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Review Article

PREVENTION OF MADHUMEH AND ITS COMPLICATIONS THROUGH AYURVEDA

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ABSTRACT

Faulty dietary habits, sedentary life style and stressful conditions may lead to various metabolic disorders and diabetes is one of them. In *Ayurveda*, *Madhumeh* one of the types of *Vataj prameh* is compared to diabetes mellitus because of having similarities of diseases in respect to Etiopathogenesis, clinical features and prognosis. Prevalence of diabetes is increasing day by day throughout the world where India leads the highest numbers. Diabetes is the fourth leading cause of global death by disease. Type-2 DM is responsible for approximately 90% of cases. The main causes of *Madhumeha* are lack of exercise, improper food habits, excessive intake of food having *Snigdha* and *Guru guna* and food which causes vitiation of *Kapha dosha* are the primal causes of disease. Microvascular complications of diabetes like retinopathy and nephropathy are comparatively lower in Indians. The prevalence of premature coronary artery disease is much higher in Indians compared to other ethnic groups. Diabetic retinopathy is the leading cause of vision loss in adults of working age (20-65yrs) in industrialized countries. Modern therapeutics has many limitations but Ayurvedic principles of management can help the patient to control blood glucose level and have better routine life. *Ayurveda* plays an important role in prevention of Type-2 DM. Up to 80% of type 2 diabetes is preventable by adopting a healthy diet and increasing physical activity. To prevent this disease and its complications it is necessary to follow principles of *Ayurveda* i.e. *Nidanaparivarjan*, *Ashtahar Vidhivisheshayatan*, *Dincharya*, *Rutucharya*, *Sadavritta* and practicing particular *Asana* and *Yoga* postures.

KEYWORDS: *Kapha*, *Madhumeha*, *Nidanaparivarjan*, *Sadavritta*, Stress.

INTRODUCTION

Diabetes is one of the most common Non-communicable diseases (NCD's). It is a chronic metabolic disorder of impaired carbohydrate, fat and protein metabolism sharing the common underlying feature of hyperglycemia⁽⁹⁾. The prevalence of diabetes increasing rapidly day by day. Type-2 diabetes is more common and present about 90% of all diabetic cases. According to IDF (International Diabetic Federation) 2014, worldwide about 387 million people were suffered with diabetes. In India, WHO reports show that 32 million people had diabetes in the year 2000⁽¹⁾. According to WHO by the year 2030 India would have around 80 million diabetic patients and would contribute 20% of world's diabetic population⁽²⁾. Irregular dietary habits, sedentary life style and stressful conditions may leads to various disorders and diabetes mellitus is one of them. In *Ayurveda* clinical features, etiopathogenesis and prognosis of *Madhumeh* resembles with that of diabetes mellitus. *Madhumeh* comprises of two words; *Madhu* means sweetness/honey and *Meh* means excessive urination). The synonyms mentioned in Ayurvedic texts are *Madhumeha*, *Ojomeha*, *Kshaudrameha*. *Madhumeha* is one of the twenty *Prameha*. If these *Prameha* not cured properly then they might convert into *Madhumeha* and become incurable. Diabetes mellitus may leads to various long term complications like diabetic Retinopathy, Nephropathy, neuropathy etc. Hence prevention of Type -2 diabetes is a major issue now days. The main principles of *Ayurveda* i.e., *Nidanaparivarjan* and Diet (*Pathya- Apathya*), *Ashtahar vidhivisheshayatan*, *Dincharya*, *Ritucharya*, *Sadavritta* and practicing *Asan* and

Yoga plays an important role in prevention and control of diseases from further complications. Early identifications of risk factors and appropriate interventions through *Ayurveda* could greatly help to prevent or at least delay the onset of diabetes and thus reduce the burden of non-communicable diseases in India.

