guggulu* and *Amritadi Guggulu* on obesity (*Sthaulya*) in adolescents, JOA XIII-2, 2019; 113 - 124

**Table IV Subjective Parameters**

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Symptoms</th>
<th>Mean diff. AT</th>
<th>SD±</th>
<th>SE±</th>
<th>U</th>
<th>P</th>
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<tbody>
<tr>
<td></td>
<td></td>
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<td>G_B</td>
<td>G_A</td>
<td>G_B</td>
<td>G_A</td>
</tr>
<tr>
<td>1</td>
<td>Chala –sfika</td>
<td>0.13</td>
<td>0.13</td>
<td>0.34</td>
<td>0.34</td>
<td>0.06</td>
</tr>
<tr>
<td>2</td>
<td>Chala-udara</td>
<td>0.23</td>
<td>0.33</td>
<td>0.43</td>
<td>0.47</td>
<td>0.07</td>
</tr>
<tr>
<td>3</td>
<td>Chala-stana</td>
<td>0.06</td>
<td>0.06</td>
<td>0.25</td>
<td>0.25</td>
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</tr>
<tr>
<td>4</td>
<td>Javoparodha</td>
<td>0.23</td>
<td>0.23</td>
<td>0.43</td>
<td>0.43</td>
<td>0.07</td>
</tr>
<tr>
<td>5</td>
<td>Daurbalya</td>
<td>0.30</td>
<td>0.16</td>
<td>0.46</td>
<td>0.37</td>
<td>0.08</td>
</tr>
<tr>
<td>6</td>
<td>Dauragandhya</td>
<td>0.16</td>
<td>0.23</td>
<td>0.37</td>
<td>0.43</td>
<td>0.06</td>
</tr>
<tr>
<td>7</td>
<td>Kshudhaadhiyka</td>
<td>0.30</td>
<td>0.16</td>
<td>0.46</td>
<td>0.37</td>
<td>0.08</td>
</tr>
<tr>
<td>8</td>
<td>Pipasadhiyka</td>
<td>0.40</td>
<td>0.16</td>
<td>0.49</td>
<td>0.37</td>
<td>0.09</td>
</tr>
<tr>
<td>9</td>
<td>Nidradhiyka</td>
<td>0.23</td>
<td>0.13</td>
<td>0.43</td>
<td>0.34</td>
<td>0.07</td>
</tr>
<tr>
<td>10</td>
<td>Gaurava</td>
<td>0.20</td>
<td>0.20</td>
<td>0.40</td>
<td>0.40</td>
<td>0.07</td>
</tr>
<tr>
<td>11</td>
<td>Kshudraswasa</td>
<td>0.13</td>
<td>0.13</td>
<td>0.34</td>
<td>0.34</td>
<td>0.06</td>
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<tr>
<td>12</td>
<td>Snigdhangata</td>
<td>0.26</td>
<td>0.26</td>
<td>0.44</td>
<td>0.52</td>
<td>0.08</td>
</tr>
<tr>
<td>13</td>
<td>Angasada</td>
<td>0.16</td>
<td>0.26</td>
<td>0.37</td>
<td>0.45</td>
<td>0.06</td>
</tr>
</tbody>
</table>

*Table IV* shows that there is no statistically highly significant difference (p>0.05) in the effect of therapies on all the subjective parameters in group A & B except Pipasatiyoga at (p < 0.05). *Navaka Guggulu* showed better results on Pipasatiyoga in comparison to *Amritadi Guggulu*.

**Table V Objective Parameters**

<table>
<thead>
<tr>
<th>S No</th>
<th>Symptoms</th>
<th>Mean diff. AT</th>
<th>SD±</th>
<th>SE±</th>
<th>U</th>
<th>P</th>
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<td></td>
<td>G_A</td>
<td>G_B</td>
<td>G_A</td>
<td>G_B</td>
<td>G_A</td>
</tr>
<tr>
<td>1</td>
<td>Body weight (kg)</td>
<td>1.23</td>
<td>0.63</td>
<td>0.36</td>
<td>0.75</td>
<td>0.06</td>
</tr>
<tr>
<td>2</td>
<td>BMI (kg/m2)</td>
<td>2.62</td>
<td>0.57</td>
<td>12.92</td>
<td>0.21</td>
<td>2.35</td>
</tr>
<tr>
<td>3</td>
<td>%FAT</td>
<td>0.33</td>
<td>0.44</td>
<td>0.74</td>
<td>0.99</td>
<td>0.13</td>
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</tbody>
</table>

*Table V* shows that there is a statistically very significant difference in the effect of therapies in group A & B (p = 0.002) on Body weight, highly significant difference (p=0.0009) on BMI & no significant difference (p > 0.05) on % Fat. *Navaka Guggulu* showed better results on Body weight and BMI in comparison to *Amritadi guggulu*.
Kumar S, Godatwar PK, Sharma R, A Randomized clinical trial of Navaka Guggulu and Amritadi Guggulu on obesity (Sthaulya) in adolescents, JOA XIII-2, 2019; 113 - 124

Table VI Bio Chemical Parameters

<table>
<thead>
<tr>
<th>S No</th>
<th>Symptoms</th>
<th>Mean diff. AT</th>
<th>SD±</th>
<th>SE±</th>
<th>U</th>
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<tbody>
<tr>
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<td></td>
<td>$G_A$</td>
<td>$G_B$</td>
<td>$G_A$</td>
<td>$G_B$</td>
<td>$G_A$</td>
</tr>
<tr>
<td>1</td>
<td>RBS (mg/dl)</td>
<td>0.96</td>
<td>1.23</td>
<td>2.95</td>
<td>3.45</td>
<td>0.54</td>
</tr>
<tr>
<td>2</td>
<td>Serum Cholesterol (mg/dl)</td>
<td>3.26</td>
<td>2.66</td>
<td>8.16</td>
<td>7.39</td>
<td>1.49</td>
</tr>
<tr>
<td>3</td>
<td>Serum Triglyceride (mg/dl)</td>
<td>2.73</td>
<td>3.63</td>
<td>7.95</td>
<td>8.99</td>
<td>1.45</td>
</tr>
<tr>
<td>4</td>
<td>HDL (mg/dl)</td>
<td>0.66</td>
<td>1.13</td>
<td>2.89</td>
<td>3.95</td>
<td>0.52</td>
</tr>
<tr>
<td>5</td>
<td>LDL (mg/dl)</td>
<td>2.82</td>
<td>2.36</td>
<td>5.85</td>
<td>7.13</td>
<td>1.06</td>
</tr>
<tr>
<td>6</td>
<td>VLDL (mg/dl)</td>
<td>2.04</td>
<td>1.62</td>
<td>4.03</td>
<td>5.75</td>
<td>0.73</td>
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</table>

Table No. VI shows that there is no significant difference ($p >0.05$) in the effect of therapies in group A & B on all the parameters of lipid profile. This shows that both treatments are almost similar in concern of lipid profile.

Discussion

On subjective criteria

Chala-sphika, Chala-udara, Javoparodha, Daurgandhya, Kshudhaadhiyka, Kshudra Shwasa, Snigdhanga-ta - Both the treatments are effective in reducing these symptoms except Chala-sphika and kshudra Shwasa but on basis of percentage improvement Amritadi Guggulu seems to be superior.

Chala-stana, Daurbalya, Pipasa-Adhikya, Nidradhiyka, Gaurava, Angasada - Both the treatments are effective in reducing these symptoms except Chala-stana and Angasada but on basis of percentage improvement Navaka Guggulu seems to be superior.

On objective criteria

Body weight and BMI: - Both the treatments are effective in reducing Body weight statistically, however on basis of percentage improvement Navaka Guggulu seems to be superior.

%Fat: - Both the treatments are ineffective in reducing %Fat statistically, however on basis of percentage improvement Amritadi Guggulu seems to be superior.

Thus, we may conclude that mostly combination of Katu-Ras, Laghu, Ruksa and Usnha-Virya, Katu-Vipaka Pradhana drugs in Navaka Guggulu & Amritadi Guggulu having all the properties can do the function of Stroto vibandhanashana and against Kapha, Kleda and Meda.

These drugs may be effective on Rasa, Meda, Medodhatvagni, which provided good results on maximum signs and symptoms. Whereas it was observed that in Navaka Guggulu, percentage relief in most signs and symptoms was better as compared to Amritadi Guggulu on Sthaulya.

Biochemical parameters

RBS, HDL and LDL - Both the treatments are ineffective in reducing RBS statistically, however on basis of percentage improvement Amritadi Guggulu seems to be superior.

S. Cholesterol - On basis of percentage improvement Navaka Guggulu seems to be superior.

S. Triglyceride - On basis of percentage improvement Amritadi Guggulu seems to be superior.

Probable Mode of Action of trial drugs

All the contents of Navaka guggulu & Amritadi Guggulu contain maximum Katu, Tikta, kashaaya Rasa. Because intake of Madura, amla, lavana rasa increase medodhatu. Katu, Tikta, Kashaaya Rasa is opposite of medo dhatu. So Katu, Tikta and kashaaya rasa vilayanameda. so
medasa avarana removed and then after removing medasa avarana it may be acting on the Jatharagni thus prolonging the digestive period by reducing Tikshnagni, and hence maintains normal appetite but reduces excessive hunger with proper digestion of food. Where as Katu, Tikta, kashaya Rasa have Deepana, Pachana, Kaphaghna, Lekhana, Amapachana etc, properties. Due to their Deepana Karma it helped in Jatharagni Deepana and also Dhatvagni Deepana. With Pachana Karma it helped in Ama Pachana which is main cause in the Samprapti hence with Deepana and Pachana Karma it helped in Samprapti Vighatana. It reduces excessive Medo Dhatu from body by having Medo Kshaya and kapha Kshaya properties. All Rasa have Kapha ghnā properties, Kapha is one of the main Doṣha in the Samprapti of Sthaulya, so with Kaphaghna property it again helped in Samprapti Vighatana of Sthaulya. Maximum contents of Navaka guggulu & Amritadi Guggulu contain Ruksha, Laghu and Tikshna Guna. Ruksha Guna is known for its Dhatu Shoshaka and Kapha Shamaka Properties by its Rukshana & Lekhana Karma, Rukshana and Tikshna guna specially works on Medo dhatu medo dhatu which has snighdha and mridu guna. Whereas, Laghu Guna is Kaphashamaka & Dhatuhasakaraka, Krishtakaraka by its Laghana Karma. Due to their Rukshana Lekhana and Langhana properties they result in reduction of excessive Medo Dhatu from body by having Medokshaya and kapha Kshaya properties which again helped in Samprapti Vighatana of Sthaulya.

Maximum contents of Navaka guggulu & Amritadi Guggulu have Katu Vipaka which is responsible for Ama Pachana and Srotoshodhana by enhancing Jatharagni and Dhatvagni. It helps in Samprapti Vighatana of Sthaulya.

Ushna Virya of ingredients help in vilayana of medodhātu in the body and digests Ama by enhancing Medo Dhatvagni. Digestion of Ama clears the obstruction of Rasavaha Srotas and Medovaha Srotas which results in Vata Shaman too. This again helps in Samprapti Vighatana of Sthaulya.

The known pharmacological action of majority of the drug contents is Kapha-vata hara Dosha Karma. Drugs are having Deepana, Pachana Lekhanna, Chedana, Anulomana etc. properties. The effect of the study drugs can be attributed to the above mentioned properties of its ingredients.

Conclusions

- Both Navaka Guggulu & Amritadi Guggulu shared clinical efficacy in the management of obesity (Sthaulya), however the effect varied in terms of statistical significance as well as various parameters.
- Navaka Guggulu gave better results on Daurbalya, Pipasadhikya, Nidradhikya, Serum Cholesterol & VLDL.
- Amritadi Guggulu gave better results on Chalaudara, Daurgandhya & Serum Triglyceride.
- Navaka Guggulu can be the drug of choice in obese patients with Daurbalya, Pipasadhikya & Nidradhikya and Amritadi Guggulu in obese patients with Chalaudara & Daurgandhya.

