Clinical Study to Evaluate the Efficacy of Lekhaniya Mahakashaya in the Management of Medoroga w.s.r. to Dyslipidemia

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INTRODUCTION

The human life is rapidly changing in its food, standard of living and environment. Because of changes in food pattern and sedentary lifestyle, a majority of population is suffering from metabolic disorders. Change in the normal metabolic processes due to abnormal chemical reactions in the body leads to metabolic disorders. Dyslipidemia is considered as metabolic disorder related to lipoprotein metabolism, manifested as rise in plasma levels of total cholesterol, triglycerides (TGs), or both, or a decrease in HDL (high density lipoprotein) level or all three together that contributes to the formation of atherosclerosis in any stage of life. There is no any description of dyslipidemia found in Ayurvedic texts. So it cannot be compared with particular disease in Ayurveda. It can be included under Santarpanjanya Vyadhi. Medodhatu (abnormal form of adipose tissue) can be correlated with dyslipidemia due to resemblance of their etiopathogenesis and clinical features. Bad food habits, sedentary lifestyle, presence of dyslipidemia in family, intake of alcohol, cigarette smoking and stress are the main etiological factors of dyslipidemia.
dyslipidemia. According to Ayurveda Guru, Madhur, Sheet, Snigdha, Kaphamedavardhaka Ahar, Aavyam, Diwaswapa, Achinta and Bijadosha are the main causative factors for Medoroga. All these hetus lead to aggravation of Kapha and Meda which causes Srotorodha. Due to Srotorodha, there is obstruction to the normal movement of Vayu. This obstructed Vayu comes into the Koshta and causes Jatharagni Sandhuksdana (increase capacity of digestion) which causes early digestion of ingested food leading to voracious hunger and craving for large quantity of food. According to Acharya Dalhan, Agnimandya and Ama production are responsible for this condition. All metabolic activities in the body mainly depends on proper functioning of Agni. Agnimandya causes improper digestion of food and produces Ama. In Ayurveda Ama is believed to be the key factor in the pathogenesis of metabolic disorders. This Ama causes obstruction in Srotas (channels of metabolic processes) which leads to disease formation. Due to impairment in the fat metabolism excess fat get accumulated in blood and adipose tissue. Due to Medodhatwagnimandya, formation of abnormal Poshaka Medodhatu in large quantity takes place. This abnormally formed Poshaka Medodatu in large quantity get accumulated in Rasa Dhatu. Accumulation of Poshakamedodhatu results into the formation of disorder called as Dhamanipratichaya. Dhamanipratichaya is one of the 20 Nanatmaja Vyadhis of Kapha Dosha. Samprapti of Medoroga starts with accumulation of aggravated Kapha and Medas in the various Srotas causing Srotorodha. This excess of Kapha and Medas in the blood is referred as Shonitabhishyandana in which there is excessive accumulation of Kapha and Meda within the Rasadhatu (plasma) and Raktadhatus (blood vessels) which forms the Upalepa within the walls of the Dhamani and adheres to it. In Ayurveda to remove this Upalepa of Kapha Meda Apatarpana, Karshana and Kaphamedanashana Chikitsa is given by Acharya Charak. Yava is mentioned in Bhavprakash for the management of Medoroga which helps in Sampraptivighatana.

2. Selection of Drug: The drug selected for the present study is taken from Lekhniya Mahakshaya described by Acharya Charaka in Charaka Samhita Sutrasthana Chapter 4. Lekhniya Dravyas are capable of removing improperly processed Dhatus and Mala present in micro-circulatory channels or Srotas of the body leading to Srotorodha (obstruction at the level of microcirculatory channels).

In Sharangdhara Samhita Purvvardha, while describing the Gunas of Lekhana Dravyas clearly indicates Medohara effect of Lekhna Dravyas.

Ingredients of Lekhniya Mahakshaya (Table 1)

The form mentioned in the classics is Kwatha form or decoction which, was modified and made into Ghana form and filled in capsules for better efficacy and patient’s compliance. Then it was dried and powder was filled in capsules of 500mg each.

Inclusion Criteria

1. Age Group between 20-60 years of both the sex.
2. The Patients with elevated minimum of one lipid profile with or without overweight.
3. Fresh cases were included.

Exclusion Criteria

1. Pregnant and Lactating women.
2. Patients diagnosed with systemic disorders such as uncontrolled diabetes, hypertension.
3. Patients having past history of myocardial infarction, stroke, severe pulmonary dysfunction interfering with the treatment.

