An Ayurvedic Review on Diabetes mellitus (Madhumeha)
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Abstract:
Today's era is dominated by disorders of life style and
Ayurveda is the best solution to these disorders. Ayurveda
is often referred as “Science of life" but it is more of a
science that deals with prevention of mental & physical
disorders. It is one of the oldest systems of medicine.
Prameha, as described by Acharya Charka & Sushruta is
one of the disorders that have emerged out of urban life
style. The causes and symptomatology of Madhumeha
described few thousand years back run parallel with the
causes of Diabetes Mellitus mentioned by the system of
modern medicine. Hence, Madhumeha can be co-related
with diabetes mellitus. In all, 20 types of Prameha have
been described based on the predominance of Vata, Pitta
& Kapha. 'Madhumeha' is a subtype of Vataja prameha.
There are four types of Vataja Prameha i.e. Vasameha ,
Majjameha, Hastimeha and Madhumeha. Ayurveda
includes Prameha amongst Ashto Mahagada. It is of two
kinds viz one due to vata vridhdi caused by dhatu kshaya
and another by vata vridhdi caused by obstruction of
channels of vata by other doshas.

Keywords:
Diabetes, Madhumeha, Ayurveda, Sedentary-lifestyle.
INTRODUCTION

Diabetes is one of the leading causes of morbidity and mortality in the world\(^6\). In modern medicine, in spite of tremendous advancement till date an ideal drug which can cure diabetes is not yet available and still scientists are struggling to search an effective and harmless therapy. The International Diabetes Federation estimated that the number of diabetes patients has doubled from 19 million in 1995 to 40.9 million in 2007 and it is projected to increase to 69.9 million by 2025\(^7\). Almost 11% of urban population above the age of 15 is having diabetes. WHO estimated that diabetes and heart disease tolls India approximately to $210 billion and it is supposed to increase up to $335 billion in next 10 years. Considering the etiopathogenesis as mentioned by Acharya Charka, it can be scientifically stated that Madhumeha is a lifestyle disorder and by means of proper Dincharya, Ritucharya, Pathya - Apathya and Ayurvedic formulation we can treat diabetes and reduce its prevalence and complication. Diabetes mellitus is a metabolic disorder of multiple etiology, characterized by chronic hyperglycemia with disturbances of carbohydrate, fat and protein metabolism resulting from defects in insulin secretion, insulin action, or both\(^8\). Ayurvedic remedies for Madhumeha (Diabetes mellitus) are the oldest among all the available therapies, which includes in the Prameha category. Prameha are a list of urinary disorders, especially characterized by profuse urination with several abnormal qualities due to imbalance of Doshas. In Madhumeha the urine becomes (sweet and smells) like honey. It is of two distinct types, one due to the aggravation of Vata on account of the Dhatukshya and the other due to Kapha-meda Avarana (Blockage of channel along with Vata prakopa). When there is condition of Avarana (blockage of the channels/activity) there are the additional symptoms of the vitiation of the particular Dosha without any other apparent cause. Sometimes the symptoms are mild and suddenly they appear in severe form which is difficult to cure.

Etiology--

Sedentary habits and the pleasure of excessive sleep, milk and its preparation, newly harvested cereals, new/fresh wines, preparations of jaggery (cane sugar preparations) and all other Kapha-aggravating factors are the causes of the diabetes syndrome.\(^9\)

Pathogenesis –

Pathogenesis of Madhumeha is best described by Acharya Vagbhatta. He said Madhumeha can originate in two ways-
1. By the aggravation of Vata caused by Dhatukshaya.
2. By the obstruction of Vata caused by Doshas covering it.

Madhumeha which is caused by Dhatukshaya manifests as thin and asthenic individual due to loss of Oja. All this is Ojakshaya meaning an imbalance in Ojus. In Margavaranjanya Madhumeha the vitiated Kapha and Meda obstruct the passage of Vata. The obstructed Vata is vitiated again and carries Ojus to Basti thus manifests Madhumeha\(^10\). As per Ayurveda according to the potency of particular feature of etiology, Dosha (innate pathogenic factors) and Dushyas (substratum of pathology), response occurs in the form of non-manifestation or otherwise of the disorders. When these three factors do not combine together or if
combined after a long time or in weakened state, disorder will not be there, or it will manifest lately, or in a mild form or without all the said symptoms. On the contrary, the result will be contrary. Thus is said the cause of response in the form of non manifestation or otherwise of all disorders.¹¹

Premonitory Symptoms¹² –There premonitory symptom are- feeling of burning in the palms and soles, heaviness in body, urine is sweet, bad in smell and white in color, stupor, debility, profound thirst, dyspnea, more accumulation of dirt in the palate, throat, tongue and teeth, hairs on the head adhering to one another and more growth of the hairs and nails.

Clinical Features¹³- The general features of the diabetes syndrome is the passage of profuse and/or turbid urine, the urine becomes like honey and the entire body becomes very sweet.¹⁶ Sushrutacharya also says that Sahajameha Rogi are usually Krisha (Thin built) while Apathyanimittaja Rogi are usually Sthula (Obese).

