DIABETES MELLITUS (MADHUMEHA)-AN AYURVEDIC REVIEW

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ABSTRACT
Diabetes mellitus is becoming fastest considerable diseases in the world. India has being estimated with fastest growing population of Diabetics. It is a metabolic disorder may result in deficiency or dysfunction of the insulin production. The preventive measures in Ayurveda can prevent the disease. The main causative factor is said to be sedentary lifestyle and food habits. In Ayurveda it is described in vataja pramehas, which can be manage conservatively with exercise, diet and internal medication.

Keywords: Diabetes mellitus, Ayurveda, Madhumeha.

INTRODUCTION
Diabetes mellitus has gained gigantic disgrace in recent times as it is fast becoming the world's largest silent killer. India has been projected by WHO as the country with the fastest growing population of Diabetic patients. It is estimated that between 1995 to 2025 diabetic patients in India will increase by 195%. The problem with diabetes mellitus is that it is very difficult to diagnose in the early stages. However, a person stick to an Ayurvedic preventive strategy right from the beginning can easily prevent this disease or control it if already suffering. It is a medical condition in which there is an accumulation of glucose in the urine and blood of the person. This condition is known as hyperglycemia. The word diabetes has been derived from two words, diabetes (Greek) which means 'siphon through' and mellitus (Latin) which means 'sweetened with honey'. Diabetes mellitus is a metabolic disorder, i.e. it is caused due to the malfunctioning of the pancreas, which is responsible for the production of the hormone insulin.

Pathogenesis – (the manner of development of disease)
The beta cells of the islets of Langherhans in pancreatic gland are responsible for the secretion of the hormone insulin. Among other things, insulin is extremely essential for the proper utilization of the carbohydrates in our body. If insulin is absent due to a metabolic disorder, or if it is not performing its functions properly, then these carbohydrates accumulate in blood stream in the form of glucose. The glucose then collects in the urine, which is in fact one of the primary characteristics diabetes mellitus is identified with. Hence, this can be said to be either A deficiency in the production of insulin by the pancreas, or A dysfunction of the insulin produced by the pancreas.

Madhumeha (Prameha) [1]
Ayurvedic remedies for Madhumeha (diabetes mellitus) are the oldest among all the available therapies, which includes in the prameha category. Pramehas are a list of urinary disorders, especially characterized by profuse urination with several abnormal qualities due to doshic imbalances. The main causes of prameha are lack of exercise and improper food habits in excess food intake which falls in the category of usha, snigdha and gura are the primal cause of this disease. Fish, curd are good example. Foods that increase kapha, medhas and moothra are the etiological factors for prameha. The word Prameha is derived from, Pra – means excess, Meha – kisharane – passing of urine. So Prameha is passing excessive urine and turbid in color ('prabhothaa avila mootrata').

Main causes
Sleeping in day time, lack of exercise, Laziness, Sedentary habits, consumes food and drinks which are cold, unctuous, sweet and fatty items etc. (Fat rich Diet).

Classification [2, 3]
I. Prameha is classified aetiology in to Sahaja (Hereditary) and Apathyaa nimittaja (Unwholesome things – food and exercise etc.). Sahaja means due to Matapitabheejadoshakruit (Chromosomal defect from parents).

II. According to physical management
i. Apatharpana utahaa prameha describing the lean diabetic
ii. Santharpaana utahaa prameha relating the obese diabetic

III. According to the doshic causes, these pramehas are classified as twenty types:

i. Vataja pramehas – There are totally four vataja pramehas.
ii. Pittaja pramehas – There are totally six pittaja pramehas.
iii. Kaphaja pramehas – There are totally ten kaphaja pramehas.

Out of these, diabetes mellitus is termed as madhumeha. It is one of the four Vataja pramehas.

Samprapthighatakas [4] (favorable things for disease)
• Doshaa (humur) – vata, pitta, kapha
• Dushya – meda, mamsa, kleda, rakta, vasa, majja, lasika, rasa and ojas
• Srotas (channel) – moottavaha
• Srotodusti – atipravrutti
• Agni – dhatvagni
• Udhhavasthana – kostha
• Vyaktasthana – moottavaha srotas (urinary tract)

Samprapthi (Pathogenesis)[1, 3, 4]
Kapha undergoing increase by the etiological factors, reaches various dooshyas like rasa (plasma), rakta (blood) etc., As there is a shaitilyata (looseness) in the body and it being fluid predominant, spreads all over the body and gets vitiated, while spreading it gets mixed with medas (fat – adipose tissue), mamsa (muscle) and kleda (body fluids). Body fluids which got vitiated draw them to the urinary bladder and produces prameha; similarly the Pitta affects them, Vata also brings about vitiation in them and produce prameha.