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सारांश

इस आधुनिक युग में जीवनशैली विकारों की बढ़ती दर एक वैश्विक समस्या है, स्थिति उनमें से एक है। इस व्याधि ने 21 वीं सदी के प्रारंभिक दशकों में एक प्रमुख महामारी की गुरुदाहत की है। इस व्याधि के इलाज के लिए बहुत सारे सिद्धांत तथा चिकित्सा आई परतु अभी तक आधुनिक विज्ञान में भी इस व्याधि का कोई पूर्णत: सफल इलाज नहीं है, इसलिए लोगों के मन से इस व्याधि के समाधान को ही लेकर आशाबिहृत है।

निम्न अनुसंधान में निदानात्मक अवधारणा में स्थिति से ग्रसित 67 रोगियों का दो युग में क्रम रहित रूप से मिश्रित किया गया। युग A के रोगियों को नवक गुगुल व युग B के रोगियों को अरुतादिगुगुल दिया गया। नवक गुगुल का दोहरण, शुद्धिक्रम स्थिभांतर पर अति महत्वपूर्ण एवं चलोदर, जवोपरोध, पिपासातिमायोग, निद्राविवक व गीरवता पर संतोषजनक परिणाम मिला। अनुवादवर्ग गुगुल का चलोदर व शुद्धिक्रम पर अति महत्वपूर्ण एवं जवोपरोध, दौर्गन्ध, गीरवता व स्थिभांतर पर संतोषजनक परिणाम मिला। दोनों युगें में शरीर वजन व बी.एम.आई पर साभारीक आयतन महत्वपूर्ण (p<0.0001) एवं वसा % में महत्वपूर्ण (p<0.05) परिणाम पाया गया। नवक गुगुल का सिरस कोलेस्ट्रोल व अनुतादिगुगुल का सिरस ट्राइग्लिसराइड में महत्वपूर्ण परिणाम मिला।
A Comparative Study of Efficacy & Safety of Pushkarmooladi Yoga And Bharangi Nagara Kwatha in Management of Tamaka Shwasa w.s.r. to Chronic Obstructive Pulmonary Disease (COPD)

*Dr. Uday Raj Saroj, **Dr. Mandeep Kaur, ***Dr. Ram Kishor Joshi

*Associate Professor, Dept. of Kayachikitsa, National Institute of Ayurveda, Jaipur, **Ayush Medical Officer, Govt. Ayurvedic Hospital, Shriganganagar, Rajasthan, ***Professor and Head, Department of Kayachikitsa, National Institute of Ayurveda, Jaipur

ABSTRACT

Due to increasing incidence and prevalence of Tamaka Shwasa (Chronic obstructive pulmonary disease), there is a need for effective and safe drug for the management of Tamaka Shwasa. This study was conducted in 30 clinically diagnosed patients of Tamaka Shwasa. These patients were divided into two groups of 15 patients in each. The patients of group A were given Pushkarmooladi Yoga 2 Capsule (each cap. 500mg) thrice a day. In group B, patients were given Bharangi Nagara Kwatha 20 gm Yavkuta Churna (prepared 40 ml) twice a day before meal for 28 days. Clinical evaluation was done on the basis of assessment criteria and spirometry. Statistically highly significant improvement was found in subjective parameters like Shwasakrichhta, Kasa, Kaphanishthivana, Nidralpata, CAT Score in both the groups. Significant result was observed in Ghurghuraka Shabda and Anupsaya in both the groups and in Accessory muscle use in group A. Highly significant improvement was observed in objective parameters viz Six Minute Walk Test (SMWD), FEV1%(Pred.) and Pulse rate in both groups and in FEV1/FVC%(Pred.), Respiratory rate and GOLD Stage in group A. On comparison of effect on all parameters of both groups, statistically non-significant result was found except in Gold stage.

Keywords: Tamaka Shwasa, Pushkarmooladi Yoga, Bharangi Nagara Kwatha, FEV1, GOLD stage.

Introduction:

Chronic obstructive pulmonary disease (COPD) is a common preventable and treatable disease, characterized by persistent airflow limitation that is usually progressive and associated with an enhanced...
chronic inflammatory response in the airways and the lung to noxious particles or gases. Exacerbations and comorbidities contribute to the overall severity in individual patients[3]. In 2012 it became the third leading cause of death as the number of death 3.1 million. By the year 2020 COPD projected to be 3rd leading cause of death and 5th leading cause of disability worldwide[2]. Worldwide, COPD affects 329 million people or nearly 5% of the population. According to WHO estimates, 65 million people have moderate to severe COPD[3]. In India 2010, almost 24 million adults over the age of 40 had COPD. Data monitor expects this number to increase 34% to approximately 32 million by 2020[4]. Patients from low and middle income countries have more severe symptoms than those in high income countries, possibly due to incorrect diagnoses, poor access to health care, unaffordability of therapy, exposure to environmental irritants, and genetic susceptibility to more severe disease[3].

Tamaka Shwasa is analogous to COPD due to similarity in symptoms, onset, causes, precipitating factors and pathogenesis. Vata and Kapha are the two key pathological factors involved in the Samprapti of Tamaka Shwasa. Due to the predominant morbidity of Vata and Kapha Dosha which stems out from the Pittasthana, afflicting the Rasa Dhatu, disturbing the function of Pranavaha Srotas leads to the manifestation of Tamaka Shwasa. This unique pathology determines episodic nature of the illness that runs a chronic course and in the long run incriminating the Hridaya Marma which is the root of Pranavaha Srotas. Where in, the balanced rational treatment aimed at rectification of morbidity of Vata dosha by Snigdha Chikitsa and Kapha dosha by Ruksha Chikitsa is essential but difficult. Affliction of the Hridaya and depletion of Rasa Dhatu during the chronic course of the illness adds to the difficulty in planning the treatment. Hence in such a complex circumstance where the disease is life threatening by involving the vital organs it is found to be challenging one to the physicians. So Tamaka Shwasa demands distinct remedy. The currently used drugs for the treatment of this disease in modern medicine are far from satisfactory as they provide symptomatic relief, produce several adverse effects and may lose effectiveness on continued use. Muscle tremor and hypokalemia are major adverse effects of β2 agonist. COPD patient has to take medicine for long duration and intake of bio-incompatible drugs for long duration further derange body immunity and worsen the pathology. In such circumstances bio-compatible herbs provide better solution. Herbs with cost effectiveness, high efficacy, easy availability and least side effects give an opportunity for research and hope for complete cure of disease.

In Ayurveda literature, a number of herbal preparations are described for the management of Tamaka Shwasa. These textual recipes have been tried clinically and efficacy has been proved by many researchers but as disease is chronic in nature one has to continue medicine for longer period. In such condition a cheaper remedy with greater palatability & having better results should be used by physician. Various Aacharya have given guiding principles for management of Tamaka Shwasa. The drug which having Vata Kaphahaghaṇa, Ushna and Vatanuloman properties are prescribed. Ayurveda contributes several modalities of treatment for this disease. Pushkarmooladi Yoga and Bharangi Nagara Kwatha such preparations are very much valued for its beneficial effects in cases of Tamaka shwasa (COPD). Pushkarmooladi yoga contains Pushkarmoola (Inula racemosa), Maricha (Piper nigrum), Yavakshara (Potassii carbonas) and Bharangi Nagara Kwatha contains Bharangi and Nagara. Both the combination of drugs contain mainly Katu, Tikta Rasa and Laghu, Tikshna and Ruksha, Snigdha Guna and Ushna Veerya and Madhura and Katu Vipaka and Kaphavata Shamaka properties. In modern terms, the individual ingredients have antiinflammatory, antioxidants, antiallergic, immunomodulatory, bronchodilator and antitussive actions in predominance. A probable mode of action of the drug was assumed based on the classical analysis of Rasa Panchaka and Dosha-Vyadhi Karma along with modern pharmacology of individual drugs.

Material & Methods
The study was conducted on 30 clinically, pathologically and radiologically diagnosed patients of Tamaka Shwasa (COPD). The selection of patients was made from O.P.D./I.P.D. wing of P.G. Dept. of Kayachikitsa, National Institute of Ayurveda Jaipur.

**Inclusion Criteria:-**
1. Patients of either sex aged between 30 to 70 Years.
2. Patients presenting with clinical features of Tamaka Shwasa and an established clinical history of COPD in accordance with the definition by the WHO GOLD Guideline.
3. Current or former cigarette smokers with a history of cigarette smoking of ≥ 10 pack-years.
4. According to GOLD criteria - a post-albuterol / salbutamol FEV1/FVC ratio of <_0.70 and a post-albuterol / salbutamol FEV1 of >35% and <_80% of predicted normal.
5. Patients willing to give informed consent for the clinical trial.

**Exclusion Criteria:-**
1. Pregnancy, Asthma, Respiratory Disorders other than COPD like alpha-1 antitrypsin deficiency, active tuberculosis, bronchiectasis, sarcoidosis, lung fibrosis, pulmonary hypertension, and interstitial lung disease.
2. Other significant extra pulmonary Diseases/Abnormalities: that can influence the result of study. Chest X-Ray that reveals evidence of clinically significant abnormalities not believed to be due to the presence of COPD.
3. 12-Lead ECG: An abnormal and significant ECG finding from the 12-lead ECG conducted at Visit 1.
4. Screening Labs: Significantly abnormal finding from clinical chemistry and hematology tests at Visit 1.
5. Medication prior to spirometry: Unable to withhold Albuterol/Salbutamol for the 4 hour period required prior to spirometry testing at each study visit.
6. Use of long-term oxygen therapy (LTOT) described as oxygen therapy prescribed for greater than 12 hours a day. As-needed oxygen use (i.e., <12 hours per day) was not exclusionary.
7. Drug or Alcohol Abuse.

**Assessment criteria:-**

**A. Subjective Variables** - Subjective symptoms like Dyspnoea, Cough, Fainting, Expectorant, Difficulty in Speech, Night time awakening, Wheezing, Exacerbations on exposure to cold diet and climate, Use of Accessory muscle etc. were scored by following the standard methods as below:-


<table>
<thead>
<tr>
<th>Dyspnoea</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>No breathlessness except with strenuous exercise</td>
<td>Normal</td>
<td>0</td>
</tr>
<tr>
<td>Rapid walking on flat ground or slight slope</td>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Walking slowly on flat ground ,or must stop because of breathlessness when walking at a normal on flat ground</td>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>Walking 100 m or a few minutes on flat ground</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Getting dressed</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

### 2. Grading for Cough

<table>
<thead>
<tr>
<th>Cough</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>No cough</td>
<td>Normal</td>
<td>0</td>
</tr>
<tr>
<td>Cough less than one third time of the day</td>
<td>Mild</td>
<td>1</td>
</tr>
</tbody>
</table>
A Comparative Study of Efficacy & Safety of Pushkarmooladi Yoga And Bharangi Nagara Kwatha in Management of Tamaka Shwasa w.s.r. to Chronic Obstructive Pulmonary Disease (Copd), JOA XIII-2, 2019; 125 - 135

<table>
<thead>
<tr>
<th>Cough half of the time of the day</th>
<th>Moderate</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cough three fourth time of the day</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Cough throughout the whole day</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

3. Grading for Expectorant

<table>
<thead>
<tr>
<th>Quantity of Sputum</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>No sputum</td>
<td>Normal</td>
<td>0</td>
</tr>
<tr>
<td>5 to 10 ml per day, thin</td>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Ranging from 10 ml to 25 ml, thin</td>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>25 ml to 50 ml per day, thick</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>50 ml to 100 ml per day, thick</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

4. Grading for Difficulty in Speech

<table>
<thead>
<tr>
<th>Difficulty in Speech</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Difficulty in Speech present/absent</td>
<td>1/0</td>
</tr>
</tbody>
</table>

5. Grading For Night awakening

<table>
<thead>
<tr>
<th>Night awakening</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep throughout night</td>
<td>Normal</td>
<td>0</td>
</tr>
<tr>
<td>Awakened once</td>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Awakened twice or more</td>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>Awakened most of the time</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Not to sleep</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

6. Grading for wheezing

<table>
<thead>
<tr>
<th>Wheezing</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>absent/present</td>
<td>0/1</td>
</tr>
</tbody>
</table>

7. Grading for Fainting/Dizziness and Exacerbation on exposure to cold diet and climate

<table>
<thead>
<tr>
<th>Fainting/Dizziness and Exacerbation</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Symptom is not present at all.</td>
<td>Normal</td>
<td>0</td>
</tr>
<tr>
<td>Symptom is present but not bothering</td>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Symptom is bothering but tolerable</td>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>Symptom is not tolerable and needs Medication</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Symptom is not relieved at all</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

8. Grading for use of Accessory muscle

<table>
<thead>
<tr>
<th>Use of Accessory muscle</th>
<th>Grade</th>
</tr>
</thead>
</table>
Saroj UR, Kaur M, Joshi RK, A Comparative Study of Efficacy & Safety of Pushkarmooladi Yoga And Bharangi Nagara Kwatha in Management of Tamaka Shwasa w.s.r to Chronic Obstructive Pulmonary Disease (COPD), JOA XIII-2, 2019; 125 - 135

| None | 0 |
| Mild | 1 |
| Moderate | |
| Marked | |

9. Grading of CAT score

<table>
<thead>
<tr>
<th>CAT score</th>
<th>Interpret.</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;30</td>
<td>Very high</td>
<td>3</td>
</tr>
<tr>
<td>&gt;20</td>
<td>High</td>
<td>2</td>
</tr>
<tr>
<td>10-20</td>
<td>Medium</td>
<td>1</td>
</tr>
<tr>
<td>&lt;10</td>
<td>Low</td>
<td>0</td>
</tr>
</tbody>
</table>

B. Objective parameters - For the purpose of diagnosis of COPD its assessment, severity, and clinical improvement Objective clinical signs including Six minute walk test (SMWT), Spirometry (FEV1% predicted, FEV1/FVC% predicted), Respiratory Rate, Pulse Rate, COPD severity stage were compared before and after the treatment and to assess the possible side effects, certain routine and specific investigations were performed in every patients

1. COPD Severity grading according To GOLD Criteria

<table>
<thead>
<tr>
<th>FEV1% (Pred.) Post bronchodilator</th>
<th>FEV1/FVC(Pred.)</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;80%</td>
<td>&lt;0.7</td>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>&lt;50-80%</td>
<td>&lt;0.7</td>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>&lt;30-50%</td>
<td>&lt;0.7</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>&lt;30%or&lt;50%but sign of RVF</td>
<td>&lt;0.7</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

2. Grading of Respiratory rate

<table>
<thead>
<tr>
<th>Respiratory rate</th>
<th>Stage</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than or equal to 30 breath/min</td>
<td>Normal</td>
<td>1</td>
</tr>
<tr>
<td>Ranging from 31 to 45 breath/min</td>
<td>Mild</td>
<td>2</td>
</tr>
<tr>
<td>Ranging from 46 to 60 breath/min</td>
<td>Moderate</td>
<td>3</td>
</tr>
<tr>
<td>More than 60 breath/min</td>
<td>Severe</td>
<td>4</td>
</tr>
</tbody>
</table>

3. Grading of Heart rate

<table>
<thead>
<tr>
<th>Heart rate</th>
<th>Stage</th>
<th>Grading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal ( 72/min)</td>
<td>Normal</td>
<td>0</td>
</tr>
<tr>
<td>Mild (100/min)</td>
<td>Mild</td>
<td>1</td>
</tr>
<tr>
<td>Moderate (100-110/min)</td>
<td>Moderate</td>
<td>2</td>
</tr>
<tr>
<td>Severe (&gt;120/min)</td>
<td>Severe</td>
<td>3</td>
</tr>
<tr>
<td>Impending respiratory failure Relative bradycardia</td>
<td>Very severe</td>
<td>4</td>
</tr>
</tbody>
</table>

C. Investigations:-

a. Haematology:- HB%, Total Leukocyte Count, Erythrocyte Sedimentation Rate, Absolute Eosinophil count, Fasting Blood Sugar.

b. Bio-chemistry :- SGOT, SGPT, Blood urea, Serum Creatinine
c. Following investigations were done to exclude various Cardiac & Pulmonary disorders: X-Ray chest - PA view, Electrocardiography, Acid-fast bacilli test of sputum.