Diagnostic Criteria

Diagnosis was based on the following parameters of Dyslipidemia;

1. Subjective Parameters:
   - Angachaltva
   - Alasya
   - KshudraShwasa
   - Nidratiyoga
   - Daurbalyata
   - Swedadhikya
   - Atikshudha
   - Gaurava

MATERIALS & METHODS

1. Source of Data: Patients suffering from Medoroga were selected from OPD and IPD of Jammu Institute of Ayurveda and Research and Hospital, Jammu after fulfilling Inclusion and Exclusion criteria.
2. Objective Parameters:
   I. A. Body Weight
   B. BMI

II. Lipid Profile (12 hours fasting):
   A. Serum Cholesterol
   B. Serum Triglycerides
   C. Serum HDL
   D. Serum LDL
   E. Serum VLDL

RESULTS

Effect of therapy on subjective criteria
Maximum 80.6% relief was observed in Alasya, followed by in Angagaurva (72%), Daurbalya was reduced by 46.9%, Kshudra Shwasa relieved by 53%, Swedadhikya by 37.8%, Atikshudha by 20% and 26.6% reduction was observed in Angachalatava. Relief observed in Nidradhikya was 29.2%. All these results were statistically highly significant (P<0.001) except Nidradhikya and Atikshudha both of which are significant. (Table No.2)

Effect of therapy on weight and B.M.I.
B.M.I: In B.M.I, 1.7% reduction was observed at statistically highly significant level (p<0.001).
(Table No.3)
Body Weight: Reduction in body weight was 1.9% at statistically highly significant level (p<0.001).
(Table No.3)

Effect of therapy on lipid profile
S.Cholesterol: 4.5% reduction was observed in S.Cholesterol; the results were statistically highly significant (p<0.001). S.Triglyceride:
S.Triglyceridewas decreased by 2.0%. The results were statistically significant (p<0.01). S.HDL:
S.HDL level was increased up to 2.7% (p<0.001). It is also statistically highly significant. S. LDL:
Reduction observed in S.LDL was 2.0% the results were statistically significant (p<0.01). S.VLDL:
There was 4.4% decrease in S.VLDL the results were statistically significant (p<0.01). Table No.4

Overall effect of therapy:- It is seen that 50% of the patients got Marked improvement (50-75% relief), 40% patients were moderately improved (25-50% relief) & 10% patients were Improved (10-25% relief). None of the patients got Complete remission (75-100% relief), nor Unchanged (0-10% relief).

From the above data it can be said that Lekhniya Ghana Capsules showed a good result on all the subjective and objective parameters. In this study it was also observed that the patients who shed their excess weight during the course of study showed a better improvement in the lipid profile as compared to the patients whose weight remained constant. Thus a relationship can be established between obesity and dyslipidemia which is in accordance with the Poshya PoshakaMedaDhatu relation as stated by Ayurveda.

DISCUSSION

The hypo-functioning of the Jatharagni leads to improper digestion of the food yielding improperly formed Rasa in Amashaya which is known as Ama. This Ama, circulating along with the Rasa Rakta complex is capable of vitiating the Doshas and causes a variety of diseases. This state of circulating Ama is called as Samavastha. Improper digestion by Dhatvagni can also result into Ama formation which can be also known as Sama Dhatu. This Ama is Guru, Snigdha, Picchila and Durgandhi in nature and is the root cause of all the diseases. The Atipicchila Guna of Ama leads to accumulation of lipoproteins in the arterial extra-cellular matrix which results in the retention of lipoproteins particles by binding them & slowing their egress from the intima. Ama Asthayi MedoDhatu (lipoproteins) when in excess undergoes chemical modifications by oxidation leading to release of free radicals causing subsequent tissue injury.

Ama while circulating in the body causes disturbance to the movement of Vayu, vitiation of all three Doshas, Srotorodha, Balabhransha, Alasya, Apakti, Daurbalya and Gaurava of Hridaya.

Also symptoms like obstruction of vessels, metabolic defects, generalized fatigue and pathological conditions progressing to heart disease are seen in dyslipidemia. Thus from the above the nature of Medo Dhatu getting involved in dyslipidemia is Ama in nature14.

