A REVIEW ON ETIOPATHOGENESIS AND MANAGEMENT OF MADHUMEHA (DIABETES MELLITUS)

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ABSTRACT

Madhumeha is foremost in life style disorders and it was described as one among the Astamahagadas in Ayurvedic classics. Madhumeha (Diabetes mellitus) is becoming fastest considerable diseases in the world. It is a metabolic disorder may result in deficiency or dysfunction of the insulin production. The main causative factors is said to be sedentary lifestyle, stressful mental conditions and food habits are running down to Madhumeha. In Ayurveda it is described in Vataja pramehas, which can be managed conservatively with Yoga, Exercise, Diet and Internal medication.

Keywords: Madhumeha, Vataja pramehas, Astamahagadas

INTRODUCTION

India is well known as the cradle of ancient civilization and has acquired immense knowledge on the nutritional and medicinal properties of large number of plant products through its rich heritage and traditional system of medicine.¹

Ayurveda the finest treasures of ancient period, is an eternal science and is claimed as Anaadi and Saashwat in the Samhitas. Ayurveda deals with the preventive and curative aspects of health. Worldwide need of alternative medicine has resulted in growth of natural product markets and interest in traditional system of medicine.

Nowadays, the sedentary life style and stressful mental conditions are running down to many distressing diseases, among them Madhumeha is foremost in life style disorders and it was described as one among the Astamahagadas in Ayurvedic classics.

The word “Prameha” means passage of urine in large quantities or more products of metabolism which may or may not be a normal constituent of urine in large amounts. There are twenty types of Prameha mentioned in our Ayurvedic classics. If Prameha ignored and not treated properly in time it leads to Madhumeha.

The disease Madhumeha is clearly mentioned as a type of Prameha in all Samhitas like Charaka, Sushruta and AshtangaHridayam.²,³ One of the symptom of Madhumeha explained in Ashtanga-Hridayam Nidana is “Madhumehi MadhuSamam Mutram” which
means honey like sweet urine, this can be correlated to glycosuria. The disease *Madhumeha*, its definition, etiology, clinical picture & principles of treatment appears to have great similarity with Diabetes mellitus. Hence, *Madhumeha* can be equated with Type II Diabetes.

Diabetes mellitus is a metabolic disorder characterized by hyperglycemia, glycosuria, hyperlipidemia, negative nitrogen balance, sometimes ketonemia and insulin resistance, which may be combined with relatively reduced insulin secretion. It is mainly produced by variations in lifestyle, like faulty dietary habits, lack of exercise, excess stress, addictions like smoking, alcoholism and the latest evidence based facts illustrates that genetic, environmental, functional and hereditary also contribute in the production of disease. The incidence of Diabetes has shown an alarming increase around the world. WHO concluded that, the total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030. India is included in the top 3 countries having highest number of people with diabetes along with China & U.S.increasing day by day.

**Aims and Objectives:**
1. To study etiopathogenesis of *Madhumeha*.
2. To study current treatment trends of *Madhumeha*.

**Materials and Methods:**
*Madhumeha* is studied through different Ayurvedic and modern text, journal, magazine, internet. It is a review article based on data collected from different sources.

**Etiology:**
The etiological factors such as frequent and excessive intake of fresh corns like Hayanaka, Yavaka, Chinaka, Uddalaka, Naishadha, Itkata, Mukundaka, Mahavrhi, Pramodakaand Sugandhaka lead to the immediate manifestation of *Prameha* to Kaphadosha. Intake of Usna, Amla, Lavana, Kshara and Katu Dravyas. Intake of food before the digestion of the previous meal; Exposure to excessively hot sun, heat of the fire, physical exertion and anger; Intake of mutually contradictory food articles lead to *Paittaja Prameha*. Excessive intake of Dravyas having predominantly Kashaya, Katu, Tikta Rasa, Ruksha, Laghu and Sheeta due Veerya; Excessive indulgence in sex and physical exercise; fasting, assault, exposure to sun, anxiety, grief, excessive bloodletting, keeping awake at night and irregular postures of the body cause Vataja Prameha.