**Design of study:** The study design was open clinical trial of over 30 cases of Tamaka Shwasa (COPD). The patients were selected by random sampling method.

**Duration of study:** The duration of treatment was 28 days and patients were examined for the change in the signs and symptoms on 7th, 14th, 21st & 28th day of treatment.

**Grouping & administration of drug:**

**Group A:** 15 patients were given Pushkarmooladi Yoga 2 Capsule (each cap. 500mg) thrice a day before meal with lukewarm water for 28 days.

**Group B:** 15 Patients were given Bharangi Nagara Kwatha 20 gm Yavkuta Churna (prepared 40 ml) twice a day before meal for 28 days.

**Note:** Patients were guided regarding Pathya and Apathya regimen by the Investigator / Principal Investigator.

**Statistical analysis**

The information gathered on the basis of observation made about various parameters was subjected to statistical analysis in terms of Mean, Standard Deviation and Standard error (SE). All the results were calculated by using software: GraphPad InStat 3.

**Demographic Observations**

In the present study maximum number of patients (50%) were in the age group of 60-70 years. Incidence of disease is found notably higher in males (86.66%) than in females (13.33%). 90% patients from Hindu community, 96.66% were married, maximum numbers of patients (83.33%) were found in between Primary to Secondary educational status, 40% of patients were Labourer, max. patients 43.33% belonged to Upper lower socio-economic status, 43.33% patients were belonging to Rural habitat, 57% patients in the study were vegetarians, 50% having irregular bowel, all patients (100%) were having addiction of cigarette smoking.

In this study 46.66% of patients were reported with Vatakaphaja Prakriti, 50% were of Madhyama Sara, 46.66% were having Heena Samhanana, 50% of patients were having Madhyama Satmya, 56% patients were having Madhyama Satva, 46.66% patients were having Madhyama Ahara Shakti, 70% were having Avara Vyayamashakti, 50% were of Krura Koshta, 47% of patients were having Vishmagni, 50% patients were of normal weight (BMI noticed between 18.50 to 24.99). Maximum 56.6% patients were found with duration of illness >2 yrs, maximum patients 63.33% were having positive drug history of Allopathic medicine. Maximum 83% patients did not have any family history. Maximum observed Nidana in present study was smoking (Dhuma) in 100% then Ambient air pollution (Vata) in 13.3%, Occupational exposure (Rajas) in 10%, concomitant Asthma in 6.6%. 60% patients were current smoker. Majority of the patients 43.33% were under the range of 21-30 pack year. All 30(100%) patients had complaint of Shwasakrucchata (Dyspnoea), followed by Kasa (Cough) in 23(76.66%), Kapha Nishthivana (Expectorant) and Anupsaya (Exerbation on exposure to cold diet & climate) in 21(70%) and Nidralpata (Night time awakening) in 19 (63.33%), Bhasanakrucchta (Speech difficulty) in 9 (30%) patients.

According to CAT score max. 63.33% patient had stage II and 36.66% had stage III disease. Bronchovascular breath sound was found in 20 (66.66%) patients and was the most common clinical finding. This was followed by wheezing in 16(60%), Accessory muscles use in 17(56.6%), Hyper resonant note in 13 (43.33%) and Barrel shape chest in 7(23.3%) of cases. In X-rays Hyperinflation was found in 17 (56.6%) patients and it was the most common X-rays finding. This was followed by low placed flat diaphragm in 12(40%), Prominent bronchovascular marking in 11(36.66%) and tubular heart in 4(13.33%) cases. According to GOLD stage 60% had stage II, 40% had stage III disease. Relieving by Shleshma Vimokshante Sukham was found in maximum i.e. 66.66% of cases.
Results:

Table no. I - Showing effect of therapy in subjective variables
(Wilcoxon matched- pairs signed ranks test)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gr.</th>
<th>Mean Diff.</th>
<th>% Relief</th>
<th>SD±</th>
<th>SE±</th>
<th>p</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shwasakrichhta (Dyspnoea)</td>
<td>A</td>
<td>1.73</td>
<td>0.80</td>
<td>0.93</td>
<td>53.85</td>
<td>0.457</td>
<td>0.118</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.73</td>
<td>1.53</td>
<td>1.20</td>
<td>43.84</td>
<td>0.414</td>
<td>0.106</td>
</tr>
<tr>
<td>Kasa (Cough)</td>
<td>A</td>
<td>1.80</td>
<td>0.86</td>
<td>0.93</td>
<td>51.85</td>
<td>0.593</td>
<td>0.153</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.53</td>
<td>1.53</td>
<td>1.00</td>
<td>39.47</td>
<td>0.534</td>
<td>0.138</td>
</tr>
<tr>
<td>Kapha Nishthivana (Expectorant)</td>
<td>A</td>
<td>1.33</td>
<td>0.60</td>
<td>0.73</td>
<td>55.01</td>
<td>0.457</td>
<td>0.118</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>1.33</td>
<td>0.73</td>
<td>0.60</td>
<td>45.01</td>
<td>0.507</td>
<td>0.130</td>
</tr>
<tr>
<td>Bhasanakrucutra (Diff. in Speech)</td>
<td>A</td>
<td>0.40</td>
<td>0.20</td>
<td>0.20</td>
<td>50.01</td>
<td>0.414</td>
<td>0.106</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>0.73</td>
<td>0.46</td>
<td>0.27</td>
<td>36.36</td>
<td>0.457</td>
<td>0.118</td>
</tr>
<tr>
<td>Nidralpata (Night time awakening)</td>
<td>A</td>
<td>1.33</td>
<td>0.80</td>
<td>0.53</td>
<td>40.00</td>
<td>0.516</td>
<td>0.133</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>1.46</td>
<td>0.93</td>
<td>0.53</td>
<td>36.35</td>
<td>0.516</td>
<td>0.133</td>
</tr>
<tr>
<td>Ghurghurakamshabda (Wheezing)</td>
<td>A</td>
<td>0.73</td>
<td>0.33</td>
<td>0.40</td>
<td>54.54</td>
<td>0.507</td>
<td>0.130</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>0.80</td>
<td>0.40</td>
<td>0.40</td>
<td>50.00</td>
<td>0.507</td>
<td>0.130</td>
</tr>
<tr>
<td>Anupsaya</td>
<td>A</td>
<td>1.33</td>
<td>0.73</td>
<td>0.60</td>
<td>45.11</td>
<td>0.736</td>
<td>0.190</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>1.53</td>
<td>1.13</td>
<td>0.40</td>
<td>26.14</td>
<td>0.507</td>
<td>0.130</td>
</tr>
<tr>
<td>Accessory muscle use</td>
<td>A</td>
<td>1.13</td>
<td>0.66</td>
<td>0.47</td>
<td>35.01</td>
<td>0.516</td>
<td>0.133</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>1.06</td>
<td>0.80</td>
<td>0.27</td>
<td>24.00</td>
<td>0.457</td>
<td>0.118</td>
</tr>
<tr>
<td>CAT Score</td>
<td>A</td>
<td>2.40</td>
<td>1.26</td>
<td>1.13</td>
<td>47.20</td>
<td>0.351</td>
<td>0.090</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.26</td>
<td>1.33</td>
<td>0.93</td>
<td>41.16</td>
<td>0.258</td>
<td>0.066</td>
</tr>
</tbody>
</table>

Intergroup comparison:- On intergroup comparison of all the subjective parameters of both the group, there was no statistically significant difference found. That means both the therapy had similar efficacy on all the parameters assessed.

Table No. II - Showing effect of therapy on Objective variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Gr.</th>
<th>Mean Diff.</th>
<th>% Relief</th>
<th>SD±</th>
<th>SE±</th>
<th>t</th>
<th>p</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>BT</td>
<td>AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SMWD (meters)</td>
<td>A</td>
<td>376.2</td>
<td>426.6</td>
<td>47.73</td>
<td>12.68</td>
<td>23.20</td>
<td>5.992</td>
<td>7.966</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>371.0</td>
<td>409.3</td>
<td>38.33</td>
<td>10.33</td>
<td>16.72</td>
<td>4.318</td>
<td>8.878</td>
</tr>
<tr>
<td>FEV,% (Pred.)</td>
<td>A</td>
<td>55.40</td>
<td>63.66</td>
<td>8.133</td>
<td>14.68</td>
<td>3.92</td>
<td>1.014</td>
<td>8.025</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>58.86</td>
<td>64.80</td>
<td>5.933</td>
<td>10.07</td>
<td>3.882</td>
<td>1.002</td>
<td>5.920</td>
</tr>
<tr>
<td>FEV1/FVC% (Pred.)</td>
<td>A</td>
<td>61.06</td>
<td>66.20</td>
<td>5.133</td>
<td>08.40</td>
<td>3.29</td>
<td>0.850</td>
<td>6.039</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>62.73</td>
<td>65.30</td>
<td>2.400</td>
<td>03.82</td>
<td>6.080</td>
<td>1.570</td>
<td>1.529</td>
</tr>
<tr>
<td>GOLD Stage*</td>
<td>A</td>
<td>2.533</td>
<td>1.933</td>
<td>0.600</td>
<td>23.68</td>
<td>0.507</td>
<td>0.130</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>2.333</td>
<td>2.067</td>
<td>0.266</td>
<td>11.33</td>
<td>0.457</td>
<td>0.118</td>
<td>&gt;0.05</td>
</tr>
</tbody>
</table>
A Comparative Study of Efficacy & Safety of Pushkarmooladi Yoga and Bharangi Nagara Kwatha in Management of Tamaka Shwasa w.r. to Chronic Obstructive Pulmonary Disease (COPD), JOA XIII-2, 2019; 125 - 135

<table>
<thead>
<tr>
<th>R.R* (/minute)</th>
<th>A</th>
<th>1.800</th>
<th>1.067</th>
<th>0.733</th>
<th>40.74</th>
<th>0.703</th>
<th>0.181</th>
<th>&lt;0.001</th>
<th>HS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>1.600</td>
<td>1.067</td>
<td>0.533</td>
<td>33.33</td>
<td>0.639</td>
<td>0.165</td>
<td>&lt;0.05</td>
<td>S</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>P.R* (/minute)</th>
<th>A</th>
<th>1.600</th>
<th>0.666</th>
<th>0.933</th>
<th>58.33</th>
<th>0.258</th>
<th>0.066</th>
<th>&lt;0.001</th>
<th>HS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>1.600</td>
<td>0.733</td>
<td>0.866</td>
<td>54.17</td>
<td>0.516</td>
<td>0.133</td>
<td>&lt;0.0001</td>
<td>HS</td>
</tr>
</tbody>
</table>

* By Wilcoxon matched - pairs signed ranks test

(SMWD – Six minute walk distance, FVC- Forced volume capacity, FEV1 – Forced Expiratory volume in one second, R.R- Respiratory Rate, P.R-Pulse Rate.)

**Intergroup comparison:** On Intergroup comparison of effect on objective parameters, statistically non-significant (p>0.05) difference was found between both the groups. Among objective parameters, only Gold stage has significant (p<0.05) difference between both groups, while non-significant difference (p>0.05) was observed in all other objective parameters. But on the basis of percentage relief, Group-A has shown better percentage relief in all the subjective and objective parameters as compared to Group B.

**Showing effect of therapy on other Objective parameters (lab Investigation)**

In both Groups, all the laboratory parameters; Hb %, TLC, TEC, ESR, FBS, SGOT, SGPT, Blood Urea, Sr. Creatinine and FBS had not shown any significant change in values i.e. statistically non-significant (p value >0.05). Since changes in all the parameters were statistically non-significant so intergroup comparison was not done.

**Discussion:**

The probable mode of action of the Shamana therapy by Pushkarmooladi Yoga and Bharangi Nagara Kwatha as a whole in the management of Tamaka Shwasa is discussed as following:

- **Tikta** and **Katu rasa**, which will control the **Kapha** vitiation in the initial stage.

- In **Bharangi Nagara Kwatha**, **Nagara** has **Guru** and **Snigdha guna** which helps in pacifying **Vata dosha**.

- The **Tikshna Guna** of the drug helps in penetrating through the Sanga created by the **Kapha**.

- The **Ushna Virya** neutralizes the Doshik pathogenesis. The **Ushna Veerya** and **Kaphahara Prabhava** of the drugs will neutralise the left over **Dushti of Kapha**, which will no more create Sanga in Pranavaha Srotas to the Vata.

