

## THERAPEUTIC AND PREVENTIVE ASPECTS OF DIABETES MELLITUS THROUGH AYURVEDA, DIET AND YOGA – A BRIEF REVIEW

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### ABSTRACT

Our country India is being estimated with fastest growing population of diabetics. The number of diabetics is estimated to rise from 15 million in 1995 to 57 million by the year 2025, making it the country with the highest number of diabetics in the world. So it is a prime concern of medical professionals to manage diabetes properly and also prevent the pre-diabetics from suffering through proper medication and lifestyle changes. 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. We have traditional wealth of number of herbs and other herbo-mineral medicines which can control diabetes if used properly. This paper is a sincere effort to enumerate current research in this field and an insight to ancient treasure of anti-diabetic drugs.

**Keywords:** *Madhumeha*, Diabetes, Life style disorders, Anti diabetic drugs.

### INTRODUCTION

In India now a day's life style of people has underwent drastic changes due to modernization, which leads to sedentary life style and unhealthy dietary habits such as fast food consumption etc. Result of which is that most of the people suffer from high blood pressure and diabetes mellitus commonly known as life style disorders. Most of the Indian population is suffering from Diabetes mellitus and despite of modern treatment modalities, number of patients is increasing day by day. The number of diabetics is projected to rise from 15 million in 1995 to 57 million by the year 2025 making it the country with the highest number of diabetics in the world.<sup>1</sup> Diabetes Mellitus is also a *maharoga* (major disease) because it affects most part of the body and every cell of the

human physiology. Therefore as an *Ayurvedic* physician, it is our prime concern to manage diabetes properly with medication and lifestyle changes. The task does not end here; we must prevent this disease by advising proper diet, exercise and Yoga to most vulnerable population. Diabetes is a metabolic disorder may result in deficiency or dysfunction of the insulin production. If dietary and lifestyle changes are adopted properly as described in *Ayurvedic* classic texts, we 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.

*Ayurveda* does not regard diabetes mellitus as a disease that can be treated by

mere medicine. Along with medication it requires a proper dietary regimen and exercise to control the disease. Though it is a *yapya* (disease not totally curable / difficult to cure), the prolonged use of the Ayurvedic treatment procedure will not only generate the person free from Diabetes Mellitus but protect to live a long life (*deergha jeevanam*), healthy (*sukhayu*) and will be useful to the society (*hitayu*).<sup>2</sup>

Although, insulin and oral hypoglycaemic agents are the mainstay of treatment of diabetes, they have prominent side effects and fail to alter the course of diabetic complications. The high cost of some agents and potential for adverse effects have led several investigators to focus their attention on the traditional medicines. According to ethno-botanical information, about 800 plants may possess anti-diabetic potential<sup>3</sup>. Hence, treating the disease with *Ayurveda* and adopting lifestyle which prevents the disease is the prime concern of *Ayurved* doctors.

**Material and Methods:** To understand role of *Ayurved*, diet and Yoga on Diabetes mellitus, classical books on *Ayurveda*, modern literature, available research updates and scientific information available on internet etc. were searched and analyzed.

**Diabetes:** Diabetes is a disorder of metabolism-the way our body uses digested food for growth and energy. Most of the food we eat is broken down by the digestive juices into a simple sugar called glucose. Glucose is the main source of fuel for the body. After digestion, the glucose passes into bloodstream where it is available for body cells to use for growth and energy. For the glucose to get into the cells, insulin must be present. Insulin is a hormone produced by the pancreas, a large gland near the stomach. When we eat, the pancreas is

supposed to automatically produce the right amount of insulin to move the glucose from our blood into our cells. If body doesn't make enough insulin or the insulin doesn't work right, the sugar cannot get into the cells. It stays in the blood. This makes high levels of glucose (or sugar) in the blood (hyperglycemia). As a result, glucose builds up in the blood, overflows into the urine, and passes out of the body (glucosuria). Thus, the body loses its main source of fuel even though the blood contains large amounts of glucose. Thus Diabetes is a chronic condition that occurs when the pancreas does not produce enough insulin or when the body cannot effectively use the insulin.