Premonitory symptoms
In Ayurveda we can find the described of early symptoms of the disease. They are accumulation of dirt on the teeth (mouth, eyes, nose, and ears), a feeling of burning sensation in the palms and soles, stickiness of the skin all over the body, thirst and a sweet taste in the mouth etc., and moothra madhuryam (sweetness of urine).
Clinical symptoms [3.4,8,11]

Prabhootha mutrata (Polyuria), Avila mutrata (Tubrid Urine) and Medo dushti laksanas are the main symptoms of prameha.

Table 1: Specific Ayurvedic Symptoms (Parameters)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Sanskrit word</th>
<th>English meaning</th>
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<tbody>
<tr>
<td>1.</td>
<td>Malna donta</td>
<td>Tartar in teeth</td>
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<tr>
<td>2.</td>
<td>Hasta pada doha</td>
<td>Burning sensation of hands and feet</td>
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<tr>
<td>3.</td>
<td>Deha chinikanata</td>
<td>Excess glosy/oily skin</td>
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<td>4.</td>
<td>Trishna</td>
<td>Excessive thirst</td>
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<tr>
<td>5.</td>
<td>Madhuryamaya</td>
<td>Feeling sweetness in mouth</td>
</tr>
<tr>
<td>6.</td>
<td>Prabhuta mutrata</td>
<td>Excessive urination</td>
</tr>
<tr>
<td>7.</td>
<td>Avila mutrata</td>
<td>Urinary infection</td>
</tr>
<tr>
<td>8.</td>
<td>Madh samana varna</td>
<td>Urine having colour of honey</td>
</tr>
<tr>
<td>9.</td>
<td>Sweda</td>
<td>Excess perspiration</td>
</tr>
<tr>
<td>10.</td>
<td>Anga gandha</td>
<td>Bad body odour</td>
</tr>
<tr>
<td>11.</td>
<td>Shishilangata</td>
<td>Flaccidity of muscles</td>
</tr>
<tr>
<td>12.</td>
<td>Shayana asana Swapna</td>
<td>Desire for sedentary life</td>
</tr>
<tr>
<td>13.</td>
<td>Shitapriyastwa</td>
<td>Desire for cold food &amp; environment</td>
</tr>
<tr>
<td>14.</td>
<td>Gala talu shoshya</td>
<td>Dryness of palate &amp; throat</td>
</tr>
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</table>

The classic symptoms of untreated diabetes are loss of weight, polyuria, polydipsia and polyphagia.

Main symptoms (Modern science) [12]

1. Polyuria (Excessive Urine)
2. Polyphagia (Excessive Hunger)
3. Polydipsia (Excessive Thirst)
4. Exhaustion/Tiredness
5. Body ache
6. Giddiness
7. Polyneuritis (Nummness / Tingling)
8. Visual disturbance

Prognosis [1,14]

Charaka describes the prognosis in three categories

1. Sadhya - Curable: Patients who have diagnosed early in the onset, those who are sthool (obese) and the origin of their disease in apathyaja.
2. Yayya - Palliable : Pittaja prameha and certain types of kaphaja pramehas are however helps control with treatment (palliative management).
3. Asadhyya - Incurable: Vatoja describes the incurable version of prameha and inherited diabetes, a krita (lean) patient who is suffering with Sahajaveryity.

Treatment [5, 6, 7, 10]

According to Ayurveda the line of treatment of prameha is strictly on individual's constitution. It is based on an entire change in the lifestyle of the person, along with medication and diet, the patient is also advised to lead a healthy lifestyle and live an active life. Even mental aspects of the disease are stressed.

The principles of treatment in a diabetic patient may be classified as under

There are two types of diabetics:
1. Stahuja (Obese) 2. Krusha (Asthenic)

1. In Stahuja (Obese - स्थूल प्रमेह)

अपत्तपण्युक्तिभि

The treatment must be mainly based on proper utilization of excess fat i.e. he should be give: a). Shodhana (purification process), b) Apatarpana - reduction in body weight by way of diet control or drugs. Vyayama (exercise) etc.

