Role of Madhumeha Nashini Gutika and Darvyadi Kwath in the Management of Madhumeha w.s.r. to Type-2 Diabetes mellitus

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ABSTRACT
Ayurveda is a unique part of Indian philosophy is really one of the great wonders of ancient Indian science. Ayurveda is not merely a health science, but it also reflects the genuine style of life. स्वस्थस्यस्वास्थरक्षणमातुरास्त्रयविकारप्रशमनं (I घ. ३०/२६) is the first and foremost principle of Ayurveda. Diabetes mellitus is undoubtedly one of the most challenging health problems of the 21st century. In Ayurveda, a condition in which a person passes honey like urine is called Madhumeha. In modern medical science, symptomatology of Madhumeha is equivalent to the feature of diabetes mellitus. Among several health problems diabetes mellitus is a giant disease as one of the arch enemy of the mankind. The Ayurvedic management of diabetes aims not only to achieve a strict glycemic control but also to treat the root cause of the disease.

The use of metals and minerals in therapeutics in the form of Rasyoga has been started from the period of classical text in Ayurveda and recommended because of their supremacy in providing quick relief and even treating the incurable disease. So the study was conducted with the objective of clinical evaluation of the herbal drugs in the management of Madhumeha.

In this study total 20 no. of patients were taken between the age group of 20-60 years having classical symptoms of Madhumeha and treated with Madhumeha Nashini Gutika described in Rasamrita and Darvyadi Kwath described in Charaka Prameha Chikitsa. At the end of 90 days of treatment by both drugs patient got significant improvement in both subjective and objective criteria. The study confirms that Madhumeha Nashini Gutika and Darvyadi Kwath is effective in the management of Madhumeha and reduces the symptoms of illness.

KEYWORDS Madhumeha, Diabetes Mellitus, Madhumeha Nashini Gutika, Darvyadi Kwath
INTRODUCTION

The term Diabetes mellitus describes a metabolic disorder of multiple etiologies characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in Insulin secretion, insulin action, or both. Diabetes mellitus has become a major public health problem across the world and is associated with enormous personal, social and economic burden. The prevalence of diabetes is rapidly rising all over the globe at an alarming rate. It has been projected that worldwide approximately 300 million people would be afflicted with it by 2025. India leads the world with largest number of diabetic subjects about 50.9 million people suffer from diabetes and this figure is likely to go up to 80 million by 2025, earning the dubious distinction of being as —DIABETIC CAPITAL OF WORLD. Diabetes is leading cause of death, disability and economic loss throughout the World.

In Ayurveda Madhumeha is one of the Asthamahagadha. The word Madhumeha can be sub divided into Madhu and Meha. Madhu means sweet or sweetness and Meha means excessive urination. In Ayurved texts Samprapti of Prameha involves Tridoshas and Dooshyas involved are Rasa, Rakta, Mamsa, Meda, Majja, Vasa, Shukra, Oja, Lasika and Kleda. Though Prameha is Tridoshaja Vyadhi, Acharyas have mainly emphasized on vitiation of Kapha Dosha and also emphasized on Medovriddhi and Medodhatwagnimandhya. So for disintegrating the Samprapti we should have a formulation working at the level of Dhatwagni and counteracting Kapha Dosha and Medodhatu for the management.

Number of Ayurvedic herbs and herbal compounds has shown encouraging results in the management of Madhumeha. But their critical study on the basis of Ayurvedic principles and modern views is always necessary. Here is humble effort to put a step ahead to provide the complete management and healthy life to the patient of Madhumeha.

Madhumeha Nashini Gutika which is described in Rasamrit & Darvyadi Kwath in Charaksamhita for the management of Prameha. Contents of Madhumeha Nashini Gutika are Trivanga Bhasma (Nag, Vanga & Yashad bhasma), Gudmar leaf, Nimb leaf and Sudh Shilajeet. Darvyadi Kwath contains drug like Daruharidra, Devdaru, Aamlaki, Haritaki, Bibhitak, Mustak. These all
drugs are having Pramehaghna and Anti-diabetic properties.