**Madhumeha Nidana:**
The person indulges in food substances having guru, snigdha qualities & excessive indulgence of Amla & lavana rasa substances and nava navanapana, excessive sleep, sitting in a same place for longer duration, avoiding exercises, excessive thinking and also not performing the shodhana process in a proper time. Acharya Sushruta has narrated that untreated *Prameha* in its initial stage, gets converted into *Madhumeha* which becomes incurable.

**CLASSIFICATION**
In the Ayurvedic classics *Madhumeha* has been classified as follows on the basis of various aspects

1. **On the basis of Body Constitution:**
   (a) **Sthula Pramehi:**
   Related to the obese diabetic person
   (b) **Krisha Pramehi:**
   Describing about the lean diabetic person

2. **On the basis of the etiological factors:**
   (a) **Sahaja (Hereditary):**
   Sahaja means due to Matapita beeja dosha kruit (Chromosomal defect from parents). This type can be compared with Type 1D.M.
   (b) **Apathyanimittaja (Acquired):**
   Mainly due to Unwholesome things – food and exercise etc.,.)
3. On the basis of Pathogenesis:
(a) Avaranjanya:
Avaranjanya pathogenesis occurs due to etiological factors which lead to the vitiation of Kapha, Pitta, Meda and Mamsa which in turn cause Avarana of Vata Dosha leading to its provocation and manifestation of Madhumeha.11

(b) Dhatuapakarshanjanya:
Dhatuapakarshanjanya pathology occurs due to depletion of Dhatus because of the Vata vitiated etiological factors.

4. Classification of Prameha for the management purpose:
Santarpanjanya and Apatarpanjanya: This type of classification is described by Acharya Charaka. Classification is mainly based upon the over nutrition and under nutrition. So, Santarpanajanya Madhumeha can be correlated with Avaranajanya Madhumeha and Apatarpanajanya can be correlated with Dhatukshayajanya Madhumeha.12 13

5. Classification as per Dosha Predominance
a) Kaphaja Prameha (10 types)
b) Pittaja Prameha (6 types)
c) Vataja Prameha (4 types), according to the characteristic of urine, its volume, Dhatu being excreted through urine.14

Pathogenesis (Samprapti)
When sadhya roga changes into krichra sadhya or asadhya, it can be called as vidhi samprapti. It commonly occurs in the untreated condition. As far as madhumeha is concerned, we can partly include it in vidhi samprapti. Acharya Sushruta explains it as if all the Pramehas are not treated first, they will gradually pass to stage of madhumeha. The different types of Samprapti which are mentioned by various Acharyas are being described below:

1. Due to Shuddha Vata: Due to Vatakara Nidana, Vata Dosha provoked leading to Kshaya of other two Doshas and Sarabhoota dhatus like Vasa, Majja, Lasika and Oja. Due to Kshaya of Dhatu, Vata further gets provoked. This highly provoked Vata draws Oja towards Basti and leads to Madhumeha. This is Asadhya to treat due to its Arambhaka Dosha Vata and resultant further provocation due to Dhatu Kshaya.15

2. Dhatu Kshaya Janya Madhumeha Samprapti: The Kshaya of Gambhira and Sarabhuta Dhatus like Majja, Vasa, Oja and Lasika leads to Vata Prakopa. Vata Dosa gets vitiated leading to Ksharana of Sarabhuta Dhatus through Mutra Pravriti in such a quantity that this Ksharana of Sarabhuta Dhatus itself acts as etiological factor again for Vata Prakopa, hence this vicious circle goes on. But due to Ashukaritva of Vata all the stages of Samprapti proceeds so fast that, it leads to Asadhya stage of the disease very quickly.16

3. Aprathikaritha Vatanubandita Madhumeha Samprapti: This type of Madhumeha is actually not a separate entity but it is the further stage of Kaphaja or Pittaja Prameha due to Deerga Kalanubandha or this may be called as ignored stage of Prameha due to lack of proper treatment. Kaphaja and Pittaja Prameha which are present from quite longer period they do get Anubandha of Vata to chronicity i.e., they get converted into Vataja Prameha.17

4. Avarana Janya Madhumeha Samprapti: Here one sees that Nidana is same as that of Kaphaja Prameha but still the resulting disease is Madhumeha. Guru, Snigdhadi Ahara, Ayyayam, Adi Vihara etc. leads to provocation of Kapha and Pitta Dosha in turn increases in quantity of Meda and Mamsa. All these increased factors obstruct the Gati of Vata leading to provocation of Vata and this withdraws Oja from the body and takes it towards Basti and leads to Madhumeha, which is Krichra Sadya for treatment.