- The balance of **Madhura** and **Katu Vipaka** of the drug pacifies both **Dosha** without agitating the other with its „Vipareetha Guna‟.

- **Dipana-Pachana Karma**- neutralizes Ama. Deepana property of both drugs act on Agni, alleviating the Ama.

- The **Dosha-Prashamana** effect acts on the main **Doshas** which contribute to the **Samprapti viz. Vata** and **Kapha**.

- **Shwasa-Kasahara Prabhava** of Pushkarmool, **Bharangi**, **Maricha** and **Nagara** acts on the symptoms.

**Total pharmacological effect of Pushkarmooladi Yoga:**

The action of all drugs in Pushkarmooladi Yoga is by **Vata-Kaphashamaka** property and especially **Yavakshara** has **Kaphahamaka** property which directly acts on the causative **Dosha**. It pacifies the vitiated **Kapha Dosha** which is dominant in the pathogenesis as well as depletes the excessively produced **Rasa Mala Kapha**, Thus it is known to act against the **Kaphapradhana** pathogenesis of Tamaka Shwasa. All three drugs are **Deepana Pachana** soact on **Agni** and alleviates the Ama. This will also clears up the **Rasa Dhatu Dushti**, and excessive production of **Mala Kapha**. These drugs help at the level of Agni in Samprapti Vighatana.

**Maricha** has strong affinity to perform on **Pranavaha Srotas** by **Srotoshodhaka** properties which may possibly assist to eliminate **sluggish Dosha** in the Srotas.
Moreoverby this Srotoshodhan property it cleans the various channels of Pranavaha Srotas which leads to Anuloma Gati of Vata, thus in this manner these Srotoshodhaka drugs help in Samprapti Vighatana.

Pushkarmoola and Maricha are Vatanulomak, Yavakshara has Chhedana, Mriduwirechak, Kaphanihsarak, Raktashodhaka, Soumya, Mutrala properties. It majorly works as Vatanulomana and Kaphanihsarak. Due to Vatanulomana and other properties these drugs give the Anulomana to Apana Vayu which makes Prana also Anulomit, in this way it helps in the Samprapti Vighatana at the level of Pratiloma Vata Dosha and remove obstruction. All three drugs have Shwasahara property according to various Ayurveda texts, so all the contents of Pushkarmooladi Yoga have Shwasahara action.

These above mentioned principles are similar with the Chikitsa Siddhanta of Shwasa told by Acharya Charaka (Ch. Chi. 17/147) hence Pushkarmooladi Yoga helps in treating the COPD (Tamaka Shwasa). Acharya Charaka mentioned Pushkarmoola in Agraya dravya in Shwasa, Kasa, Hikka and Pashrvashula chikitsa.

**Total pharmacological effect of Bharangi Nagara Kwatha:-**

The mode of action of all drugs in Bharangi nagarakwatha is due to its Vata-Kaphashamaka property; especially Bharangi has Kaphaghna property which directly acts on the causative dosha. It pacifies the vitiated Kapha Dosha which is dominant in the pathogenesis of Tamaka shwasa as well as depletes the excessively produced Rasa mala kapha. Thus it is known to act against the Kaphapradhana pathogenesis of Tamaka Shwasa but because of Guru, Snigdha Guna and Madhura Vipaka Shunthi is also effective on Vatapradhana pathogenesis. Both drugs are Deepana, Pachana and Shunthi is Amnashaka (Rasagata Kapha nashaka) so act on Agni and alleviate the Ama. This would also clear up the Rasa Dhatu Dushti, and excessive production of Mala Kapha. These drugs help at the level of Agni in Samprapti Vighatana.

Shunthi has Srotoshodhana property it cleans the various channels of Pranavaha Srotas which leads to Anuloma Gati of Vata. In this manner these Srotoshodhaka drugs help in Samprapti Vighatana.

Shunthi has Vatakapha Shamaka property and Bharangi has Kaphaghna property in this way it helps in the Samprapti Vighatana at the level of Pratiloma Vata Dosha and remove obstruction. Both drugs also have Shwasahara, Kasahara action mentioned in various Ayurveda texts.

**Modern pharmacology of drugs:-**

1. **Suppression of inflammation & Airway hyper reactivity** – In COPD Long-term exposure to irritants like cigarette smoking causes chronic inflammation and structural changes. All drugs of Pushkarmooladi Yoga and Bharangi Nagara Kwatha (except Yavakshara) act as a anti-inflammatory agent.

   **Piper nigrum** acts as Antagonist of released mediators; it suppresses and reduces the infiltration of eosinophil, hyper responsiveness and inflammation due the suppression of the production of histamine, interleukin-5, immunoglobulin E and interleukin-4. Inula recemosa have Inulicin which is a sesquiterpene lactone and it displays an anti-inflammatoryaction. Zingiber officinalis exerts an anti-inflammatory effect on lung attenuating trachea hyper reactivity and COX metabolites. It also inhibits production of prostaglandins and leukotrienes, which are involved in pain and inflammation. Clerodendrum serratum has shown significant anti-inflammatory action.

2. **Blockade of constrictor neurotransmitter/ Bronchodilutors:** In modern medicine Anticholinergics are used. In COPD pathological changes result in increased resistance to airflow in the small conducting airways and Bronchoconstriction. Piper nigrum significantly inhibited acetylcholine induced bronchoconstriction. It shows anti-asthmatic activity may be due to its bronchodilator property. Inula racemosa has Hispidulin which significantly inhibited the maximum contractions induced by acetylcholine in
3. Immuno modulator and Anti Allergic activity:
Inula racemosa\textsuperscript{[14]} and Piper nigrum\textsuperscript{[15]} showed Anti Allergic activity. It may reduce acute exacerbation and disease progression.

4. Anti oxidant activity- A delicate balance exists between oxidants - antioxidant defense systems, which are critically important for the maintenance of normal pulmonary cellular functions. There is now considerable evidence of increased oxidative stress in smokers and in patients with COPD. The need for antioxidants becomes even more critical with increased exposure to free radicals generated by pollution, cigarette smoking, drugs, illness, stress, and exercise. Piper nigrum and Clerodendrum serratum\textsuperscript{[16]} may reduce oxidative stress by their antioxidant activity and radical scavenging and membrane stability activities.

Conclusion
Shamana Chikitsa in the form of Pushkarmooladi Yoga and Bharangi Nagara Kwatha can play an important role in the treatment of Tamaka Shwasa (COPD). In this clinical study, effects of therapy in Group A where patients were administered Pushkarmooladi Yoga showed more significant results in both subjective as well as objective parameters than therapy in group B, where we administered Bharangi Nagara Kwatha. Finally on comparing the effect of two therapies, it can be concluded that Group A (Pushkarmooladi Yoga) provided better relief than Group B (Bharangi Nagara Kwatha) in most of the signs and symptoms of the disease at significant level.

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सारांश

तमकश्वास की व्यापकता और प्रसार के कारण इसके प्रबंधन के लिए प्रभावी और सुरक्षित औषधि की जरूरत है। प्रस्तुत अध्ययन तमकश्वास के 30 नैदानिक रोग विनिर्वाचित किये शोधियों में आयोजित किया गया। इन रोगियों को 15 - 15 रोगियों के दो समूहों में विभाजित किया गया। ग्रुप ए के रोगियों को पुष्करमुलादि योग कृसूक (प्रत्येक 500 मिलीग्राम) को दिन में तीन बार दिया गया। ग्रुप बी के रोगियों को भारंगी नागर कवाथ का यवकूट चूर्ण 20 ग्राम (लैंगर 40 एमएल) 28 दिनों के लिए भोजन से पहले दो बार प्रतिदिन दिया गया। चिकित्सकिय मूल्यांकन मानदंड और स्पाइसेंट्री के आधार पर किया गया। श्वासकृत्तला, काश, कक्कूलिचित्र, मिर्जरला, सी.ए.डी. रंगों में दोनों समूहों में व्यक्ति. निष्ठ मापदंडों में अत्यधिक महत्वपूर्ण था। दोनों समूहों में घुच्छुरुक, शब्द अनुपस्थित और ग्रुप ए में सहायक मास्टरशिप व ऊपयोग में महत्वपूर्ण परिवर्तन देखा। दोनों समूहों के बस्तुसिद्ध चरों जैसे एस. एम. डब्ल्यू, डी., एफ. इं, वी., नाइट दर और ग्रुप ए के एफ. इं, वी. / एफ. वी. सी., श्वसन दर और गोल्ड स्टेज में अति महत्वपूर्ण सुधार देखा गया। सभी चरों पर दोनों समूहों के प्रभाव का अन्तर समूह तुलना करने पर गोल्ड स्टेज अतिरिक्त किसी में कोई महत्वपूर्ण अन्तर नहीं मिला।
ORIGINAL RESEARCH ARTICLE - EXPERIMENTAL STUDY

Antimicrobial Activity of Different Extract of Nimba Leaf Against Pseudomonas aeruginosa, Staphylococcus aureus, Escherichia coli and Klebsilla aerogenes

*Dr. Satyapal Sharma, **Mr. Gaurav Sharma, ***Dr. Sudipta Kumar Rath

*Ayurveda Medical Officer, Primary Health Center, Bhankrota, Jaipur, **Pharmacologist, ***Associate professor, Department of Dravyaguna Vigyan, National Institute of Ayurveda, Jaipur

ABSTRACT

Aqueous & alcoholic extracts of Azadirachta indica A. juss. (Nimba leaf) and mixture of both extract was subjected to in vitro antibacterial assay against human pathogens Pseudomonas aeruginosa MTCC No. 1034, Staphylococcus aureus MTCC No 6908. Escherichia coli MTCC No 10239 and Klebsilla aerogenes MTCC No 39 by agar well diffusion method. Results showed that leaf extract exhibited antimicrobial activity against bacteria at all the concentration tested (10%, 20% and 30% w/v). Our results suggest that aqueous and alcoholic extracts of Azadirachta Indica leaf showed significant antimicrobial activity at 30% w/v concentration and mixture of both extract showed significant antimicrobial effect at 30% w/v concentration.

Keywords: Antimicrobial activity, agar well diffusion method, Azadirachta Indica leaf and micro-organism.

Introduction:

Azadirachta indica A. Juss of family Meliaceae is known as Nimba and occurs throughout the greater part of India and commonly cultivated in gardens, road sides and by the side of irrigation wells as a shade tree. Nimba is a moderate sized to fairly large, evergreen tree with large spreading branches and stout trunk. Trunk and older branches are covered with moderately thick, dark brown, rough, longitudinally and obliquely furrowed bark with exfoliating woody rind. The plant flowering during the month of February to May and fruiting are June to Aug[1].

The leaves are bitter, astringent, acrid, depurative, antiseptic, ophthalmic, anthelmintic, alexeteric, appetite, insecticidal and refrigerant. They are useful in burning sensation, leprosy, skin diseases, pruritis, tuberculosis, intermittent fever, wounds, ulcer, intestinal worms, leprosy, skin diseases, eczema and leucoderma[2].

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Address of Correspondence:
Dr. Satyapal Sharma
Ayurveda Medical Officer,
Primary Health Center, Bhankrota, Jaipur
Email ID: drsatyapalo4@gmail.com
Contact No: 8385874556
The antibacterial effect of Azadirachta indica against Pseudomonas aeruginosa, Klebsiella ozaenae, Staphylococcus aureus and Escherichia coli was determined [4].

Aqueous extracts of Azadirachta indica (Neem) was subjected to in vitro antibacterial assay against human pathogenic [5].

Infectious diseases have long been a major health concern to entire human population, more so in under developed & developing countries of the world like India. Infections occurring during & after surgery are also a major problem for already suffering patients, which can even cost life of the patient or make him/her physically disturbed.

Infectious diseases account for almost 50,000 deaths every day (Ahmad et al., 2001). Although with the advent of antibiotics many different bacteria & diseases caused by them have been controlled. But with every passing day these antibiotics are rendered ineffective due to resistance developed for them in microbes, hence the need for newer & more powerful antibiotics is felt.

These antibiotics have many toxic effects not only against microbes but also to the human being themselves. To over-come this research is on for finding a drug which is effective against the diseases causing pathogens & at the same time does not produce toxic effect.

Aims & Objectives:

- Reconfirmation of the anti-microbial activity of Nimba extracts individually against the four target micro-organisms.
- Study of anti-microbial activity against the four target micro-organisms of the combination of the extracts.

Materials & Methods:

1. Collection of Samples:

The authentication of plant material collected for study was done at Herbarium section, Botany department of Rajasthan University, Jaipur with authentication number RUBL11529.

Leaves were collected from the Azadirachta indica tree in the college campus of National institute of Ayurveda, Jaipur. It was ensure that the plant was healthy and uninfected. The leaves were washed under running tap water to eliminate dust and other foreign particles and to clean the leaves thoroughly and a particular amount of leaves dried under shadow and some fresh leaves kept.

2. Preparation of extracts

Preparation of aqueous extracts-

Macerate 10 g of the air dried drug, coarsely powdered, with 200 ml of distilled water the specified strength in a closed flask for twenty-four hours, kept on a rotatory shaker at 190-210 rpm shaking frequently during six hours and allowing standing for eighteen hours. Filter rapidly, taking precautions against loss of solvent, evaporate 100 ml of the filtrate to dryness in a tarred flat bottomed shallow dish and dry at 100 °C, to constant weight and weight.