CONCEPTUAL PART

The marked increase in diabetic patients is attributed to rapid changes in lifestyle & economic progress of India. According to *Acharya Charak* vitiation of three *Doshas* causes 20 types of *Prameha* and also other innumerable disorders⁽³⁾. *Nidan* (etiology), *Dosh* (innate pathogenic factors) and *Dushya* (substratum of pathogenesis) these three factors when combined together immediately and in strong state cause immediate manifestation of *Prameh*. In *Madhumeha* patient passes large quantity of urine which looks like *Madhu* (honey) and having *Kshaya* (astringent taste) and *Madhur* (sweet taste). The texture is *Ruksha* (dry), honey like color and the body attains sweetness. *Acharya Sushruta* has narrated *Kshaudrameh* in place of *Madhumeha*.

Aetiological Factors

All those etiological factors of *Prameh* mentioned in our Ayurvedic literature are also the causative factors of *Madhumeh* as it is one of the varieties of *Prameha*. Lack of exercise and consumption of food that increase *Kapha*, *Meda* and *Mootra* are major causative factors of the disease. These are the sedentary habits and increased consumption of sweets and fats in daily diet. Excessive intake of food having *Ushna*, *Snigdha* and *Guru guna*,

excessive quantity and prolonged use of new grains, use of legumes like black gram, sesamum paste, rice cooked with milk, sugarcane products, fresh wine are the main causative dietary factors of *Prameh* according to *Acharya Charak*. Other causes are use of curds, flesh of animals of domestic, aquatic or of marshy places, milk and all that factors which increase *Kapha* in the body⁽⁶⁾. Indulgence in sitting on soft cushion for long periods of time, avoiding physical activities sleeping for long hours, abstinence from cleanliness, under nutrition during important period of growth and development during fetal life, infancy and childhood all these factors are contributive to the causation of disease. Stress also plays important role in causation of the disease. The biochemical changes induced by various stress responses disturbs the homeostatic mechanisms of body and has damaging effects on various parameters, blood glucose is one of them. Ayurveda has specially emphasized the role of psychological etiological factors i.e., *Krodha* (anger) in *Pittaj prameha* and *Shoka* (grief), *Bhaya* (Fear), *Udvega* (Anxiety) and *Chinta* (Worry) in *Vatika prameha*⁽⁴⁾.

Pathogenesis

According to classic *Ayurvedic* literature, all types of *Prameha* start with the derangement of *Kapha* that spreads throughout the body and mixes with fat (*Meda*). *Meda* is having properties similar to that of *Kapha*. *Kapha* mixed with fat passes into urinary system thereby interfering with normal urine excretion⁽⁷⁾. Vitiated *Pitta*, *Vata* and other body fluids (*Malas*) also involve in this blockade. This blockade is believed to be the cause of frequent urination observed in diabetes. *Prameha* left untreated may lead to deranged development of body tissues and impaired carbohydrate, protein and fat metabolism. The involvement of tissues (*Dushyas*) all *Dhatus* except *Asthi* leading to damage of blood vessels, kidneys, eyes and nerve also has been mentioned in *Ayurveda* as major complications of *Prameha*⁽⁵⁾.

Types

According to *Ayurveda Madhumeha* has been divided into these categories:

1. *Kaphaj Prameha* (Further divided into 10 types)
2. *Pittaj Prameh* (Further divided into 6 types)
3. *Vataj Prameh* (Further divided into 4 types)
4. *Sahaj Prameh* (Juvenile onset diabetes)

On the basis of etiology *Ayurveda* divides diabetes mellitus into two categories:

1. Genetic (*Sahaja*) occurring in young age from very beginning of life has similarities with juvenile onset diabetes or insulin dependent diabetes.
2. Acquired (*Apathayaj*) due to unhealthy life style that occurs in old ages and obese person has similarities with type 2 diabetes and its prevalence is more as compare to type 1 diabetes.

According to physical management

1. *Apatharpana janya prameha* describing the lean diabetic: Requires *Santarpan chikitsa* (restorative) management

2. *Santharpana janya prameha* relating the obese diabetic: Requires *Aptarpan chikitsa* (fat reducing) management.

Prognosis

Charaka describes the prognosis in three categories⁽³⁾

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 prameh as* are however helps control with treatment (palliative management)⁽⁸⁾.
3. *Asadhya* – Incurable: *Vataja* describes the incurable version of *Prameha* and inherited diabetes, a *Krishna* (lean) patient who is suffering with *Sahaja* variety.