There are two types of Diabetes,

Type I: Diabetes Mellitus

Type II: Diabetes Mellitus

a. Juvenile onset diabetes/insulin dependent diabetes mellitus (IDDM)

b. Adult onset diabetes/non-insulin dependent diabetes mellitus (NIDDM).<sup>4</sup>

**Diabetes in Ayurveda:** According to *Ayurveda* there are 20 types of *Prameha* (Polyuria). *Madhumeha* is the ayurvedic Diagnosis that approximates Diabetes Mellitus label. Ayurvedic classics elaborately describes about the general etiological factors of *prameha*. There are two type of etiological factors mentioned in *Ayurveda* *Sahaja* (congenital) and *apathyanimitaja* (acquired).<sup>5</sup> *Sahaja* type of *madhumeha* is due to certain defects in *Stri* and *Pumbeeja* (Ovum and Sperm) which is said to be *matrupitru beejadoshakrita* will result in *sahajaprameha*. *Apathyanimitaja madhumeha* is due to *Apathyakar ahara vihar* (Improper diet and activities).

**Hetu (Causative Factors):** Numbers of dietary habits are mentioned as causative factor. Excessive use of curd, flesh of ani-

mals of domestic, aquatic and marshy places, use of milk and milk preparations, water of rivers and tanks during rains and floods, new grains, puddings made of jaggery/sugar, and using more similar factors, which increase *Kapha Dosha*.<sup>6</sup>

**Prognosis:** Charaka describes the prognosis in three categories -

1. *Sadhya* – Curable: Patients who have diagnosed early in the onset, those who are *sthoola* (obese) and the origin of their disease in *apathyaja*.

2. *Yapya* – Palliable- *Pittaja prameha* and certain types of *kaphaja pramehas* are *Yapya*.

3. *Asadhya* – Incurable: *Vataja prameha* is described as incurable *prameha*.<sup>7</sup>

**Chikitsa (Treatment):** *Chikitsasutra* (principles of treatments) and *Chikitsa* (Management proper) are the two divisions of treating diseases. Sushrutacharya also says that *Sahajameha Rogi* are usually *Krishna* (Thin built) while *Apathyanimitaja Rogi* are usually *Sthula* (Obese). During *Chikitsa* Acharyas consider body constitution and strength of patient. In the context of *Medoroga*, the managements described are parallel to that of *Madhumeha* since the *Dosha* and *Dushyas* are same to major extent.

**Herbs used in Diabetes:** Medicinal herbs have been known for centuries and are highly valued all over the world as a rich source of therapeutic agents for prevention of diseases. Our country India is called as “Botanical Garden of the World”. Use of plants as a source of medicine has been inherited and is the most important component Ayurveda. The use of herbal medicines is steadily growing. Approximately 60 % of the population use herbal medicines to treat medical illnesses.<sup>8</sup>

Given below is the list most common and effective antidiabetic medicinal plants of

Indian origin are Giloy (*Tinospora cordifolia*), gurmar (*Gymnema sylvestre*), garlic (*Allium sativum*), methi (*Trigonella foenum-graecum*), ghrita kumara (*Aloe vera*), neem (*Azadirachta indica*), ash gourd (*Benincasa hispida*), tulsi (*Ocimum sanctum*), anar (*Punica granatum*), purging Nut (*Jatropha curcas*), fever nut (*Caesalpinia bonducella*), bisasar (*Pterocarpus marsupium*), jamun (*Syzygium cumini*), karela (*Momordica charantia*), bael (*Aegle marmelose*), church steeples (*Agrimonia eupatoria*), mulberry (*Morus alba*), Babul (*Acacia arabica*), onion (*Allium cepa*), bitter apple (*Citrullus colocynthis*), eucalyptus (*Eucalyptus globules*), banyan tree (*Ficus benghalensis*), kiwach (*Mucuna pruriens*), gurhal (*Hibiscus rosasinesis*), ivy gourd (*Coccinia indica*).<sup>9</sup>

1. Single formulations

Guduchi swarasa (*Tinospora cardifolia*) – 10ml twice a day with honey

Amalaki Curna (*Phyllanthus emblica*) – 6 gm twice a day with honey.<sup>10</sup>

Karavellaka Phala Curna (*Momordica charantia*) – 3 gm twice a day with water.<sup>11</sup>