SAMPRAPTI GHATAKAS
Dosha: Tridosha specially vata
Dushyas: Rasa, Rakta, Mamsa, Meda, Majja, Vasa, Lasika, Oja, Shukra, Ambu
Srotas: Medovaha, Mutravaha, Udakavaha
Srotodushti: Atipravritti, Sanga
Sanchaya: Dhatu-gata (Tissue level)
Prakopa: Sarva sharira
Prasara: Rasayani
Sthanasamshraya: Mutravaha Srotas
Agni: Dhatwagni mandya
Ama: Dhatugata (AparipakwaDhatu)
Udbhava: Amashaya
Swabhava: Chirkari

TREATMENT TRENDS IN AYURVEDA:
Chikitsa sutra (principles of treatment) and Chikitsa (Management Proper) are the two divisions of this major part. Both these are described very well in classics. But the concepts & methods are different in different conditions, considering the Vyadhi swabhava & Atura. The Samprapti should be considered deeply before stepping to manage. Following are the treatment modalities we can apply in Madhumeha to alleviate the disease.

Nidanaparivarjana
Treatment according to Dosha, Dushya, Mala complications. The eminent ancient Ayurvedists, Charaka, Sushruta & Vagbhatta are considering the body constitution & strength of the body of the patient when dealing with the management aspect. After considering all the factors the two types of management emphasized are

Samshodhana Chikitsa [Elimination Therapy]
Samshaman Chikitsa [Normalizing Therapy]

In Pratyakhya vyadhis, symptomatic relief can be given by proper management.

SAMSHODHAN CHIKITSA: do proper spacing in words
Considering Sthula & krisha pramehi, Samshodhan Chikitsa should be administered only to the sthula & Balvan Pramehi. Anuvasana & Asthapana Vasti chikitsas are able enough to control the provocation of vata, pitta & kapha. Like this all the doshas are normalized to keep the doshasamayata. Anuvasana with medicated oils & ghritas are prescribed in madhumeha. After proper Shodhan Chikitsa, appropriate Santarpana Chikitsa is indicated by Charakacharya to prevent the complications.

SAMSHAMAN CHIKITSA:
Samshaman Chikitsa includes mainly deepana, Pachana, Kshut, Trit, Vyayama, Atapa & Marut. According to the conditions of vitiated doshas, dushyas, vaidya has to suggest proper Shaman Chikitsa to the patient. Acharyas introduces different tarpana upkramas in vatika mehas. It is due to the less strength of the patient.

ORAL MEDICATION:
As regards drugs, there are so many drugs and formularies but the main drugs are either bitter (Tikta) or astringent (kashaya) in taste. They improve the fat and carbohydrate metabolism. Some of the medicines are given below; The drug of choice is (1) Shilajatu (2) Guggulu and (3) Haritaki (myrobalan) and Amalaki. For obese persons Guggulu may also be used as Guggulu has been proved as hypo-cholesterimic drug.

Single formulations
1. Guduchi swarasa (Tinosporacardifolia) – 10ml twice a day with honey (A.H.Ci 12/6)
2. Amalaki Curna (Phyllanthusemblica) – 6 gm twice a day with honey (A.H.Ut. 40/48)
3. KaravellakaPhala Curna (Momordiachantarla) – 3 gm twice a day with water (D. V. P. V. Sharma. Voll.II. page – 685)

Compound preparations do proper spacing in words
1. T. Chandraprabha, 500 mg twice a day with water/milk (S.S.Ma.K.)
2. T. VasantkusumakaraRas, 125 mg twice a day with Honey (R. S. RasayanaVajikaratnaAdhikara)
3. BrihatvangeswaraRasa, 125 mg twice a day with Ajadugdha/Godugdha (B. R. Pramehacikitsa)
4. NisamalakiVati, 500 mg trice a day with
Triphala Kasaya (A. H. Prameha Cikitsa)

5. T. Mehari Ras (Vangabhasma, paradabhasma and Rasasindura) - 125 mg twice a day with Ajadugdhal Godugdha.

6. T. Meghananda Rasa (Purified parada, gandhaka, oxides of kantaloha, teekshnaloha and swarnamakshika, shilajatu, manashila, triphala and haridra. Prepared with bhringaraja juice), 125 mg twice a day with Ajadugdhal Godugdha.