AIMS AND OBJECTIVES
The aims and objective of the study were
- To study the aetiopathogenesis of Madhumeha w.s.r. to Type-2 Diabetes Mellitus
- To understand the role of Madhumeha Nashini Gutika and Darvyadi Kwath in Madhumeha

MATERIALS AND METHODS
The study comprised of 20 patients suffering from Madhumeha, the patients were selected from OPD an IPD of P.G. Dept of Kayachikitsa, Rishikul Campus, Haridwar. These patients were randomly selected on the basis of inclusion and exclusion criteria.

Ethical committee approval no. letter is AUU/R/C/IEC/2016-17/2

SELECTION OF DRUG
[1] Madhumeha Nashini Gutika (Rasamrit, Rasyogavigyaniadhyaya )
[2] Darvyadi Kwath (Charak chi. 6/26 )

DRUG DOSAGES
[1] Madhumeha Nashini Gutika (Rasamrit)
Every tablet of ‘Madhumeha Nashini Gutika’ was consist of 500mg wt. Patients were asked to take ‘Madhumeha Nashini Gutika’ 1gm /day in divided dose, i.e. 2 times in a day with luke warm water before meal for 3 months.

[2] Darvyadi Kwath (Charak chi. 6/26)
Patients were dispensed Darvyadhi Kwath in raw form and asked to prepare it by following method:
5gm of raw Kwath was taken and boiled with 4 cup of water (about 160 ml). After some time when 1 cup of water (about 40 ml) was left then after filtering, patient was asked to take Kwath B.D. before ½ hr of meal.

SELECTION OF SAMPLE- Randomized Sampling
TYPES OF STUDY- Single Blind
DURATION OF STUDY– 90 days
FOLLOW UP – 1 month

INCLUSION CRITERIA
- Diagnosed patients without any complication were included.
- Age between 20-60 years.
- Fasting blood glucose level >110 mg/dl
- Post Prandial blood sugar level >140 mg/dl
- Patients of either sex were taken.

EXCLUSION CRITERIA
- Patient having DM Type-1
- Patient having complication of diabetes
- Any other serious medical & surgical ill patients were excluded.
- Fasting blood sugar level >250mg/dl
- Post prandial blood sugar level >350mg/dl

**INVESTIGATION**
- Hb% , TLC, DLC, ESR
- S. Creatinine
- Blood urea

These investigations were done in all the patients before and after completion of treatment to rule out any other pathological condition.

BS- F & PP was carried out before trial and after each follow up i.e. 30 days.

**PARAMETERS OF ASSESSMENT**
1. Subjective Assessment
2. Objective Assessment

1. **SUBJECTIVE PARAMETER OF ASSESSMENT**
The assessment of the drug trial was done the basis of improvement in the symptoms during and after trial. The symptoms were graded as per their severity (0-4).
1- Pipasa (Polydipsia)
2- Prabhumutratrata (Polyuria)
3- Atikshudha (Polyphagia)
4- Kara-pada Daha (burning sensation of hand and feet)
5- Anga-gandha (Bad body odor)
6- Sweda (excessive sweating)
7- Shita-priyatvam (feeling of cold)
8- Madhuryamaasye (sweetness of mouth)
9- Shithilangata (weakness)

**OBJECTIVE PARAMETERS OF ASSESSMENT:**
The assessment was done on the basis of change in blood sugar F & PP in each follow-up and at the end of trial

**STATISTICAL ANALYSIS**
All information on various parameters was gathered and statistical study was carried out in terms of median (X), standard deviation (S.D.), standard error (S.E.). Wilcoxon’s signed rank test was applied on subjective parameters; Paired t test was applied on Biochemical parameters. And finally result was incorporated in terms of probability (p) as:
P> 0.05 Insignificant
P< 0.01 & <0.05 Significant
P< 0.001 highly significant

**OBSERVATIONS AND RESULTS**
**ASSESSMENT OF SUBJECTIVE SYMPTOMS**

As per table no 1, in subjective assessment symptomatically the result was statically highly significant (p<0.001) in lowering *Karpada Daha*, while significant (p<0.05)
result in Prabhitmutrata, Pipasa, Shithilangta, Sheetpriyatwam and Madhurmaasye, and shown no significant