2. Medicated Ghee

Dhanvantara ghrita 5 to 10 gm/day

Dadimadya ghrita 5 to 10 gm/day

Sinhamrita ghrita 5 to 10 gm/day

3. Avaleha

1. Saraleha - Prepare decoction of *asana* (*Pterocarpus marsupium*), *khadira*, *babbula* and *bakula* (*Mimusops elengi*). 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. Gokshuradyavaleha - Prepare decoction of *gokshura* and add *trikatu*, *nagakeshara*, *cinnamon*, *ela*, *jatipatra* and *vamshalochana*. This is also useful in all types of *Pramehas*. Dose: 3to 5 mg/day.<sup>12</sup>

**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 Padmasan, Shalabhasan, Mayurasan, Suryanamaskar, Dhanurasan.<sup>13</sup>

**Diet**- The role of *ahar* and *vihar* are equally or even more important in diabetes to control blood sugar level as well as to prevent complications of this disease. The following are the *Pathyakar* (useful when consumed) *ahar dravya's* which can be given to diabetic patients.

**1. Cereals:** *Yava* (*Hordeum vulgare* - Barley) are the best, different preparations of food, prepared from Barley can be given e.g. *Mantha*, *Odana*, *Appopa*, bread, Roti etc. *Yava* (Barley), which is high in fiber content (4 g in 100 g) among all relative grains, is highly recommended in Diabetic diet in different forms. *Ruksha* (dry) and *Kaphashamak* (pacifies vitiated *Kapha*) properties of *Yava* support its role on Diabetes. Rice: - Ayurveda prescribed old rice (*purana shali*), as one of the cereals, which can be prescribed to the diabetic patients.<sup>14</sup>

**2. Pulses:** *Mudga* (Greengram), *Chanaka* (*Cicer arietinum* Linn. – Bengal gram), *Kulattha* (*Dolichos biflorus*) , *Adhaki* (*Cajanus cajan* - Pigeon pea) etc, can be taken.

**3. Vegetables:** All types of bitter vegetables (*Tikta shaka*) e.g. Karela (*Momordica charantia* - Bitter gourd), Methi (*Trigonella foenum-graecum* - Fenugreek), Patola (Vietnamese luffa, Vietnamese gourd, or Chinese okra), Rasona (*Allium sativum*), Udumbara (*Ficus racemosa* - Cluster Fig Tree, Indian Fig), etc. should be given

**4. Fruits:** Modern research suggests Diabetics to avoid fruits with high simple sug-

ars, such as Banana, Cheekoo, Grapes, and Mango, but suggest Orange, Watermelon, Apple, Guava, etc. It was recommended *Amalaki* (*Emblia officinalis* Gaertn.), *Kapittha* (*Feronia elephantum* Correa.), and other fruits. *Jambu* (*Syzygium cuini* - Black berry) , *Tala phala* (*Borassus flabellifer*), *Utpala* (*Nymphoea 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 flesh), birds like *Kapotha*, *Titira* etc., can be taken.

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

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

#### **Recent Research:**

1. According to one research seed powder and stem bark decoction of *Karanja* both are effective therapeutic medicine for management of *Madhumeha*.<sup>15</sup>

2. *Gokshuradi Guggulu* a polyherbal Ayurvedic formulation is recommended in the management of *Madhumeha*. Research carried out at IPGT and RA, GAU Jamnagar shows best results of *Gokshuradi guggulu* in the management of *Madhumeha*. Drug acts as a *Rasayana* and conservators of glucose utilization, it potentiates oxygen delivery systems and improves cell membrane permeability.<sup>16</sup>

#### **CONCLUSION**

This review of *Madhumeha* showed that the disease can be well managed by following *Pathya-Apathyaas* mentioned in *Ayurveda* (avoidance of the etiological factor). Considering detailed conceptual part we can defiantly say that *Ayurveda* describes appropriate lifestyle and diet management called as *ahar* and *vihar* for the prevention of various meta-

bolic disorders including diabetes. Proper medication as per ayurvedic guidelines along with proper *aahar*, *vihar* and *Yoga* will definitely control diabetes without any untoward effects. Though the disease is described as *Asadhya*, it can be managed with regular *Ayurved* treatment and some lifestyle modifications.

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