The total effect of the Lekhaniya Ghana is Tridosha Shamaka especially Kapha Pitta Shamaka15. It pacifies the vitiated Kapha Dosh which is dominant in the pathogenesis of dyslipidemia as well as depletes the excessively produced Rasa, Mansa, Meda, Vasa, Sweda, and Kleda which are all similar in attributes to Kapha Dosha. Thus it is known to act against the Kaphapradhana
pathogenesis of dyslipidemia. *Kutaki* and *Chitrak* have mild purgative action which causes *Anulomana* of *Vayu* which further corrects the body *Vayu* bringing an end to the *Vatapradhana Samprapti*\(^6\). The drugs like *Mustak* and *Kusth* are *Mutravirechana* which bring about diuresis relieving the body of the excess of *Kleda*. *Mustak*, *Kusth*, *Kutaki*, *Ativisha*, *Chitrak*, *Chirbilav*, *Haridra* and *Daruharidra* known to act on *Medo Dhatu* and allied *Dhatus* and are indicated in diseases like *Kushtha*, *MedoRoga*, *Prameha*, *Udara raga* and *Amadosha*. Hence due to similarity of *Dosha* and *Dushyas* can be successfully used in dyslipidemia. These drugs relieve the body of excess of *Kapha*, *Meda*, *Kleda*, *Vasa*, and *Sveda* by diminishing their *Drava Guna*. Drugs like *Chitrak*, *Mustak* and *Ativisha* bring about augmentation of the digestive fire leading to proper formulation of the *Rasadi Dhatu*. *Kusth*, *Musta*, *Kutaki*, *Haridra*, *Daruharidra* digests the *Ama* *Dosha* present at the *Jatharagni* level as well as the *Medodhatavagni* level. Also drugs like *Vacha*, *Chitrak*, and *Hemvati Vacha* are *Rasayana* in nature which lead to formation of optimal *Dhatu* and protect the body from injury due to vitiated *Doshas*\(^7\).

**CONCLUSION**

The concept of dyslipidemia can be correlated according to *Ayurvedic* classics through indirect relevant references. It can be inferred as *Vridhha Asthayi Medo Dhatu* which is *Ama* in nature. It can be treated on the principles of *Apatarpana* and by following the line of treatment of *Shauilya* or *Prameha*. *Lekhaniya Mahakashaya* was found to exert a cyto-protected effect against dyslipidemia induced degenerative organ changes in vitro-study. *Lekhaniya Mahakashaya* drugs have significant effect on *Medodushti Lakshanas* and in reduction of objective parameters like weight and B.M.I.

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**REFERENCES**


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Table No.1: Ingredients of *Lekhaniya Mahakashaya*^12^

<table>
<thead>
<tr>
<th>S.NO</th>
<th>SANSKRIT NAME</th>
<th>BOTANICAL NAME</th>
<th>PROPORTION</th>
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<tbody>
<tr>
<td>1</td>
<td>Mustak</td>
<td>Cyperus rotundus</td>
<td>1 part</td>
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<tr>
<td>2</td>
<td>Kushtha</td>
<td>Saussurea lappa</td>
<td>1 part</td>
</tr>
<tr>
<td>3</td>
<td>Haridra</td>
<td>Curcuma longa</td>
<td>1 part</td>
</tr>
<tr>
<td>4</td>
<td>Daruharidra</td>
<td>Berberis aristata</td>
<td>1 part</td>
</tr>
<tr>
<td>5</td>
<td>Vacha</td>
<td>Acorus calamus</td>
<td>1 part</td>
</tr>
<tr>
<td>6</td>
<td>Ativisha</td>
<td>Aconitum heterophyllum</td>
<td>1 part</td>
</tr>
<tr>
<td>7</td>
<td>Katureohini</td>
<td>Picrorrhiza kurroa</td>
<td>1 part</td>
</tr>
<tr>
<td>8</td>
<td>Chitrak</td>
<td>Plumbago zelanica</td>
<td>1 part</td>
</tr>
<tr>
<td>9</td>
<td>Chirbilav</td>
<td>Holoptella integrifolia</td>
<td>1 part</td>
</tr>
<tr>
<td>10</td>
<td>Hemvetivacha</td>
<td>Iris integrifolia</td>
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Table No.2: EFFECT OF THERAPY ON SUBJECTIVE CRITERIA