Table 1 Assessment of result in symptoms of Madhumeha

<table>
<thead>
<tr>
<th>Group A</th>
<th>Median Wilcoxon Signed Rank W</th>
<th>P-Value</th>
<th>% Effect</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRABHUT MUTRATA</td>
<td>3 2 -3.035a</td>
<td>&lt;0.05</td>
<td>34.9</td>
<td>Sig</td>
</tr>
<tr>
<td>PIPASA</td>
<td>3 1.5 -3.025a</td>
<td>&lt;0.05</td>
<td>38.1</td>
<td>Sig</td>
</tr>
<tr>
<td>ATIKSHUDA</td>
<td>0 0 -0.957a</td>
<td>&gt;0.05</td>
<td>18.2</td>
<td>NS</td>
</tr>
<tr>
<td>SHITHILANGATA</td>
<td>0 0 -1.994a</td>
<td>&lt;0.05</td>
<td>40.0</td>
<td>Sig</td>
</tr>
<tr>
<td>ATISHWEDA</td>
<td>0 0 -0.687a</td>
<td>&gt;0.05</td>
<td>9.5</td>
<td>NS</td>
</tr>
<tr>
<td>KARPADA DAHA</td>
<td>3 2 -3.255a</td>
<td>&lt;0.001</td>
<td>40.0</td>
<td>HS</td>
</tr>
<tr>
<td>ANGA-GANDHA</td>
<td>0 0 -0.687a</td>
<td>&gt;0.05</td>
<td>21.4</td>
<td>NS</td>
</tr>
<tr>
<td>SHEETPRIYATWAM</td>
<td>0 0 -2.588a</td>
<td>&lt;0.05</td>
<td>55.6</td>
<td>Sig</td>
</tr>
<tr>
<td>MADHURMAASYE</td>
<td>0 0 -2.428a</td>
<td>&lt;0.05</td>
<td>55.0</td>
<td>Sig</td>
</tr>
</tbody>
</table>

Table 2 Assessment of result in blood sugar fasting and post prandial

<table>
<thead>
<tr>
<th>Group A</th>
<th>Mean</th>
<th>N</th>
<th>SD</th>
<th>SE</th>
<th>T-Value</th>
<th>P-Value</th>
<th>% Effect</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>BSF</td>
<td>BT</td>
<td>179.7</td>
<td>20</td>
<td>73.24</td>
<td>16.38</td>
<td>2.903</td>
<td>&lt;0.05</td>
<td>18.7</td>
</tr>
<tr>
<td></td>
<td>AT</td>
<td>146.1</td>
<td>20</td>
<td>41.33</td>
<td>9.24</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>BSPP</td>
<td>BT</td>
<td>272.8</td>
<td>20</td>
<td>88.65</td>
<td>19.82</td>
<td>3.845</td>
<td>&lt;0.05</td>
<td>23.8</td>
</tr>
<tr>
<td></td>
<td>AT</td>
<td>207.8</td>
<td>20</td>
<td>87.40</td>
<td>19.54</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ASSESSMENT OF OBJECTIVE SYMPTOMS

As per table no. 2, blood sugar fasting results shows statistically significant changes i.e. p<0.05 and blood sugar post prandial also shows statistically significant changes i.e. p<0.05.

Table 3 Estimation of overall response

<table>
<thead>
<tr>
<th>Overall Effect</th>
<th>Group A</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Excellent</td>
<td></td>
<td>2</td>
<td>10.0</td>
</tr>
<tr>
<td>Marked Improvement</td>
<td></td>
<td>7</td>
<td>35.0</td>
</tr>
<tr>
<td>Moderate Improvement</td>
<td></td>
<td>7</td>
<td>35.0</td>
</tr>
<tr>
<td>Mild Improvement</td>
<td></td>
<td>4</td>
<td>20.0</td>
</tr>
<tr>
<td>No Improvement</td>
<td></td>
<td>0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

DISCUSSION

The purpose of the discussion is to interpret and describe the significance of your findings in light of what was already known about the research problems being investigated, and to explain any new understanding or insights about the problem after you have taken the findings into consideration.