- Fasting
- Diet control
- Cleansing therapies – vamana – (induction of emesis) virecana (induction of purgation) basti (application of medicine through the anal route - in specific conditions)
- Physical exercise

2. In krusha (For Lean patient - कृष्ण प्रमेहि)

अरपापपण्युक्तिभि

Asthemic type the treatment should be mainly based on the line of increasing stamina and vitality by way of tonics (brummaha) diet, drugs etc., and the patient should never be given excessive Langhana or Apatarpana i.e. he should not be starved.

Note: The patient, whether obese or Asthenic, suffers from the complications like gulma (tumours), Khaya (Tuberculosi), pain in abdomen etc., he should always be given some food. A diabetic and an obese person generally suffer from excessive appetite and thirst and so some type of nutrition should always be given to them.

Diet

The following are the articles of food which can be given to the diabetics-

The role of ahara and vihara are equally or even more important in diabetes to control blood sugar level as well as to prevent complications of this disease. In all classics, ahara drayas are described in detail and they cover all the food groups are - :

1. Cereals: Yava (Hordeum vulgare - Barley) are the best, different preparations of food, prepared from barley can be given e.g. Mantha, Ondana, Appopa, bread, Roti etc. This is the subject of pharmaceutics and food stuffs. So the method of preparations of barley is not dealt with here. Wheat (Godooma) can also be given. Rice - Ayurveda prescribed old rice (paruna shali), as one of the cereals, which can be prescribed to the diabetic patients.

2. Pulses: Mudda (Vignaraudita Gareengram), Chanaka (Cicer arietitum Linn,- Bengal gram), Kalaththa (Dalichos biflorus), Adhaki (Cajanus cajan - Pigeon pea) etc. can be taken.

3. Vegetables: All types of bitter vegetables (Tiktaka shaha) e.g. Karella (Momordica charantia - Bitter gourd), Methi (Trigonella foenangracum - Fenugreek), Patola (Vietnamese Laafa, Vietnamese goard, or Chinese okra), Rasena (Allium sativum Linn - Garlic), Udumbara (Ficus racemosa - Cluster Fig Tree, Indian Fig Tree) can be prescribed to the diabetic patients.

4. Fruits: Jambu (Syzygium cumini - Black berry), Amalaki (Phyllanthus emblica - Nepalese/Indian gooseberry,or Dhatrik (in Maithul) or amla), Kapitta (Limonia acidissima - Wood Apple, Elephant Apple, Monkey Fruit or Gurd Fruit). Tala phala (Borassus flabellifer - The Asian Palmyra palm, Toddy palm, Sugar palm, or Cambodian palm), Kharjura (Phoenix sylvestris - Date Sugar Palm ), Kamala (Nelumbo nucifera Indian lotus, sacred lotus, bean of India, or simply lotus), Utpala (Nymphaea Stellata) etc., can be allowed to take.

5. Seeds: Kamala, Utpala seeds can be allowed to take.

6. Flesh: Harina mamsa (Deer flesh), Shashaka mamsa (Rabbit), birds like Kapothe, Titira etc., can be taken.

7. Liquor: Old sour (old wine) may be given.

8. Oils: Mustard oil (Sarshapa taila) is best. Ingudi (Balanitis aegyptiaca) Ghritha may be used in pitthaha prameha.

But according to Ayurveda one should start with light diet (laghu bhaksha, laghu ahara) and then gradually increase the quantity of food. It is a rule that one should keep complete attention on the condition of Agni i.e. digestion. Diabetes being a disease of deranged
metabolism, special attention should be kept on the condition of digestion and metabolism.

Exercise [7]

Hard exercises are prescribed for diabetics and obese persons. This is meant for proper utilization of the fat and consumes the glucose in the body. The methods can be changed in the present times according to the habitat (desha) and time (kala). But the exercises are very necessary. Some of the hard productive exercises prescribed by Shashrutha are as under:-

1. Vyayama (exercises) (2) Niyuddha (fighting) - (3) Kreedha (games) (4) Gajacharya, turagacharya, rathacharya, padacarya to ride an elephant, horse, cart riding and walking etc. Over and above mentioned heavy exercises, there are other exercises according to the financial position and also according to their community.