Preparation of Ethanol Extracts:-

Macerate 10 g of the air dried drug, coarsely powdered, with 200 ml of solvent the specified strength in a closed flask for twenty-four hours, kept on a rotary shaker at 190-210 rpm shaking frequently during six hours and allowing to stand for eighteen hours filter rapidly, taking precautions against loss of solvent, evaporate 100 ml of the filtrate to dry in a tarred flat bottomed shallow dish and dry at 105 °C, to constant weight and weigh.

3. Preparation of media and media Plates

Mueller Hinton Agar is used for determination of susceptibility of microorganisms to antimicrobial agents. Agar well-diffusion method was followed to determine the antimicrobial activity. About 15-20 ml of nutrient agar medium was poured in the sterilized petri dish and allowed to solidify. One drop of bacterial strains was spread over the medium by a sterile cotton swab. Wells of 5mm in diameter and about 2 mm was punctured in the culture medium using sterile cork borer. About 30 μl of plant extracts was added help of micropipette to the wells. Plates were incubated at 35ºC for 48 hours. Antibacterial
activities were evaluated by measuring the diameter of zone of inhibition in mm.

**Antimicrobial Activity:**

**Purpose**

To lay down the procedure to perform is Antimicrobial activity to be performed in our samples with reference of using standard culture.

**Scope**

It is applicable to the laboratory of Dravyaguna vigyana dept. of NIA for Antimicrobial activity.

**Procedure:**

Precaution has taken during antimicrobial activity.

Glassware to be used shall be sterilized.

Media to be used shall be pre incubated.

Microbial area should be sterilized before testing.

**Test organisms used:**

Use cultures of the following microorganisms-

- Pseudomonas aeruginosa MTCC No. 1034,
- Staphylococcus aureus MTCC No 6908.
- Escherichia coli MTCC No 10239 and
- Klebsilla aerogenes MTCC No 39.

**Standard Note:**

Distilled water, ethanol are used as negative control did not show any activity against test organism.

**Povidone Iodine** served as a positive control.

Aqueous & Alcoholic (Aq. & Alc.) extract of Nimba leaves-

- 10%, 20% and 30% w/v in concentration.

Mixture of both extract (Aqueous & Alcoholic) was used at 30% w/v concentration

**Antimicrobial study results:** Zone of inhibition (ZOI) in mm.

**Some pictures showing zone of inhibition**
Table No.1: Showing ZOI of various extract/conc. of *Nimba* leaf against target bacteria with negative control (Aq./Alc.) and positive control (Povidone iodine)

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Test Sample</th>
<th><em>Pseudomonas aeruginosa</em></th>
<th><em>Staphylococcus aureus</em></th>
<th><em>Escherichia Coli</em></th>
<th><em>Klebsiella aerogenes</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10% conc. Aq.</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>10% conc. Alc.</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>20% conc. Aq.</td>
<td>7</td>
<td>7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>4</td>
<td>20% conc. Alc.</td>
<td>8</td>
<td>7</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>30% conc. Aq.</td>
<td>10</td>
<td>8</td>
<td>8</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>30% conc. Alc.</td>
<td>9</td>
<td>9</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>7</td>
<td>Aq. –ve control</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>8</td>
<td>Alc. –ve control</td>
<td>6</td>
<td>6</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>Povidine iodine</td>
<td>12</td>
<td>14</td>
<td>13</td>
<td>11</td>
</tr>
</tbody>
</table>

Graph No.1: Showing antimicrobial effect of various extract/conc. of *Nimba* leaf against target bacteria with negative control (Aq./Alc.) and positive control (Povidone iodine)
Table No.II: Showing ZOI of mixture (Aq. & Alc. extract) of Nimba leaf at 30% w/v conc. against target bacteria with negative control (Aq.) and positive control (Povidone iodine)

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Test sample</th>
<th><em>Pseudomonas aeruginosa</em></th>
<th><em>Staphylococcus aureus</em></th>
<th><em>Escherichia Coli</em></th>
<th><em>Klebsiella aerogenes</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Mixed 30% conc.</td>
<td>10</td>
<td>10</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>Aqueous –ve control</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>3</td>
<td>Povidone iodine +ve control</td>
<td>13</td>
<td>15</td>
<td>14</td>
<td>11</td>
</tr>
</tbody>
</table>

Graph No.2: Showing antimicrobial effect of mixture (Aq. & Alc. extract) of Nimba leaf at 30% w/v conc. against target bacteria with negative control (Aq.) and positive control (Povidone iodine)

Determination of the activity index\(^{[7]}\)

The activity index of the test samples extract was calculated as-

\[
\text{Activity index (AI)} = \frac{\text{Zone of inhibition of the extract}}{\text{Zone of inhibition obtained for standard Povidone iodine}}
\]
Sharma S, Sharma G, Rath SK, Antimicrobial Activity of Different Extract of Nimba Leaf Against Pseudomonas aeruginosa, Staphylococcus aureus, Escherichia coli and Klebsilla aerogenes, JOA XIII-2, 2019; 136 - 142

Table No III: Showing Activity index of the Aq. & Alc. extracts at various conc. of Nimbleaf

<table>
<thead>
<tr>
<th>Conc.</th>
<th>Extract</th>
<th>P.aeruginosa</th>
<th>S.aureus</th>
<th>E.coli</th>
<th>K.aerogenes</th>
</tr>
</thead>
<tbody>
<tr>
<td>10%</td>
<td>Aq.</td>
<td>0.50</td>
<td>0.42</td>
<td>0.61</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>Alc.</td>
<td>0.66</td>
<td>0.50</td>
<td>0.42</td>
<td>0.54</td>
</tr>
<tr>
<td>20%</td>
<td>Aq.</td>
<td>0.58</td>
<td>0.50</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td></td>
<td>Alc.</td>
<td>0.66</td>
<td>0.50</td>
<td>0.53</td>
<td>0.63</td>
</tr>
<tr>
<td>30%</td>
<td>Aq.</td>
<td>0.83</td>
<td>0.57</td>
<td>0.61</td>
<td>0.54</td>
</tr>
<tr>
<td></td>
<td>Alc.</td>
<td>0.75</td>
<td>0.64</td>
<td>0.84</td>
<td>0.63</td>
</tr>
</tbody>
</table>

Table No. IV- Showing Activity index of mixed aq. & alc. extract of Nimb leaf

<table>
<thead>
<tr>
<th>Cons.</th>
<th>P.aeruginosa</th>
<th>S.aureus</th>
<th>E.coli</th>
<th>K.aerogenes</th>
</tr>
</thead>
<tbody>
<tr>
<td>30%</td>
<td>0.76</td>
<td>0.66</td>
<td>0.71</td>
<td>0.72</td>
</tr>
</tbody>
</table>

Results & Discussion:

To prevent post-surgical wounds from infection, a broad spectrum antiseptic formula is required. But in Ayurveda, no such formulation with proven efficacy is currently available are widely used drugs for their Krimighna activity in different ailments and have shown anti-microbial activity against the four organisms commonly responsible for infection in ano-rectal surgical wounds which are Staphylococcus aureus, Pseudomonas aeruginosa, Escherichia coli and Klebsiell aerugens. Therefore Nimba leaf was selected in order to study the anti-microbial effect on target microorganisms.

Aqueous extract of Nimba leaf showed ZOI of 10mm, 8mm, 8mm and 6mm at 30% w/v conc. against P. aeruginosa, S. aureus, E. coli and K. aerogenes respectively.

Alcoholic extract of Nimba leaf showed activity at 30% w/v concentration as 9mm, 9mm and 11mm of ZOI against Pseudomonas aeruginosa, Staphylococcus aureus and E. coli.

Mixture of both extract at 30% w/v concentration showed ZOI of 10mm, 10mm, 10mm and 8mm against Pseudomonas aeruginosa, Staphylococcus aureus, E. coli and K. aerogens respectively.

Conclusions

The results of this study suggest that the leaf of A. indican can be used as an antibacterial agent against infections caused by P. aeruginosa, K. aerogenes, S. aureus and E. coli.

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सारांश

नीम (*Azadirachta indica A.juss.*) पत्र के जलीय और अल्कोहलिक तथा दोनों का मिश्रण एक्स्ट्रैक्ट की इन विद्रोही जीवाणुसमूह परीक्षण किया गया। इसमें मानव सेरोजन को जैसे Pseudomonas aeruginosa MTCC No. 1034, Staphylococcus aureus MTCC No 6908, Escherichia coli MTCC No 10239 और Klebsilla aerogenes MTCC No 39 के विरुद्ध अग्रसर वेल प्रसार विधि द्वारा परीक्षण किया गया। नतीजों में देखा गया कि नीम के जलीय और अल्कोहलिक एक्स्ट्रैक्ट के 30% सांद्रता पर महत्वपूर्ण जीवाणुसमूह शक्ति दर्शाते हैं। सभी सांद्रता का परीक्षण (10%, 20% & 30% W/V) में किया गया। हमारे परीक्षण सुझाव है कि नीमपत्र (*Azadirachta indica A.juss.*) के जलीय और अल्कोहलिक तथा दोनों के मिश्रण एक्स्ट्रैक्ट की 30% सांद्रता में महत्वपूर्ण जीवाणुरोधी गुण पाए गये।
**ABSTRACT**

Dosha, dhatu, and mala are the basic components of human body. The balance of these entities represents the healthy state and imbalance will cause various diseases. Doshas are bioenergies naturally they get disturbed itself and vitiate other body structure. Dosha are the very important factor for our body both physiologically & pathologically. Vata is considered the prime among three, as it governs the functions of other dosha, dhatu, mala. Apanavata is an subdivision of vata, which resides in apanasthana (pakvashaya). It plays major role in elimination or excretion, which includes excretion of mutra, purisha, shukra, artava and garba. In Ayurveda, almost all the acharya have quoted about apanavata and its functions.

**Keywords:** Vata, Apanavata, Function of apanavata, dosha, mutra, pureesha, shukra, aartava, garbha.

**Introduction:**

*Nirukti*

Apana word is derived from Aap+ Aa + Nayati (one which comes out) Apa means adha i.e lower. vayu moving downward direction in the body. Apanavata mainly responsible for dharana of mala in avegakaala and does karshna in vegakaala. (vaachaspati kosha)

Visesha Sthana of Apana Vata is Apana Pradesha and also it is moving in Shroni, Basthi, Medra, Uru pradesha. The functions of Apana Vata are niskramana of Shukra (semen), Arthava (menstrual fluid), Shakrit (feces), Mutra (urine), Garbha (fetus).[1]

This is active in pelvic region. ‘Apana’ governs physiological processes like micturition, defecation, ejaculation, menstruation and parturition (A.H.Su.12/9). Autonomic nervous system has got a definite role in most of these activities.[2]
Honagannavar AI, Kulkarni P, Kriyatmaka Anveshana On Apana Vata With Special Reference To Modern Physiology, JOA XIII-2, 2019; 143 - 149

**Sthana**[8][4][5]

Table No. I : Showing the different acharyas given different view of sthana of apanavata.

<table>
<thead>
<tr>
<th>Charaka</th>
<th>Sushruta</th>
<th>Ashtangasangraha</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓ Vrushana (testes)</td>
<td>✓ Apana / pakvadhana</td>
<td>✓ Vrushana (Testes)</td>
</tr>
<tr>
<td>✓ Basti (urinary bladder)</td>
<td>(large intestine)</td>
<td>✓ Basti (Urinary Bladder)</td>
</tr>
<tr>
<td>✓ Medra (penis)</td>
<td></td>
<td>✓ Medra (Penis)</td>
</tr>
<tr>
<td>✓ Nabhi (umbilicus) Uru (thigh) Vamkshana (groin) Guda (rectum) Apanasthana</td>
<td>✓ Uru (Thigh)</td>
<td>✓ Vamkshana (Groin)</td>
</tr>
<tr>
<td>✓ Antra (large intestine).</td>
<td>✓ Guda (Rectum)</td>
<td>✓ Shroni (Pelvis)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>✓ Pakvadhana (Large Intestine)</td>
</tr>
</tbody>
</table>

**modern physiology**

All functions are controlled by the nervous and hormonal action. Nerves involved in control of excretory system— pelvic nerve, pudendal nerve, hypogastric nerve.

**pelvic splanchnic nerve —**

It is arise from the anterior rami of the sacral spinal nerve S2-S4, it provides parasympathetic innervation to the hindgut.

**Function -**

- ✓ The nerves regulate the emptying of the urinary bladder,
- ✓ Control opening and closing of the internal urethral sphincter,
- ✓ Influence motility in the rectum as well as sexual functions like erection.

**Pudendal nerve**

It is composed of axons from spinal nerves S2–S4.

**Function -**

- ✓ The pudendal nerve has both motor and sensory functions
- ✓ The pudendal nerve supplies sensation to the penis in males, and to the clitoris in females
- ✓ Branches also supply sensation to the anal canal. The pudendal nerve is responsible for the afferent component of penile erection and clitoral secretion. It is also responsible for ejaculation.

**Hypogastric nerve**

It is arises from the ventral nerve roots of T12 to L3 and supplies sympathetic nerve innervation.

- ✓ Injury to the hypogastric nerve results in increased bladder tone, impaired ejaculation, and dyspareunia.
- ✓ The parasympathetic innervation (nervierigentes) arises from the S2 to S4 ventral nerve roots and is found on the pelvic sidewall. Injury to these nerves can lead to erectile dysfunction, voiding issues, and impaired vaginal lubrication.

Vata controls all functions in the body. Apanavata located and controls the apanastana, i.e pelvic region. In modern we can correlate it with the Action of Autonomic nervous system, which controls the pelvic region of the body.