<table>
<thead>
<tr>
<th>S.No</th>
<th>Symptoms</th>
<th>N</th>
<th>Mean Score B.T.</th>
<th>Mean Score A.T.</th>
<th>Mean (X)</th>
<th>%age Relief</th>
<th>S.D. S.E.</th>
<th>S.E.</th>
<th>'t'</th>
<th>'p'</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Angachaltva</td>
<td>21</td>
<td>2.9</td>
<td>2.1</td>
<td>0.76</td>
<td>26.6</td>
<td>0.44</td>
<td>0.1</td>
<td>8</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>2</td>
<td>Alasya</td>
<td>11</td>
<td>3.1</td>
<td>0.5</td>
<td>2.5</td>
<td>80.6</td>
<td>0.52</td>
<td>0.2</td>
<td>16.2</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>3</td>
<td>KshudraShwasa</td>
<td>16</td>
<td>3.2</td>
<td>1.5</td>
<td>1.7</td>
<td>53</td>
<td>0.5</td>
<td>0.1</td>
<td>14.1</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>4</td>
<td>Nidratiyoga</td>
<td>9</td>
<td>2.7</td>
<td>1.9</td>
<td>0.78</td>
<td>29.2</td>
<td>0.44</td>
<td>0.2</td>
<td>5.3</td>
<td>&lt;0.01</td>
<td>Sig.</td>
</tr>
<tr>
<td>5</td>
<td>Daurbalyata</td>
<td>17</td>
<td>3.2</td>
<td>1.7</td>
<td>1.5</td>
<td>46.9</td>
<td>0.5</td>
<td>0.1</td>
<td>12.3</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>6</td>
<td>Swedadhikya</td>
<td>16</td>
<td>2.5</td>
<td>1.6</td>
<td>0.94</td>
<td>37.8</td>
<td>0.44</td>
<td>0.1</td>
<td>8.5</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
<tr>
<td>7</td>
<td>Atikshudha</td>
<td>8</td>
<td>3.8</td>
<td>3</td>
<td>0.75</td>
<td>20</td>
<td>0.46</td>
<td>0.2</td>
<td>4.6</td>
<td>&lt;0.01</td>
<td>Sig.</td>
</tr>
<tr>
<td>8</td>
<td>Gaurava</td>
<td>18</td>
<td>2.5</td>
<td>0.7</td>
<td>1.8</td>
<td>72</td>
<td>0.43</td>
<td>0.1</td>
<td>17.6</td>
<td>&lt;0.001</td>
<td>H.S.</td>
</tr>
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</table>

Table No.3: EFFECT OF THERAPY ON WEIGHT AND B.M.I.

<table>
<thead>
<tr>
<th>Investigation (n=30)</th>
<th>Mean Score B.T.</th>
<th>Mean Score A.T.</th>
<th>%age Relief</th>
<th>S.D. S.E.</th>
<th>S.E.</th>
<th>'t'</th>
<th>'p'</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>BMI</td>
<td>28.7</td>
<td>28.2</td>
<td>0.5</td>
<td>1.7%↓</td>
<td>0.19</td>
<td>0.03</td>
<td>12.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Body weight</td>
<td>73.2</td>
<td>71.8</td>
<td>1.4</td>
<td>1.9%↓</td>
<td>0.81</td>
<td>0.15</td>
<td>9.3</td>
<td>&lt;0.001</td>
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Table No.4: EFFECT OF THERAPY ON LIPID PROFILE

<table>
<thead>
<tr>
<th>Investigation (n=30)</th>
<th>Mean Score</th>
<th>Mean (X)</th>
<th>% age Relief</th>
<th>S.D. ±</th>
<th>S.E. ±</th>
<th>'t'</th>
<th>'p'</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.T.</td>
<td>A.T.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cholesterol</td>
<td>241.5</td>
<td>231</td>
<td>11</td>
<td>4.5</td>
<td>2.5</td>
<td>0.5</td>
<td>24</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>190.8</td>
<td>190</td>
<td>1.2</td>
<td>0.68</td>
<td>2</td>
<td>0.4</td>
<td>3.3</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td>LDL</td>
<td>168.5</td>
<td>166</td>
<td>2.4</td>
<td>1.4</td>
<td>2.2</td>
<td>0.4</td>
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<tr>
<td>HDL</td>
<td>48.53</td>
<td>49.8</td>
<td>-1.3</td>
<td>2.7</td>
<td>1.7</td>
<td>0.3</td>
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<td>&lt;0.001</td>
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<tr>
<td>VLDL</td>
<td>38.53</td>
<td>37.2</td>
<td>1.33</td>
<td>3.45</td>
<td>2.2</td>
<td>0.4</td>
<td>3.3</td>
<td>&lt;0.01</td>
</tr>
</tbody>
</table>

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