Classification of Diabetes Mellitus¹⁴:-

Type- 1 Diabetes Mellitus- Type 1 diabetes, formerly called juvenile diabetes, is usually diagnosed in children, teenagers and young adults. Type 1 diabetes may develop in adults. This is an autoimmune disease causing specific destruction of Beta-cell of pancreas which result in an absolute insulinopaenia.

Type- 2 Diabetes Mellitus- Type 2 diabetes, formerly called adult onset diabetes, is the most common form and has an insidious onset. It is commonly seen in adults, but can occur even in childhood. Weight loss is uncommon unless hyperglycaemia is severe while ketosis is rare. Familial inheritance is very common. This form of diabetes usually begins with insulin resistance and initially there is a counter regulatory hyperinsulinaemia. With time, the pancreas loses its ability to secrete enough insulin in response to meals and clinical diabetes develops.

Gestational Diabetes- Gestational diabetes is carbohydrate intolerance resulting in hyperglycaemia of variable severity with onset or first recognition during pregnancy.

Other types of diabetes- A number of other types of diabetes exist which develop due to:

1. Genetic defects of the beta-cell
2. Genetic defects in insulin action
3. Disease of the pancreases
4. Excess amounts of counter regulatory hormone
5. Infection
6. Rare autoimmune disorders
7. Genetic syndromes associated with diabetes.

Criteria for the diagnosis of DM:-

Fasting:-

- Normal- < 110 mg/dl
- Impaired fasting glucose- > 110 and < 126 mg/dl
- Diabetes mellitus- ≥ 126 mg/dl 2-hour post load –

Post prandial :-

- Normal- < 140 mg/dl
- Impaired glucose tolerance- > 140 and < 200 mg/dl
- Diabetes mellitus- > 200 mg/dl with symptoms
Investigation:

1. O.G.T.T. (Oral Glucose Tolerance Test)
2. Lipid profile
3. Liver Biochemistry
4. Glycosylated Haemoglobin (HbA1C)
5. Blood glucose-Random, Fasting, Postprandial
6. Urine tests-Urine testing for glucose is still widely used.
7. Proteinuria is a reflection of the development of renal complication.

Complications :-
Improper digestion, Loss of taste, Vomiting, Burning sensation, Thirst, Sour belching, Fainting, Loss of sleep, Tremors, Emaciation, Dypnea, Too much elimination of urine, Troubled by appearance of deep seated Pidikas (Eruption), Erysipelas, Feeling of heaviness of the body.

1. **Metabolic complication** - Ketoacidosis, Hyperosmolar coma
2. **Infective** - Bacterial and fungal infections of the skin, mucosa, soft tissues, bone, urinary tract and lungs.
3. **Late complication** - Atherosclerosis Coronary heart disease, cerebrovascular disease and Peripheral vascular disease, Cataract, Diabetic ulcer (Diabetic foot), Infection, Microangiopathy, Nephropathy, Retinopathy, Dermopathy, Neuropathy-Polyneuropathy, mononeuropathy, radiculopathy, amyotrophy, autonomic neuropathy.
4. **Complications of therapy** - Hypoglycemia, Insulin resistance, Insulin allergy, Lipodystrophy, Lactic acidosis, Depression of bone marrow
5. **Maternal and foetal disorder in G.D.M.**

Prognosis Incurability-
The diabetes syndrome since birth due to a genetic defect is said to be incurable. All stage of the diabetes syndrome, if not treated properly lead to severe complication like CRF (Nephropathy), Retinopathy and multiple organ failure are incurable in due course of time and then become incurable.

Treatment
In general Type 1 Diabetes mellitus i.e. *Krisha Pramehi* patients are advised to have *Bringhan* medication (Anabolic) as well as a diet which increase *Dhatus* in the body.
In type 2 Diabetes, Obese diabetic patients (Apathyanimittaja Rogi) with optimal body strength having intense increase of *Doshas*, *Samshodhan* (purification) of the body advocated.

1. **Snehana** (preparation of oil internally & externally)
2. **Shodhana** (Purification therapy under three category)
   a. Virechana
   b. *Basti* (Asthapanal Niruha)
3. **Shamana** with drugs.
4. Exercise and life style modification & following regular regimen of exercise, yoga, pranayama and regular food & sleep, following *Ritucharya & Dincharya*.

*Basti in appropriated conditions* -

Though the *Basti* treatment is contraindicated in treatment of *Prameha* because it again aggravate the disease, but
some special Basti are indicated for Prameha in different situations.

**Asthapana Basti:-**
- Kashaya of Sursadi gana is indicated.
- Panchatikta Basti- Basti prepared with the Kwath of Patola, Nimba, Bhunimba, Rasna and Santarpana.

Vit-Khadir Basti- Basti prepared with the Kwath of Somwalk (Vit-Khadir) is indicated for Prameha.