**Functions**

**Mutranishkramana process**[6][7]

After proper Ahara pachana by the action of samanavata and pachaka pitta, separation of saara and kittabhaga.
Drava rupakitta bhaga is brought to basti by the mutravaha srotas. By the action of apanavata, mutra excreted out.

**Mechanism**

**Aaharapachana**

- samanavata and pachaka pitta

**Separation of kittabhabha**

Drava rupakiita brough to basti bysira (mutravaha srotas)

- By the action of apanavata

Mutra Excreted out

**Micturition reflex**[8]

It is process of Voiding of urine by the voluntary or involuntary muscle contraction.

**Mechanism**

When 300 -400ml urine is collected in bladder that increase the pressure in bladder

- Filling of urinary bladder

- Stimulation of stretch receptor and generation of sensory impulses

- Sensory impulse pass via pelvic nerve(sensory fibre)

- Sacral segment of spinal cord

- Efferent impulse pass via pelvic nerve(motor fibre)

- Contraction of detrusor muscle & relaxation of internal sphincter

- Flow of urine into urethra & stimulation of stretch receptor

- Afferent (sensory) impulse via pelvic nerve

- Inhibition of pudendal nerve & relaxation of external sphincter

- Voiding of urine

In micturition reflex, motor impulses causes contraction of the detrusor muscle and relaxation of the internal urethral sphincter leads to urine discharges from the urinary bladder to urethra. Again stimulation stretch receptor cause inhibition of pudendal nerve & relaxation external urethral sphincter cause voiding of urine. This physiology of micturition can be correlated to the Mutra Niskramana Karma of Apana Vata.

**Shakrutnishkramana process**[9]

When kita bhaga reaches the pakwashaya, further it digest and dehydrated by agni,vayu. By all these action paripindita mala is formed and it is stored in aantra. By the action of apanavata it is expelled out from the body.

**Mechanism**

Food product reaches pakwashaya

- Further get Digest & Dehydrated by agni & vayu

- Paripindita mala is formed & it is stored In aantra

- Expelled by the action of apanavata

**Defecation reflex**[10]

Mass peristaltic movements push fecal material from sigmoid colon into rectum, leads to distension of rectal wall ,this stimulates the stretch receptor which initiates the reflex. This defecation reflex helps to empties the rectum.

** Mechanism**

Feces enters to rectum

- Stimulation of stretch receptor

- Generation of sensory impulses

- Sensory impulse pass via pelvic nerve(sensory fibre)

- Sacral segment of spinal cord

- Efferent impulse pass via pelvic nerve(motor fibre)

- Contraction of descending ,sigmoid colon & Relaxation of
internal sphincter
Voluntary relaxation of external anal sphincter
Evacuation of faces
external anal sphincter is Voluntary,
If it is controlled or constricts – it creates abdominal pressure and faces moves towards sigmoid
If it is relaxed – defeacation occurs and fecus expelled out.

In Defecation reflex, Motor impulses from the cord travel through parasympathetic nerves causes contraction of descending large intestine, sigmoid colon & Relaxation of internal sphincter, it opens the internal anal sphincter. The external anal sphincter is voluntarily controlled. If it is voluntarily relaxed, defecation occurs and the feces are expelled through the anus. This physiology of defecation can be correlated to the Shakrit Niskramana Karma of Apana Vata.

Aartavanishkramana\(^{[11]}\)

Aartava can be consider as bijarupi & sravarupiaartava. Sravarupiaartava is Raja, so Aartavanishkramana can be consider as Raja Raja. Blood is collected in garbhashaya with the help of dhamani, by the action of apanavata it is excreted through the yoni margaupto 3-5 days.

Mechanism

With the help of Dhamani
Blood is collected in whole month in garbhashaya
Apanavata

It is excreted out upto 3-5 days

Menstruation\(^{[12]}\)

Menstrual flow from reproductive canal consist of 50–150 mL of blood, tissue fluid, mucus, and epithelial cells shed from the endometrium. This discharge occurs because the declining levels of progesterone and estrogens, stimulate release of prostaglandins that cause the uterine spiral arterioles to constrict. As a result, oxygen deprived to cell and start to die. Eventually, the entire stratum functionalis sloughs off. This physiology of menstruation can be compared to the Artava Niskramana Karma of ApanaVata.

Shukranishkramana\(^{[13],[14]}\)

The circulatory system of the body is controlled by vyana vayu. Shukra is present in whole body. Sex organ is regulated by apanavaya. the unique and cooperated functions of vyana vayu and apanavayu are mainly responsible for expulsion of shukra to exterior through penis. The shukra gets chyuta (ejaculated) when men indulge in sexual activities after getting stimulated by sexual thoughts, touch & also due to chesta (physical stimulus), harsha and pidana (stimulation of endogenous area due to physical pressure of bodies). During samboga, sangarsha between yoni and medra by this action vayu increase the body temperature of man after it liquefies the retas, by the action of apanavata retas is out through the urinary passage then shukra is ejaculated.

Mechanism

At the time of sambhoga
Due to Sangharsh between medhra & yoni
Vayu helps to increase the body heat of man
Liquefies the retas

↓

Apanavata brings retas out through the urinary passage and Shukra is ejaculated

**Erection**[^15]

Erection is initiated by dilation of the arterioles of the penis. Normally, erection is terminated by sympathetic vasoconstrictor impulses to the penile arterioles.

**Mechanism**

Stimulation of glans penis, skin around genitals

↓

Involvement of higher cortical center

↓

Nervi erigentes (sacral parasympathetic vasodilator)

↓

Relaxation of arteriosus of penis & corpora cavernosa & spongiosa

↓

Pressure of dorsal vein block the blood flow

↓

Penis elongated & harden

**Ejaculation Reflex**[^16]

Ejaculation is a two-part spinal reflex that involves emission, the movement of the semen into the urethra; and ejaculation proper, the propulsion of the semen out of the urethra at the time of orgasm.

**Mechanism**

Erection between genitals – Touch receptor

↓

Internal pudendal nerve – Spinal cord

↓

Reflex via sympathetic – Hypogastric nerve

↓

Emission – Release of fluids from glands

↓

Somatic stimulation of lower lumber & upper sacral – via internal pudendal nerve (motor)

↓

Rhythmic contraction (bulbo & ischio cavernous)

↓

Ejaculation

During sexual stimulation, the arteries to the penis dilate, the sinuses fill with blood, and the penis becomes erect and firm. The dilation of penile arteries and the resulting erection are brought about by the localized release of nitric oxide (NO) and by parasympathetic impulses. The erect penis is capable of penetrating the female vagina to deposit sperm. The culmination of sexual stimulation is ejaculation, a sympathetic response that is brought about by peristalsis of all of the reproductive ducts and contraction of the prostate gland and the muscles of the pelvic floor. This physiology of erection and ejaculation can be correlated to the *Shukra Niskramana Karma* of *Apana Vata*

**Garbhanishkramana**[^17],[^18],[^19],[^20]

Delivery of the fetus can take place after 9 months of pregnancy. In Ayurveda, the mechanism of labor is clearly mentioned. Normal period of labor is just first day of ninth month up to tenth month.

<table>
<thead>
<tr>
<th>Names Given In Classical</th>
<th>Author</th>
<th>Probable Stage Of Labor</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>prajayini / prasavotsuka</em></td>
<td><em>sushruta</em> Bhavaprakasha</td>
<td>just beginning of first stage</td>
</tr>
<tr>
<td><em>Prajananakalabhimata/ Asannaprasava</em></td>
<td><em>Charaka, Vagbhata kashyapa</em></td>
<td>First stage of labor (Dilatation of cervix about 3-5 cm &amp; contraction of uterus)</td>
</tr>
<tr>
<td><em>Upasthitaprasava</em></td>
<td><em>Sushruta, Bhavaprakasha</em></td>
<td>End of first stage / Beginning of second stage</td>
</tr>
</tbody>
</table>
Parivartitagarbha | Charaka, vagbhata, kashyapa | Second stage of labor (Dilatation of cervix upto 10cm & parturition occurs)  
Expulsion of placenta | All | Third stage of labor (Expulsion of placenta)

Process of garbhanishkramana

**Mechanism**

When the fetus descends further or is going to be expelled
- It leaves hrudaya, enters to lower abdomen
- stays at the region of neck of bladder
- Frequency & duration of labor pain increase
- Feeling of severe compression & tearing pain in vagina
- Due to action of prasutimaruta (apanavata)
- Head of the fetus gets turned & comes forward
- Expelled through vaginal passage

**Parturition**

Labor is the process by which the fetus is expelled from the uterus through the vagina, also referred to as giving birth. A synonym for labor is parturition.

**Mechanism**

The placenta secretes corticotrophin releasing hormone
- Stimulate the anterior pituitary of foetus
- Secrete cortisol & dehydroepiandrosterone (DHEA)
- Placenta converts DHEA into estrogen
- stimulates the placenta to release prostaglandins
- Production of enzymes digest collagen fibers
- Cervix become soften

The positive feedback mechanism will continue till the delivery of the fetous.

Labor is the process in which the fetus is expelled from the uterus to the outside. True labor involves dilatation of the cervix, expulsion of the fetus, and delivery of the placenta. Oxytocin stimulates uterine contractions via a positive feedback cycle. This physiology of parturition can be correlated to the GarbhaNiskramana Karma of ApanaVata. Acharyas given some name, that can be compare to the stages of labor. (refer box)

**Conclusion**

- As apanavata located and controls the apanastana i.e pelvic region in modern we can correlate it with the sacral and lumbary plexus which controls the pelvic, lower limbs of the body. Thus Apana controls the micturition, Erection & ejaculation, Defecation, Parturition, Menstruation Reflexes.
- The physiology behind apanavayu can be correlate to -
  - Erection and Ejaculation - Shukra Niskramana Karma
  - Menstruation - ArtavaNiskramana Karma
  - Defecation - ShakritNiskramana karma
  - Micturition - MutraNiskramana Karma
  - Parturition - GarbhaNiskramana Karma

| secreation of oxytocin | U.contraction, relaxation & Dilate cervix | 148 |
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सारांश
dोष, धातु व मल हमारे शरीर के मौखिक घटक हैं। उनके सम अवस्था को स्वास्थ्य और विषम अवस्था को व्याधि माना गया है। उनसे से भी दोष ही प्राण होती है और वह ही धातु व मल का नियन्त्रण करता है। सभी रोगों के उत्पत्ति का कारण दोष ही होता है। इसलिए दोष एक मुख्य घटक है जिनके सामान्य क्रिया से आरोग्य और असामान्य क्रिया से निश्चित अर्थसुत्त्र रोग प्राप्त होता है। उन्ही दोषों में वात दोष को प्राण का रोग माना जाता है क्योंकि वह अन्य दोष, धातु व मल का नियत रूप में रखने का कार्य करता है। अपनावन, वात दोष के प्रकारों में से एक है, जो नाम कि नीचे के भाग में रहता है। उसका स्वास्थ्य प्रकाश में आता है। अपनावन का कार्य मल को विसर्जन, शुक्र, आत्म और गर्भ का निक्रमण क्रिया में मदद करना है जिसका उल्लेख हर संहिता में पाया जाता है।
Standardization of Anurjata

*Vaidya Nisha Gupta, **Prof. Om Prakash upadhayaya

*Professor, Dept. of Basic Principles and Samhita, National Institute of Ayurveda, Jaipur,

**Ex Vice Chancellor, Shri Guru Ravidas University, Hoshiarpur (Pb.)

ABSTRACT

Ayurveda being the most ancient and prestigious health science always incorporates all the rules and supporting lifelines to make the science more accurate and reachable. As Anurjata (Allergy) is considered as unprecedential disease in Ayurveda but severeral indirect references in pranavahasrotas diseases like Svasa and Pratishyaya and Rasavahasrotas like Tvagvikara indicate that probably Anurjata was prevalent in very remote population because of the healthy lifestyle and clean environment. In other words Anurjata can be rated as one of the most dreadful gift of civilization and urbanization. So a little effort has been done in the context of standardization. This is the most comprehensive cooperative effort that has ever been developed in the field of technology and now the other name of quality services in all sectors of life including health sciences. Reproducibility is mandatorily to be achieved in reasoning and that is impossible without standardization of a. Standardization is now seen as a fundamental prerequisite to scientific medical practice. Standardization in the ayurvedika therapeutics is a very challenging task as all the evaluation is completely based on keen observations only.

Keywords: Anurjata, Anurjaskar Factors, Ama Dosha, Ama Visha.

Introduction:

Standardization is one of the cornerstones of continuous improvement. The starting point for any improved effort is knowing where the process stands now.

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Ayurveda is an ancient but scientific system of medicine. Standardization in this system is not a new term but an age old concept that was introduced by Acharya Charaka, the great pioneer in medicine. As per his opinion standardization is a specific knowledge “vimanam” regarding dosha, bhashaja, disease etc[6]. Acharya shave tried to standardize all the relevant factors in Ayurvedika perspective. Although immeasurable yet well-defined are the fundamentals of Ayurveda. Today in the era of Globalization integration of economics and societies
is progressing all over the world largely by advances in communication, transportation and infrastructure. In medical services as well as complementary health sciences the chief objective is to extend the theories to a common man of the globe. This cannot be made possible without standardization. Standardization in Ayurveda means well framing and introducing of a concept or a therapeutic measure with definite specifications so that it could be conveyed to everyone in a simple but empirical way.

The subject of study anurjata (allergy) has not been mentioned anywhere in classics and Acharya Charaka has justified himself by notion that it is not always possible to name all disorders in definite terms[2]. Also the diseases described in the ancient texts reflect their prevalence in that period of samhitakala. Diseases non prevalent in significant abundance were not given due importance to define by name etc. Chakrapani made it more justified by commenting that it is the thorough knowledge of etiological factors rather than names of diseases which accounts for the purpose of their treatment[3]. The acquaintance with the names of diseases is important for the purpose of description only.