7. Mauktikakamadugha, 125 mg twice a day with Ajadugdhal Godugdha

8. Pravalbhasma, 100 mg twice a day

9. Mehmudgara (BR), 125 mg twice a day

10. T. Suvarnamalinivasantras (Ay.SS), 125 mg once a day

11. Tarakeshwara Rasa (BR), 125 mg twice a day with Ajaduqdhala Godugdha (page 65 – Impcops Therapeutic index)

12. T. Suvarnavangaraja, 125 mg twice a day (Dr. Subhas Rana KC text book)

13. T. Arogyavardhini, 500 mg twice a day

14. Trivangabhasma, 100 mg twice a day

15. T. Apurvamalinivasanta, 100 mg twice a day (BR)

Medicated Ghee

1. Dhanvantaraghrita 5 to 10 gm/day - (Bhavaprakash page 496)

2. Dadimadyaghrita 5 to 10 gm/day - (Bhavaprakash page 494)

3. Sinhamritaghrita 5 to 10 gm/day - (Bhavaprakash page 496)

Avaleha

1. Saraleha: (Bhavaprakash): Prepare decoction of asana (Pterocarpus marsupium), khadira, babbula and bakula (Mimusops lengineering). During boiling add oxides of tamra and loha and powders of amalaki, danti, lodhra and priyangu. This is useful for all types of Prameha. Dose: 3 to 5 mg / day.

2. Gokshuradavaleha (Bhavaprakash): prepare decoction of gokshura and add trikatu, nagakeshara, cinnamon, ela, jatipatra and vamshalochana. This is also useful in all types of Pramehas. Dose: 3 to 5 mg / day.

**Kwatha (decoction)**

1. Darvi, Surahwa, Triphala, Musta.

2. Triphala, darvi, Vishala, Musta. Composition of the above two decoctions are same except for one drug. The first contains Surahwa (Devadaru) and the second contains Vishala. Vishala is drastic purgative and so can be used in constipated persons. The dose and duration of therapy, pathya–apathy (wholesome and unwholesome) may be conveniently decided by the physician on case to case basis on Ayurvedic parameters.

**YOGA**

Yoga provides an appropriate lifestyle intervention that would be greatly helpful in regeneration of beta cells of pancreas may be taking place, which may increase utilization and metabolism of glucose in peripheral tissues, liver and adipose tissue through enzymatic processes. Improved blood supply to the muscles and muscular relaxation along with its development enhances insulin receptor expression causing increased glucose uptake and thus reducing blood sugar. Various type of Yoga Asana performed as a preventive therapy are Suryanamaskar (increase blood supply and improving insulin administration), Mandukasan (stimulate pancreas to secrete insulin), Dhanurasana (improves functioning of pancreas and intestines), Sarvangasana (improves blood circulation), Halasana [16] (stimulates pancreas and activate immune system). Apart from this Pranayama as Kapalbhati, Anulom-Viloma are the best options for diabetic since reduction of stress hormones like adrenaline and cortisol lower blood glucose levels.

**DISCUSSION**

Western approach for Diabetes is based on wrong footings. Treating hyperglycemia with hypoglycemic drugs without caring to correct the metabolic impairment is something like applying dye to the grey hair which though
helps to look younger does not reverse the fundamental process of senescence. General treatment modalities include lifestyle modifications, treatment of obesity, oral hypoglycemic agents and insulin sensitisers like Metformin etc. On long standing usage of DM drugs, people are more vulnerable to various forms of short and long term complications, which often lead to their premature death. Under the present circumstances Ayurvedic approach for etiopathogenesis and treatment would be of great use for Madhumeha (Diabetes Mellitus). Ayurvedic remedies for Madhumeha were the oldest among all available therapies and give the best and powerful treatment.

CONCLUSION
Ayurveda does not regard diabetes mellitus as a disease that can be treated by mere medicine or by a dietary regimen. Though it is a yapya (not totally curable / difficult to cure) disease, the prolonged use of the above treatment procedure will not only generate the person free from Diabetes Mellitus but protect to live a long life (deerghajeevanam), healthy (sukhayu) and will be useful to the society (hitayu).

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