**Anuvasana Basti**
It is contraindicated in Prameha then it causes excitation of Doshas leading to the manifestation of Udara Roga. For this purpose, the oleated patient should be given various recipes described in Kalpa section with a view to eliminating excreta through both upward and downward tracts. After the excreta are eliminated from his body, the patient should be given Santarpana or refreshing therapy because Apatarpana (fasting) therapy in this condition may produce Gulma, consumption, pain in phallus and urinary bladder including kidneys and retention of urine, such patients should be given Santarpana therapy depending upon their power of digestion.

**Herbal medications helpful in Madhumeha (Diabetes mellitus)**
- Musta (Cyperus rotundus), Daruharidra (Berberis aristata), Arjuna (Terminalia arjuna) Khadir (Acacia catechu), Lodhra (Symplocos racemosa), Guduchi (Tinospora cordifolia), Patol (Trichosanthe dioica), Vata (Ficus bengalensis), Udumbar (Ficus glomerata), Gudmar (Gymnema sylvestre), Asana (Pterocarpus marsupium), Shilajit (Purified Bitumen), Kumbha (Leucas cephalotes) and Nimba (Azardicta indica).

Following preparation may be used judiciously in a patient of Prameha – Madhumeha for effective management:

a) Ghrita & Taila- Trikantakdy Sneha, Dadimadhya Ghrita, Shalmali Ghrita, Dhanvantar Ghrita, Triphala Ghrita, Prameha mihir Taila.

b) Asava- Loduha Asava or Madhva Asava, Datya Asava, Devarvadi Asava.

c) Leha (Paste)- Salsaradi leha, Kusha Avleha, Vanga Avleha.

d) Udaka- Srodaka, Kushodaka, Madhukodaka, Sdhu, Madhvika.

e) Vati (Tablet)- Trikatukadya Modaka, Shiva Gutika, Shilajatvadi Vati, Chandraprabha Vati, Indra Vati, Gokshuradi Vati, Aarogyavardhini Vati.

f) Churna (powders)- Nyagrodadi Churna, Eladi Churna, Karkatbijadi Churna, Triphala Churna.

g) Rasa/ Bhasam- Vasantakusumakar Rasa, Brihta Bangeshwar Rasa, Suvarna vanga, Apurvamalinivasant Rasa, Harishankar Rasa, Panchanana Rasa.

h) Kwatha (Decoction)- Phala trikadi Kwath, Darvyadi Kwath, Vidangadi Kwath, Triphaladi Kwath

**Diabetes can be controlled by giving comprehensive attention to three aspects:**
- Ahara (Diet)
- Vihara (Exercise)
- Aushadha (Medicine)

The role of ahara and vihara are equally or even more important than drugs in order to
control blood sugar level as well as to prevent complication of this disease.

**Cereals-Yava**–
Barley *(Chenopodium album)*, godhooma- Wheat, Shyamaka, kodrava, bajara.

**Pulses**–
Mainly beans- Mudga *(Greengram)*, Chanaka *(Bengal gram)*.
Vegetables- Thiktha shakas, Methika *(Trigonella foenum-gracum)*, Nimba *(Azadirachta indica)*, Karavella *(Momordica charantia)*, Patola *(Trichosanthes anguina)*, Rasona *(Garlic)*, Udmbara *(Ficus racemosa)*.
Fruits- Jambu *(Syzygium cumini)*, Talaphala *(Borassus flabellifer)*, Kharjura *(Phoenix sylvestris)*, Bilwas *(Aegle marmelos)*.

**Pathya and Apathya**
Shyama, Kodrava, Godhum and Kullatha which are old- are suitable to be used as foods by patients of Madhumeha (Diabetes). Vegetables of bitter taste *(Tikta)*, meat of animals and eggs of birds of deserts like regions *(Jangala mamsa)*, boiled Yava and its preparations, Mudag, Shali, and Shastika are all suitable as foods.
Sura *(beer)*, Buttermilk, oils, milk ghee, jaggery, foods processed with sour, sugarcane, juice, food prepared from flour, meat of animals of marshy regions should be avoided from use.

**Yoga**–
Yoga improves all sorts of metabolism in the body. So diabetics should perform different types of yoga. Yoga will definitely help diabetes mellitus. Yoga now-a-days has attracted the attention of Western people. Common Aasana that can be very effective in Diabetes are Padmasana, Shalabhasan, Mayurasan, Suryanamaskar, Dhanurasan.

Exercises- Brisk walking, jogging, bicycling, swimming, playing badminton & tennis.

**CONCLUSION:**
Diabetes mellitus is a metabolic disease of multiple etiology and in classical Ayurvedic text it is described as Madhumeha. Two type of clinical presentation are seen *Krisha Pramehi* & *Sthula Pramehi* as Type-I & Type-II diabetes respectively. Modern therapeutics has many limitation but Ayurvedic principles of management can help the patient to have better blood sugar control and better quality of life. Various researches carried out on drugs like Giloya, Vijayasara, Haritaki, Manjistha & many other formulations have shown promising results in treating Diabetes mellitus. In addition, life style modification with adopting proper food habits, yoga & exercise have very important role in the management of diabetes mellitus.

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