Acharya Charaka has used the term aavishkritatama while mentioning Nanatmajavikaras of vata, pitta and kapha that clearly indicate about the description of only those disorders is done in the Charakasamhita which mostly and commonly manifested at that time[4]. In another relevant reference Acharya Charaka has indicated about the described matter in texts for the persons of low intelligence. People of high intelligence can exercise their own imagination for elaborating other diseases not mentioned here[5]. Aggravation of a single dosha may cause manifold diseases depending upon the etiological factors and the sites of manifestations[6]. So a physician should try to comprehend the prakriti (dosha) of a disease, the samutthana (etiological factors) and the adhishtana (site) of its manifestation[7]. A physician who so initiates the treatment after having complete knowledge of the therapeutic properties of these three aspects and paying due regard to the scriptural instructions would never fail in his attempt to cure the disease[8].

Aims and objectives of Standardization:

- To design a uniform glossary regarding anurjata so that concerned knowledge could be compiled and revalidated with a common terminology in the world of ayurveda.
- To design the nidana panchaatmaka design of unprecedental disease anurjata in ayurveda within the light of ayurvedika fundamentals.
- Grading of the respective disease with the help of dasaroganika.
- Assessment of the disease by scoring subjective criteria.
- To plan the management of anurjata to prevent the recurrence as well as to cure the present complaints.
- To achieve and propagate the best of ayurvedika knowledge and skill.
- To contribute to the promotion of quality of life, health, hygiene and environmental protection.

Standardization:

This is the most comprehensive cooperative effort that has ever been developed in the field of technology and now the other name of quality services in all sectors of life including health sciences. Reproducibility is mandatorily to be achieved in reasoning and that is impossible without standardization of a science. Standardization is now seen as a fundamental prerequisite to scientific medical practice. Standardization in the ayurvedika therapeutics is a very challenging task as all the evaluation is completely based on keen observations only. The key phrases as worthy to standardization of a disease are

- Terminology
- Pathology
- Metrology

Terminology: Common terminology is mentioned as prerequisite for standardization, since the preparation of a uniform relevant terminology is in fact usually understood as being one of the important functions of standardization project. Same is also endeavored in the
present work with regard to anurjata with ayurvedika perspective. A glossary is designed with special reference to anurjata and is presented in an alphabetical order.

**Glossary of Anurjata with definitions:**
1. Abhisanskara\(^9\): Prophylactic measures.
2. Adharaniyavega\(^10\): Natural urges not to be suppressed.
3. Adhyashana\(^11\): Repeated eating habits.
4. Achayakopa: Vitiation of doshas without passing through the stage of accumulation to manifest a disease.
5. Agni\(^12\): Agni maintains the integrity and vitality of an organism by converting the food consumed in various ways into various structural and functional components.
6. Ahita\(^13\): A substance which dislodges the various doshas but doesn’t expel them out of the body.
7. Ama\(^14\): The apakva Ahararasa which is situated in amashaya gets shuktattva after passage of some time, that shuktabhava of apakva ahararasa is called ama.
8. Amadosha\(^15\): When ama interacts with doshas and become pathogenic during further course of time, then it is termed as amadosha
9. Amavisha\(^16\): Amadosha on further stasis gets more suktattva thereby attains and acquires visha qualities, this toxic condition is known as amavisha.
10. Annavaha srotas\(^17\): Upper GIT.
11. Anurjaskara factors: These may be defined as the factors those diminish the energy as well as immunity in the body thereby making it more susceptible to the various kinds of diseases by operating different mechanisms of pathogenesis in the body.
13. Anurjata: Partial or complete loss of urjata is specified as anurjata.
14. Anurjata janyaakshi shotha\(^18\): The swelling in the eyes resulting due to anurjaskara factors.
15. Anurjata janyapratishtyaya\(^19\): The pratishyaya due to anurjaskara factors.
16. Anurjata janyasvasa\(^20\): The difficulty in breathing due to anurjaskara factors.
17. Anurjata janyatvag roga: The skin diseases resulting in response to anurjaskara factors.
18. Anurjatari: The Any substance or drug that alleviates the anurjata.
19. Apathya\(^21\): The drugs and regimen those adversely affect the body and mind are regarded as apathy.
20. Antaranga anurjata: is a perennial type of anurjata that results because of certain substances found inside the house e.g. mold spores, pet danders.
21. Asatmya\(^22\): A thing non conducive to body.
22. Asatmyaja vyadhi\(^23\): A disease resulting due to non-following of instructions mentioned in ritucharya.
23. Aushadhajanya-anurjata\(^24\): Anurjata manifesting because of adverse effects of aushadhi.
24. Bahiranga anurjata: A seasonal type of anurjata that results because of certain substances found outside e.g. tree/grass/weed pollen, mold spores, stinging insects, poisonous plants etc.
25. Bala\(^25\): Bala is the manifestation of ojas as an effect phenomenon.
27. Balya\(^27\): The regimens promoting strength.
28. Brinhana\(^28\): The nourishing therapy.
29. Dharaniyavega\(^29\): Urges to be suppressed.
30. Dhulik\(^30\): Dust particles of various kinds.
31. Dhuma\(^31\): Smoke
32. Dipano\(^32\): Digestive stimulants.
33. Dhatvagnimandya\(^33\): Lowered agni status of dhatus.
34. Dhumapana\(^34\): Medicated Smoke therapy.
35. Dushivisha\(^35\): This is a type of (artificial) poison that manifests its poisoning effects after the lapse of sometim.
36. Garavisha\(^36\): A variety of poison prepared artificially by mixture of various substances.
37. Garavisha\(^37\): The dietary, behavioral and psychological factors those produce derangements in the body thereby producing a variety of diseases.
38. Gramyahara\(^38\): Lowered agni status of
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Jathara.

40. Jeevaneeya gana[^39]: The invigorators.
41. Jvara-paragakanajanya[^40]: Jvara resulting after coming in contact of pollens (Hay fever).
42. Karna-shotha: Swelling of middle or internal ear.
43. Khadyannajanya anurjata: Anurjata resulting because of eatables and drinks (Food allergy).
44. Kitadanstajanya anurjata: Manifesting because of insect bites, stings etc.
45. Kotha[^42]: Itchy red rashes (K predominant).
46. Langhana[^43]: Intake of no diet or light diet.
47. Mandagni[^44]: Lowered status of agni.
48. Manasa hetu[^45]: Psychological factors like anxiety, fear, grief etc.
49. Ojas[^46]: Ojasis defined as the quintessence of the seven dhatus and holds the same position and functions in the body as bala.
50. Ojovisransa[^47]: Falling down of ojas from its normal place.
51. Ojovyapad[^48]: Vitiation of ojas due to contact with vitiated doshas and dushyas.
52. Ojokshaya[^49]: Deficiency of ojas from its normal amount.
53. Ojonashkahetu[^50]: The substances, behaviors and psychological factors causing diminution in the ojas of body.
55. Paragakana: Pollens.
56. Pachana[^52]: Appetizers.
57. Padanshikakrama[^53]: The prescribed schedule for giving up of unwholesome and adoption of wholesome substances.
58. Pranavahasrotas[^54]: Respiratory tract.
59. Raja[^55]: Dust particles.
60. Rasavahasrotas[^56]: Circulatory system.
61. Rasayana[^57]: Rasayana means an improved state of nourishment that in turn upholds immunity and youth.
62. Ritucharya[^58]: Indications & contra indications for each ritu.

63. Ritusandhi[^59]: Ritusandhi is a period of 14 days (approximately) between two consecutive seasons (ritu) i.e. last seven days of passing ritu and starting seven days of new ātu make period of ritusandhi.
64. Ritwaishyama[^60]: Changed weather conditions.
65. Samashana[^61]: Simultaneous use of pathyaa and apathyaa is termed as samashana.
66. Satmya[^62]: The substance that gets well accustomed to dhatu in body after a prolonged and persistent use and does not produce any ill or deleterious effects in the body is termed as satmya.
67. Snehana[^63]: Oleation therapy.
68. Srotorodha[^64]: Obstruction in the srotas.
69. Srotovispharaka: Medications that induce dilatation of constricted srotas.
70. Shitapitta[^65]: Inflamed edges with depressed centre (V predominant).
71. Shotha[^66]: The swelling.
72. Shothahara[^67]: That alleviates swelling.
73. Svedana[^68]: Fomentation therapy.
74. Tarpana[^69]: Nourishing therapy.
75. Tvagshotha[^70]: Swelling in the skin.
76. Udarda[^71]: Maëòala having inflamed edges with depressed centre.
77. Urjat[^72]: Urjaterm is applied in the context of prolongation and promotion of life (jivane), augmentation of bala, Energy, enthusiasm etc.
78. Urjaskara: The substances or drugs those are meant for longevity and enhanced efficiency of the Immune system by fighting against all diseases or reducing the recurrences in episodic diseases are known as urjaskara.
80. Utkotha[^73]: A disease produced due to faulty vamana procedure and defined it as itchy, red rashes covering most part of skin.
81. Vamana[^74]: Drug induced emesis.
82. Vata[^75]: Unnatural composition of Air.
83. Vayasthapana[^76]: Those promote longevity.
84. Virechana[^77]: Drug induced purgation.
85. Viruddhashana[^78]: This may be defined as a substance that aggravates the *doshas* but does not expel it and is imminent cause of vitiation among dhatushthu producing various dhatuja disorders.

86. Vishaghn[^79]: The substance or a drug counteracting the toxicity of a poison in the body.

87. Vishamashana[^80]: Food intake prior to the meal time or after passage of meal time is known as *vishamasana*.

88. Vyadhiparaka[^81]: *Nidana rthakara roga*, a disease that acts like a hetu to produce another disease.

Pathology (*Nidana panchaatmakarupa*)

*Nidana- Anurjaskara* factors:

Any substance having ability to produce a disease is known as *nidana*[^82]. These are named as *anurjaskara* factors in the present subject of *anurjata* and are elaborately described in the concerned chapter. As the name itself indicates, the substances those decrease the urja content in body and produce the disease instantaneously & aggressively are categorized here as *nidanas*. Great acharyas were well acquainted with such potent *nidanas* and they made their mention in the etiology of relevant diseases like *pratisyaya, svasa, sitapitta* etc. These are summarized below:

- Raja
- Dhuma
- Vata
- Rituvaishamya
- Aharaja
- Vishaushadhi
- Vyadhiparaka
- Manasabhava

Samprapti-General: *Anurjata* is a *vatolvanasannipataja vyadhi*. Hereditary traits i.e. *bija dosha* plays a very important role by producing *kha-vaigunya* in respective organs to be developed from that defective *bêja*. In case of present study this *kha-vaigunya* is either in *prana vahasrotasor in rasa vaha srotas* presented by tvag. Although this disease as also seen in persons without genetic disposition. Faulty dietary habits like *adhyasana, samasana* etc. generate *pitta sthana dusti*. These dietary factors also aggravate the *kha-vaigunya*. *Pitta sthana dusti* results in the vitiation of *agni* and there by increased production of *amarasa*. This *ama* gets into *rasadhatu* after absorption and makes it *samarasa dhatu*. This is the initial stage of *dhatvagnimandya*.

From sama rasadhatuto two types of pathology take place. Common to both the *srotas*, this *samarasa* afflicts all *dhatus* by lowering *dhatvagni* successively. In such conditions of lowered *dhatvagni,dhatus* donot attain maturity. These immature dhatus are not capable of forming the most essence part of body the *ojas*. This diminished ojas results in the *balakshaya* i.e. lowered immune status of general body as well as of specific srotas or organ.

Second pathology differs in both the *srotas*.

In case of skin *anurjata*: *Samarasa dhatu* increases the *mala rupa kapha* in the body. This *mala rupa kapha* produces *srotorodha* in tvag by obstructing the *Svedavahasrotas* and deranging its normal function of cleaning by sweating. Normal texture and integrity of tvag is disturbed. Whenever there is an exposure of such tvag to any anurjaskara factor, immediately vata is vitiated. This vitiated vata further vitiates the Localized *bhrajaka pitta* in tvag. *Vatolvanasannipata* is developed resulting in clinical manifestations of skin allergy.

In case of *pranavaha srotas anurjata*: *Samarasa dhatu* increases *mala rupa kapha* in the body that further produces *srotorodha* in *pranavaha srotas*. When such person is exposed to allergen contact like *raja, dhuma* etc., *vata* is vitiated immediately further provoking the vitiation of localized *kapha* in *prana vaha srotas*. *Vatolvanasannipata* is developed resulting in clinical manifestations of Respiratory allergy.

Samprapti–vishesha (Etio-pathogenesis)- It is the exogenous *nidanas* or the *anurjaskara* factors those entitle *anurjata* a separate disease. Some specific allergens are described by great *acharyas* especially in the context of *pranavaha srotas* e.g. *raja, dhuma, dhuli,Rituvaishamya* etc. These play the role of *sannikrashast nidanas*. On the
contrary nidanas like adhyasana, samasana etc must be termed as viprakrasta but founder nidanas in the samprapti of anurjata. More over anurjata is a kulaja vyadhi so bija dosha has its indigenous significance in generating kha-vaigunya. It has been evident by the discussion on various places of this study that vitiation of doshas or their resulting manifestations underline the mechanism of anurjata. Exogenous allergens being the vital and initiating hetus are being described here with the pathogenesis.