Kaphaja Prameha of recent origin or early stage, *Apathyaja* and without complications is *Sadhya* because the *Dosha (Kapha)* and *Dushya (Meda)* are homologous. *Pittaja* types of *Prameha* and cases with some complications are *Yapya*. The disease is difficult to treat because there is combined increase of *Kapha* and *Pitta (Dosha)* affecting *Meda (Dhatu)* leading to pathogenesis of *Prameha* and if one *Dosha* is treated, other *Dosha* gets vitiated i.e., making the treatment difficult and moreover there are few drugs which act upon both *Doshas*. *Prameha* of *Vatik* origin, *Sahaja*, *Krishna*, old cases and with complication are *Asadhya*. They are incurable because of great severity and contradictory treatment. It is considered *Mahavinashkari*, because of heterogeneous line of treatment for both *Dosha* and *Dushya*. By seeing all above classifications we can divide the patients of *Prameha* broadly in two groups. In first group the patients comes which are obese, having acquired diabetes, caused due to overeating and lack of exercise with involvement of *Kapha* and *Pitta Dosha*. In second group we can place the patients which have hereditary diabetes, patients are asthenic with involvement of *Vata Dosha*. For the former group prognosis is better than the latter as the measures of the treatment available are better for former group. For the latter group the available treatment is less and also there are number of complications.

Updrava

There are many *Updrava* of *Madhumeha* many of which are correlated with that of complications of diabetes mentioned in modern science. *Udavarta*, *Aruchi*, *Avipaka*, *Atisar*, *Badhapurisha* can be compared with 'gastrointestinal autonomic neuropathy' symptoms are abdominal distension, nausea, vomiting, dysphagia, diarrhea and constipation concomitantly. *Trishna*, *Bhrama*, *Shoola* and *Shwasa* can be correlated with diabetic ketoacidosis in which weaknesses, blurring of vision etc. are seen. *Shoola* as in diabetic neuropathy in which pain occurs as nerve involvement is there. *Prameh pidika* as mentioned by *Acharaya* can be correlated with carbuncles. So to prevent these complications in diabetes is a great matter of interest and is need of hour. But modern medicines are not much efficient in controlling these complications. By following *Ayurvedic* principles mentioned in our ancient texts in terms of *Ahar* and *Vihar* could be better option for prevention of complications of diabetes once it has occurred.

Role of Diet and Life Style in Prevention of Prediabetes and Diabetes

Nidanparivarjan

'Prevention is better than cure'. It is an advice to make the people alert about their life style strategies. For preventing *Prameha* has clearly mentioned walking for 100 *Yojan* (1 *Yojan* approx 7.5 km). Ayurveda gives more importance to the etiological factors as the avoidance of these factors can itself prevent manifestation of any disease. By following the main *Ayurvedic* principle of *Nidanparivarjan* in case of *Madhumeh* i.e., by avoidance of the above mentioned etiological factors that has been mentioned in our *Ayurvedic* texts one can prevent and manage diabetes very well. Prediabetes is the prodromal phase of diabetes in which blood glucose level may be either normal or on higher side of normal range. Fasting blood sugar screening should begin at age 30-45 years and should be repeated every three years. The health complications associated with type 2 diabetes mellitus often occur before the medical diagnosis of diabetes is made, therefore people with borderline blood sugar i.e. prediabetes should go for frequent screening and they should change their diet and life style to prevent the onset of diabetes. When we review the literature of *Ayurveda Acharya charak* mentioned the *Purvarupa* of *Prameh* which resembles with prediabetic conditions.

Modalities of Swasthavritta for Prevention of Madhumeha

Dinacharya, Ritucharya i.e. seasonal changes bring about diseases and they may be prevented by adopting certain seasonal diet and life style according to *Dosha Sanchya Prokopa* and *Shamana -Shodhan* respective to a particular season. *Thrayopasthambha palana, Sadvritha, Achara rasayana, Ashtanga yoga, suppress the Dharaniya vegas, not to suppress the Adharaniya vegas, avoid Virudhahara, not to indulge in Mithya ahara and Vihara, avoid Hina, Mithya and Ati yoga of Indriya, Kaya, Vak, and Mana, not to do Pragyaparadha, not to consume Guna, Matra, Desha and Kala virudha aharas. Udvartan-* It is *Kapha har* and causes *Meda vilayan. Meda vilayan* also reduces adiposity which decreases insulin resistance.