They are:

1. For poor class, the diabetic should walk about 100 miles, bare footed, not staying more than one night in the settle place, should eat only the things available by begging and keeping restraint on his character (adopt the life style of Muni/asa).
2. For rich diabetics- they should ate only Shyamaka, Kodrava etc., Amalaka, Kapitha etc., and reside with the cattle (domestic animals). The food stuff for them should be Ruksha (free from fat) or they may stay with the cows and eat the above with the urine and faeces of the cow compare this with the character in Raghuvamsha.
3. For other either farming or digging a well etc. From the above, it will be seen that the exercise prescribed by the Acharyas are very hard and productive. In short for diabetics exercise serves the purposes of (1) Utilizing the fat and (2) Metabolizing sugar fat and carbohydrates, and also proteins. In the present day civilization, when these types of exercise are not possible, one should regularly play some out-door games, do some productive work, or the best is different type yogic exercises.
4. 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.

Drugs [7.8.9]

As regards drugs, there are so many drugs and formulations but the main drugs are either bitter (Bhakta) 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-cholesteremic drug.

Single formulations

1. Guduchi swarasa (Tinospora cardifolia) – 10 ml twice a day with honey (A.H.C. 12/6).

Compound preparations

1. T. Chandraprabha, 500 mg twice a day with a water/milk (S.S.M.A.K).
2. T. Vasan kusumakara Ras, 125 mg twice a day with Honey (R. S. Rasayana Vajjikarana Adhikara).
3. Brihat vangeswara Rasa, 125 mg twice a day with the Ajadugga/Godugga (B. R. Prameha ciktita).
5. T. Mehari Ras (Angbhashma, parada bhasma and Rasasindura) - 125 mg twice a day with Ajadudha/Godudha.
6. T. Meghanada Rasa (Purified para, gandhika, oxides of kanta loha, teeksha loha and swarnamukhika, shilajatu, manashila, triphala and haridra. Prepared with bhringaraja juice), 125 mg twice a day with Ajadudha/Godudha.
7. Maunikta kamadugha, 125 mg twice a day with Ajadudha/Godudha.
8. Praval bhasma, 100 mg twice a day.
9. Mehumugra (BR) 125 mg twice a day.
10. T. Suvarnamalini varsat ras (Ay.SS), 125 mg once a day.
11. Tarakeshwaras Rasa (BR), 125 mg twice a day with Ajadudha/Godudha (page 65 – Impcos Therapeutic index).
12. T. Suvarna vangara, 125 mg twice a day (Dr Subhas Rana KC test book).
13. T. Aroga varadini, 500 mg twice a day.
14. Trivanga bhasma, 100 mg twice a day (BR).

Medicated Ghee

1. Dhanvantara ghrita 5 to 10 gm/day - (Bhavapprakh page 496).
2. Badimadhy ghrita 5 to 10 gm/day - (Bhavapprakh page 494).
3. Sinhamrita ghrita 5 to 10 gm/day - (Bhavapprakh page 496).

Avaleha

1. Saraleha: (Bhavapprakh): Prepare decoction of asana (Pterocarpus marsupium), khadira, babula and bakula (Mimusops elengi). During boiling add oxides of tamra and loha and powders of amalaki, danti, lodhra and priyanga. This is useful for all types of Prameha. Dose: 3 to 5 mg/day.
2. Gokshuradavaleha (Bhavapprakh): prepare decoction of gokshura and add trikatu, nagakeshara, cinnamom, ela, jatiapata and vamsholochana. This is also useful in all types of Pramehas. Dose: 3 to 5 mg/day.

Kwatha (decoction)

1. Darvi Surabha, Triphala Musta.
2. (Triphala, darvi, Vishala, Musta).

Composition of the above two decoctions are same except for one drug. The first contains Surabha (Devadara) and the second contains Vishala. Vishala is drastic purgative and so can be used in constipated persons.

The dose and duration of therapy, pathya- apothy (wholesome and unwholesome) may be conveniently decided by the physician on case to case basis on Ayurvedic parameters.

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 yogyav (not totally curable / difficult to cure) disease, the prolonged use of the above mentioned treatment procedure will not only generate the person free from Diabetes Mellitus but protect to live a long life (deergha jeevanam), healthy (sukhaya) and will be useful to the society (hitaya).

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