The Govt. of India launched the Pilot phase of the National Programme for Prevention and Control of Diabetes, Cardiovascular Diseases and Stroke (NPDCS) on 4th Jan 2008. It is a major step in strengthening the national capacity for coping with the diabetes epidemic.
Ideal therapy is still obscure and there is a need to find a safer drug, which can be used to control blood sugar level for longer periods. Ayurvedic classics provide references on herbal and herbo mineral drugs which can be safely used in controlling the blood sugar in patients of diabetes mellitus. The first trial drug ‘Madhumeha Nashini Gutika’ is a herbo-mineral formulation, described in Rasamrita of Ayurvedic text. The constituents are Shilajeet, Trivang Bhasma (Naag, Vang and Yasad), Nimba and Gudmar. All the ingredients have documented hypoglycemic activity and have been extensively studied in diabetic patients.

PROBABLE MODE OF ACTION OF MADHUMEHA NASHINI GUTIKA & DARVYADI KWATH:

‘Trivang Bhasma’, is Kapha-Medohar, and contains the Tikta-Kashaya Rasa by which it corrects vitiation of Kapha & Pitta. These three metals of Trivang Bhasma also reduce the general weakness of body.

The second constituent is ‘Gudmar’, which is Kapha-Vatahar and contains Tikta-Kashaya Rasa. Its dried leaf powder increased circulating insulin level and exhibited hypoglycemic activity.

The third constituent is ‘Nimba’, which is Kapha-Pitta har and contains Tikta-Kashaya Rasa. Its leaves have chemicals like Azadirachtin, Azadirone, Nimbolide etc. Which effectively decrease blood sugar level and prevent hyperglycemia.

The fourth constitute is ‘Shilajeet’. Most Shilajeet compounds contain between 60-80% fulvic acid, and the greater the content of fulvic acid, the more anti-aging properties the compound contains. It reduces Kapha due to Tikta Rasa, Katu Vipaka, Ushna Virya, Shoshaka and Chedaka properties and then it checks Mandagni and reduces Meda, which is the major factor (i.e. Medodushti) in pathogenesis of Madumeha.

Due to its Chedan property it expels the Kaphadi Doshas from the Srotas with the force due to Prabhava of the drug. Chedana drugs are usually belonging to Amla, Katu Rasa and Teekshna Guna. On the other hand chedana serves two fold functions.

The second trial drug is ‘Darvyadi Kwath’ consisting Daruhridra, Devdaru, Triphala (Aamalki, Bibhitak, Haritaki) and Musta. These drugs basically are Kashaya and Tikta Rasa Pradhan, Ushna Virya and Laghu Raksha Guna, this formulation helps in eliminating vitiated Kapha. It also corrects the vitiated both Medas and Kapha being the main entity of the Samprapti, thus by breaking the Samprapti (correcting the
vitiation of Medas and Kapha) treats the disease. As the drug is Ushna it also increased improving the Dhatvagni, (as Ayurveda believes that the disease is Amajanya).

CONCLUSION

“Conclusions” drawn from present work are as follows:

- Madhumeha is a Tridosha Vyadi, dominancy of Kapha & Vata Dosha.
- Madhumeha in modern medical science has similarity with Type-2 diabetes mellitus.
- Due to Avarana aggravated Vata causes depletion of Vital Dhatu like Oja, Majja and Vasa and affect the normal physiology.
- Both drug showed significant result in relieving symptoms of Madhumeha.
- Highly significant result found in Karpada Daha, significant result found in Prabhutmutrata, Pipasa, Shithilangta, Sheetpriyatwam and Madhurmaasye., result were found non significant in Atikshudha, Angagandha and Atishweda.
- We found statistically significant result in lowering blood sugar (fasting and post prandial) level.
- No any side effects were observed during treatment.
- Treatment modalities based upon the consideration of vitiated Kapha, Meda and Vata having properties like Shleshamamedohara, Pramehaghna and Kapha-Vatahara.
REFERENCES