Yoga

Yoga has been practiced for more than 5000 years. Yoga stimulates the organs which in turn improves metabolic activities. Certain posture causes direct stimulation of pancreas that enhances the production of insulin by the pancreas. *Vrikshasan* stimulate the hormonal secretion of pancreas, *Dhanurasan* (Bow pose) improves the functioning of pancreas and intestines, thus helps in controlling blood sugar levels. Organs like liver, Pancreas and enzymes producing organs will function actively by practicing *Ardhmatsendrasan* (half twisted pose) and *Halasan* (plough pose). Yoga helps in rejuvenating pancreatic cells, increases glucose uptake by muscular cells, improve circulation and reduce the risk of cardiovascular disease. Exercising through yoga can reduce weight that is essential for type 2 diabetes. Regular yoga practice can help to focus the mind and create the right mental approach to prevent and manage diabetes (9).

Pranayam

Besides *asanas*, breathing exercises like *Anulom Vilom* (alternate nostril breathing) and *Kapalbhatti* (one time inhale; exhale) 30 to 40 times quickly is extremely effective for prevention and management of diabetes. *Anulom Vilom* has calming effects on nervous system, causing equilibrium in function of all the system. Thus, this *Pranayam* can reduce the risk of various complications like neuropathy. *Kapal bhatti* on the other hand stimulate pancreas and help control blood sugar level.

Diet

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 dravyas* are described in detail and they cover all the food groups are:

- 1. Cereals:** *Yava* (*Hordeum vulgare* - Barley), different preparation of barley e.g. *Mantha, Odana* etc. Wheat (*Godhooma*) can also be given. Old rice (*Purana shali*), as one of the cereals, which can be prescribed to the prediabetic patient and diabetic patient.
- 2. Pulses:** *Mudga* (Green gram), *Chanaka* (*Cicer arietinum*), *Kulattha* (*Dolichos biflorus*), *Adhaki* (*Cajanus cajan*) etc, should be taken.
- 3. Vegetables:** All types of bitter vegetables (*Tikta shaka*) e.g. *Karela* (*Momordica charantia*), *Methi* (*Trigonella foenum*), *Patola* (Vietnamese luffa), *Rasona* (*Allium sativum*), *Udumbara* (*Ficus racemos*), etc. should be given.
- 4. Fruits:** *Jambu* (*Syzygium cumni*), *Amalaki* (*Phyllanthus emblic*), *Kapitta* (*Limonia acidissima*, *Tala phala* (*Borassus flabellifer*), *Kharjura* (*Phoenix sylvestris*), *Kamala* (*Nelumbo nucifera*), *Utpala* (*Nymphaea Stellata*) etc. should be given.
- 5. Seeds:** *Kamala, Utpala* seeds can be allowed to take.
- 6. Flesh:** *Harina mamsa* (Deer flesh), *Shashaka mamsa* (Rabbit), Flesh of 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*.

CONCLUSION

Diabetes mellitus is a chronic metabolic disorder of impaired carbohydrates, fat and protein metabolism. Limiting of diabetes mellitus without any side effects is a challenge still to the medical system. High risk people should be identified and they are advised for behavioral, dietary and lifestyle changes after recognizing *Purvarooopa* of *Madhumeha*. Type 2 diabetes mellitus is a common, primarily because of increases in the prevalence of a sedentary lifestyle and obesity. With appropriate use of Ayurvedic preventive measures as explained in our Ayurvedic literature as *Swasthavritta* modalities such as *Nidanparivarjan, Dincharya, Ritucharya, Ahar vidhi, Yoga, Pranayam* and therapeutic measures *Madhumeha* (DM) can be prevented at all levels.

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