Raja: It is the skin which comes in contact of dust particles foremost in any kind of anurjata. The sparsanendriya in the form of mucous membranes of nasal cavity, bronchioles, Gastro-intestinal tract or skin is the site of pathogenesis. When these come in contact of mucous membranes of pranavaha srotas, as a foreign body they vitiate the prana vayu immediately by increasing dryness. This vitiation is avaranajanya as these particles obstruct the natural movement and function of pranavayu. Latter in defense tends to expel them out of prana vaha srotas there by increasing the secretions as well as rate of respiration. udanavayu also gets affected being proximal to pranavayu and as a result difficulty in swallowing, speech etc. is also seen. In case of skin allergies these hetus produce dryness in skin thereby depleting its natural moisture content. Normally this thin layer of moisture protects the skin from external injuries as well as from the exogenous pathogens. Once this layer is gone skin is predisposed to diseases including allergies. Dust mist may generate eczema if it comes in contact with skin. Chemicals used in various products (paints, cleaning stuffs, lacquers, adhesives, building materials etc.) can seriously pollute the air. Those agents are entered into our body through the breathing and affect our lungs, eyes, nose, and can create skin allergies.

Dhuma: Dhuma inhalation along with pranavayu is another chief exogenous anurjaskara factor causing dryness and suffocation in prana vaha srotas. Nowadays in the era of industrialization this smoke is an integral part of environment making it polluted. This smoke comprises of toxic gases, vapors and disproportionate gases. When inhaled this produces irritation in prana vaha srotas because of its special characteristics. Vata is vitiated immediately. This is a type of prana vrattaudanajanya vitiation that results into difficulty in respiration, pratisyaya, mukhasosha etc. along with. In case of skin anurjata this smoke covers the skin in thin layer and damages the skin as it increases the free radicals and the effect of the UV radiation, it decreases collagen and elastin production, resulting in a rough skin texture, clogged pores and fine lines. Despite causing premature aging, pollution can also cause skin allergies, diseases, pigmentation, eczema and even acne.

Vata: Extremely hot and cold temperatures of air in ushnaandsita seasons respectively when makes a contact with either prana vaha srotas or skin, already urja depleted srotas find it difficult to meet with such adverse conditions and exhibit hyper-responsiveness in the form of increased nasal discharge, sneezing, difficult breathing, skin rashes eczema etc.

Rituvaishamya: Changed weather conditions are termed as Ritu vaishamya e.g. cold in summers and hot in winters. According to this has a direct impact on jatharagni. Vitiation of agni produces amavisha that circulates in whole body by rasadhatu and manifests pathogenesis of anurjata. Due to certain climatic changes there is a natural phenomenon of body to acclimatize accordingly. In case of sudden variation in temperature there is immediate vasoconstriction or dilatation resulting in local inflammatory conditions, increased secretions, local injury etc. Such conditions produce kha-vaigunya and body becomes more vulnerable to diseases of anurjata.

Dietary factors: Adhyasana, samasana, vishamasana, viruddhasana etc. are the dietary factors those vitiate the agni and produce amarasa and then amavisha. Latter has the capability to penetrate into minutest of dhatus and afflict them. Although amavisha is mandatory for the manifestation of any kind of anurjata yet plays a very significant in adolescent allergies. This ama produces sanga in prana vaha srotas and skin (Svedavaha srotas). This saìga is triggered by presence of bijadoshain respective srotasand further augmented by anurjaskara factors to produce clinical manifestations of anurjata.
Vyadhiparaka: A variety of diseases have been illustrated in the hetus of anurjata janya svasa roga which represent all the allergic disorders. These diseases excessively decrease the vyadhik shamattva of a person. Besides recurrence of such diseases in respective srotas weaken them and kha-vaigunya is produced. Associated conditions of low vyadhi kshamattva and kha-vaigunya predispose them to hyper-responsiveness to anurjaskara factors like raja, dhuma, hot, cold etc. and result in allergic diseases.

Vishaushadhi: Vishaushadhi has been quoted as a potent hetu by Acharya Sushruta to produce allergic diseases like kasa, svasa, pratisiyaya, siorug, jvara. Visha being vyavayi and vikashi in attributes affects quickly to all body parts and especially the sites of pranavayu and vyanavayu with similar properties. Such drugs are extremely fatal by depleting the vitality and immunity of a person in an aggressive manner.

Manasahetu: These are again trigger factors for an episode of anurjata. All the emotions disturbing mind can be included in this category. Dharaniya vegas (suppressible urges) are the chief components. Manasa dosha sare directly related to somatic constitution. That is why a person afflicted with anxiety, grief, fear etc. is not able to digest the food properly and amarasa is formed that further activates the anurjata.

Sampraptighatakas:

<table>
<thead>
<tr>
<th>Anurjata</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dosha</strong></td>
<td>Vatolvana Tridoshaja</td>
</tr>
<tr>
<td><strong>Dushya</strong></td>
<td>Rasa dhatu, Sarva dhatu, ojas,</td>
</tr>
<tr>
<td><strong>Agni</strong></td>
<td>Manda</td>
</tr>
<tr>
<td><strong>Srotas</strong></td>
<td>Pranavaha, Rasavaha, annavaha, raktavaha, etc.</td>
</tr>
<tr>
<td><strong>Srotodushti</strong></td>
<td>Sanga / atipravratti</td>
</tr>
<tr>
<td><strong>Udbhava sthana</strong></td>
<td>Pitta sthana (Amasaya)</td>
</tr>
<tr>
<td><strong>Adhishthana</strong></td>
<td>Nasa, Ura, phupphusa, Tvag etc.</td>
</tr>
<tr>
<td><strong>Roga margra</strong></td>
<td>Bahya</td>
</tr>
<tr>
<td><strong>Swabhava</strong></td>
<td>Achirakari</td>
</tr>
</tbody>
</table>

Purvarupa: There is no purvarupa in the anurjata.

Rupa: Twenty six symptoms were selected as subjective parameters in the study of anurjata. Of them twelve symptoms are confined to Prana vaha srotas anurjata ten to Rasa vaha srotas anurjata and rest four are concerned with Anna vaha srotas anurjata. Anurjata can be determined by the Vata predominance in most of the symptoms. Role of three donas can be seen in the symptoms as following:

<table>
<thead>
<tr>
<th>S.I.</th>
<th>Symptom</th>
<th>Dosha predominance</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nasakandu/Toda (Nasal itching)</td>
<td>Vata / Kapha</td>
</tr>
<tr>
<td></td>
<td>Kshavathu (Sneezing)</td>
<td>Vata</td>
</tr>
<tr>
<td></td>
<td>Nasasrava drava (Runny Nose- clear discharge)</td>
<td>Vata</td>
</tr>
<tr>
<td></td>
<td>Nasasrava ghana (Runny Nose- cloudy discharge)</td>
<td>Kapha</td>
</tr>
<tr>
<td></td>
<td>Nasavarodha (Stuffiness)</td>
<td>Vata</td>
</tr>
</tbody>
</table>
Analysis of above table shows that most of the symptoms are with *Vata* predominant with involvement of *Pitta* and *Kapha* as well. So this can be derived that *anurjata* is a *Vatolvana sannipataja* disease.

**Management:**

It comprises of eightfold regimens for the prevention as well as cure of the allergy in *ayurveda*.

- *Abhisanskara*
- *Vishaghna*
- *Langhana*
- *Dipana - pachana*
- *Sodhana*
- *Srotaswise*
- *Lakshanika*
- *Nidan parivarjana*
- *Pathya apathyaa*
Schematic management of anurjata

**Metrology:** This is a system of measurement or evaluation. In *ayurveda* this is termed as *mana*. *Mana* is index for appropriate knowledge. Integral knowledge cannot be attained without *mana*. In the present subject of *anurjata*, scholar has tried to assess the disease with *ayurvedika* perspective. *Anurjata* is a *kulaja* disease. It can be inborn or develop later in adolescent or adulthood. Twenty six subjective parameters were taken to study the subject and each parameter was scored 0,1,2,3 according to the severity of symptom. No patient could be traced out during study of *annavaha srotas anurjata*, Therefore study was conducted in two groups of *Pranavaha srotas anurjata* and *rasa vaha srotas anurjata*. *Pranavaha srotas anurjata* was established with 12 parameters whereas 10 parameters were used to establish *anurjata* of *rasa vaha srotas*.

**Severity grade of Prana vaha srotas anurjata**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st Grade anurjata</td>
<td>0-10 score</td>
</tr>
<tr>
<td>2nd Grade anurjata</td>
<td>11-20 score</td>
</tr>
<tr>
<td>3rd Grade anurjata</td>
<td>More than 20</td>
</tr>
</tbody>
</table>

According to this, *prana vaha srotas anurjata* patients scoring 0 to 10 should be considered in 1st grade of *anurjata*, 11-20 score was assigned to 2nd grade *anurjata* and patients with more than 20 score were confined to 3rd grade *anurjata*. In this regard this is mandatory to mention the exceptional parameters like shvas that
is singly fatal enough to kill a patient. In that case, this scale of severity shifts to the morbid state even with mild scores.

**Severity grade of Rasa vaha srotas anurjata**

1st Grade anurjata 0-10 score  
2nd Grade anurjata 11-20 score  
3rd Grade anurjata 21-30 score

According to this, patients of *rasa vaha srotas anurjata* scoring 0-10 should be included in 1st grade of *anurjata*, 11-20 score was assigned to 2nd grade *anurjata* and patients with 21-30 score were related to 3rd grade *anurjata*.

**Collective grading of anurjataas a whole**

*Prana vaha srotas* + *Rasavahasrotas* = Result  
1st Grade + 1st Grade = *Mild anurjata*  
1st Grade + 2nd Grade = Mildly Moderate  
2nd Grade + 2nd Grade = Moderate  
2nd Grade + 3rd Grade = Moderately severe  
3rd Grade + 3rd Grade = Highly severe

**Total assessment of anurjata**

<table>
<thead>
<tr>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allergic to few allergens</td>
<td>Allergic to many allergens</td>
<td>Allergic to many allergens</td>
</tr>
<tr>
<td>1st Grade subjective score</td>
<td>2nd Grade subjective score</td>
<td>3rd Grade subjective score</td>
</tr>
<tr>
<td>Mildamapra dosha</td>
<td>Moderate amapradosha</td>
<td>Severe ama pradosha</td>
</tr>
<tr>
<td>Single srotas involvement</td>
<td>Two srotas involvement</td>
<td>Three or more than three srotas</td>
</tr>
<tr>
<td>Kapha japakrati patients</td>
<td>Pitta japakrati patients.</td>
<td>Vata japakrati patients.</td>
</tr>
</tbody>
</table>

**Dasaroganika of anurjata**

*Nimitta bheda: Agantuja* (Exogenous)  
*Asayabheda: Amasayoththa*  
*Balabheda: Daruna*  
*Adhishtanabheda: sariravyadhi*  
*Sadhya–asadhyabheda:*  
*Mild anurjata - sadhya*  
*Moderate - kacchrasadhyaoryapya*  

**Severe - asadhya**

Unless there is no accumulated *amadosha* in the body as a result of *Jatharagni* and *dhatvagni mandya* exogenous nidanas are not able to produce the symptoms of *anurjata*. Being *tridosha* in nature this is a *daruna* disease and its site of manifestation is body although mind can trigger the disease. Mostly this is *kacchrasadhya* or *yapya* in curability and sometimes *asadhya* in conditions like status asthmaticus, anaphylaxis etc.

Although standardization is a perplexing effort in...
Ayurveda, in present scenario of techno-medical advancement, scholar has attempted this in anurjata, an unprecedential disease in Ayurveda with in classical perspective. Denial for short comings or errors cannot be ruled out. Subject demands more intervention and keen observations to validate it more authentically. This is just a beginning or initial end of a phenomenon that should be progressed by various stages of literary review and experimentation to reach an errorless and satisfactory outcome.

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सारांश
आयुर्वेद भारत की प्राचीनतम एवं गौरवमय चिकित्सा विज्ञान होते हुये जीवन सम्बंधी सभी नियमों तथा उन सभी जीवन संबंधक उन सभी चिकित्सकों का समायोज जिन्हें हुये है जो इस्के एक बेहतर आयुर्वेद विज्ञान बनाता है। अनूर्जता को आयुर्वेद में एक अनुज्ञय प्रधान माना गया है परन्तु अनेकों प्राणायाम संस्करण के अवसर संतत्रूप तथा स्वस्थता के अवसर संतत्रूप को चिकित्सक वह संकेत करते हैं कि उस समय की स्वस्थ जीवन शैली और शुद्ध पर्यावरण में अनूर्जता उस समय बहुत अध्याय प्रणाली पौर सही थी। दूसरे पुंजीयों में अनूर्जता का सम्प्रभु और नवीनकरण का एक महत्वपूर्ण उपहार कहा जा सकता है। नवीनकरण के कारण एक अलग प्रणाली किया गया है तो इसका तकनीकी विज्ञान के संतत्रूप में इसका अधिक विस्तार और विकास किया जा सकता परिसमा का पुनर्गठन तर्क विचार की कार्यालय पर अलग अधिकार है जो नवीनकरण के खिलाफ असामान्य है। नवीनकरण को प्रायोगिक चिकित्सा शास्त्र में आजकल एक मौलिक आचरणकारी के रूप में जाना जाता है। आयुर्वेदिक चिकित्सा शास्त्र में नवीनकरण एक अलग चुनौतीपूर्ण कार्य है जैसे कि सम्पूर्ण आकलन नेत्रिकाः पर आधारित है।