

Study of importance of *pathya* in *madhumeha* -- Diabetes mellitus**Shushma R.Khirodkar¹, Arun U.Wankhede², Ishan M.Borkar^{*3}**

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Abstract: Madhumeha is a *Vataja Vyadhi*. The main causative factor is said to be sedentary lifestyle and food habits. In modern science, it can be correlated with Diabetes Mellitus (DM) which is a metabolic disorder occurring due to deficiency of insulin production, which causes increased blood glucose and generalised weakness. In *Ayurved* it can be managed with exercise, diet and internal medication. In *Madhumeha* there is great importance of *Pathya* with medicines such as consumption of nutritious diet, sprouted food, less glucose intake, eating small amount of food in divided doses.

Key Words: *Madhumeha*, Diabetes Mellitus, *Pathya*.

Introduction:

The word *Madhu* is derived from the root “*Manyante Viseshena Jananti*

Jana Yasmin”. In Sanskrit literature *Madhu* word is used in various contexts like *Pushparasa*, *Makarandah*, *Makshikam*, *Madhyama*, *Kshiram*, *Jalam*, *Madhura Rasan* etc.

Now the etymology gets concise and specific, that the disease in which the excretion is having quality resembling with *Madhu* (honey) in its colour, taste, smell and consistency called *Madhumeha*.

The clinical entity in which patient voids the urine resembling with *Madhu* i.e. of *Kashaya* and *Madhura* taste, *Ruksha* (dry) texture and honey like colour and body acquires sweetness called *Madhumeha*.

Madhumeha which in modern science termed as Diabetes Mellitus (DM) is one of the fastest metabolic

disease growing in India. The problem with Diabetes Mellitus is that it is very difficult to diagnose in the early stages. Diabetes is a metabolic disorder i.e it is caused due to malfunctioning of Pancreas, which is responsible for the production of the hormone insulin.

Pathogenesis:-

The beta cells of the islets of Langerhans in pancreatic gland are responsible for secretion of the hormone insulin. Among other things insulin is extremely essential for the proper utilization of carbohydrates in our body. If insulin is absent due to metabolic disorder, or if it is not performing functions properly, then these carbohydrates accumulate in the blood stream in the form of glucose. The glucose then collects in 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 production of insulin by Pancreas or a dysfunction of the insulin produced by the Pancreas.

Diabetes is a group of metabolic symptoms in which there is high blood glucose over a prolonged duration with symptoms such as increased thirst, micturition and hunger.

The main objective of pharmaceutical research is to produce a safe, effective and quality drug. Hypoglycemia is the adverse effect of the available anti hyperglycemic drug of the modern medicine.

One should avoid all the causative factors which are responsible for manifestation of *Madhumeha*. One should follow *Pathya* such as consumption of food which is nutritious to health such as sprouted food, eating sugar less food, almonds, green leafy vegetables etc.

Aim and objectives:

➤ **AIM**

- To study the importance of *Pathya* In *Madhumeha*- Diabetes Mellitus

➤ **OBJECTIVES**

- To study the aetiopathogenesis of *Madhumeha*- Diabetes Mellitus.
- To study the importance of *Pathya* in *Madhumeha*.

Review of literature:

Ayurved review- *madhumeha*:

According to *Acharya Sushruta*^[1] all varieties of *Prameha*, if not treated in time, will ultimately become *Madhumeha* which is incurable. In *Madhumeha*, the urine is like honey. *Madhumeha* is of two kinds:-

One due to *Vata Vriddhi* caused by *Dhatu Kshaya*.

Another by *Vata Vriddhi* caused by obstruction of the channels of *Vata* by the other *Doshas*.

Causative Factors Of *Madhumeha*

Indulgence in sitting on soft cushions for long periods, sleeping for long hours, consumption of curds, flesh of animals of domestic, aquatic or of marshy places, milk preparations, fresh grains, fresh water, puddings made of jiggery/sugar and all other similar factors which causes increase of *Dosha*^[2]

One of the important causative factor is *Beej Dushti* (Heridity).

Aetiopathogenesis Of *Madhumeha*

The process of manifestation of disease is called *Samprapti* or pathogenesis. It includes various stages as disease progresses. The detailed knowledge of pathogenesis is very necessary to find of the extent of *Dosa* and *Dusya*

vitiation Involvement of *Avayava* and *Strotas* and the nature and prognosis of the disease^[3]

On the basis of causative theory, *Madhumeha* have been subdivided into two etiological types by *Vagbhata*. The specific factors which lead to excessive tissue depletion (*Dhatukshaya*) cause *Dhatukshayajanya Madhumeha*.

The specific factors which increase *Kapha*, *Pitta*, *Meda* and *Mamsa* in turn lead to obstruction (*Avarana*) of *Vata* causing *Avaranajanya Madhumeha*.

Specific Symptomatology Of *Madhumeha*

Urine characteristics^[4]
Madhumeha patient excretes urine having *Kashaya* and *Madhura* taste, *Pandu* in colour and *Ruksha* quality. *Chakrapani* opines that *Vayu* because of its *Prabhava* converts *Madhura Oja* into *Kashaya Rasa*. As per *Gangadhara* natural “*Madhura Rasa*” of *Oja* is replaced by “*Kashaya Rasa*” in *Basti*. The loss of *Ojas* creates substantial number of symptoms viz. loss of mental and physical strength, weakness, disorders of senses, emaciation in

Madhumeha. The polyuria and turbidity are seen due to the excessive use of heavy, sweet and cold food which aggravates more *Kapha* in the body. More fluids are required to remove the unwanted *Ojas* present in *Basti* through urine leading to Polydipsia.

Associated symptomatology^[5]

Sharira Madhurya: According to *Vagbhata* the body of *Madhumeha* patient become *Madhura* i.e. Sweet is unique feature has been narrated only by him. Psycho-physiological manifestation: This special manifestation related to behavioural pattern has been narrated by *Sushruta* that, *Madhumehi* patients prefers to stand than to walk, sit than to stand, lie down than to sit and sleep than to lie down. The reason for this manifestation is mainly *Alasya* (lethargy). All the varieties of *Prameha* if not treated properly can eventually terminate into *Madhumeha* in course of time.

DIAGNOSIS OF MADHUMEHA

The diagnosis of *Madhumeha* may be done on the basis of

- 1) Knowledge of etiological factors
- 2) Signs and symptoms of the disease.
- 3) Symptoms of *Dosha Vriddhi* and *Dosha Kshaya*.
- 4) According to the *Mutrapariksha*

DIFFERENTIAL DIAGNOSIS OF MADHUMEHA^[6]

Charaka mentioned a point in regard to differentiate between *Pittaja Meha* and *Raktapitta* that, until and unless *Haridra* and *Rudhira* coloured *Mutra Pravritti* is not associated with the prodromal symptoms of *Prameha* the disease can not be diagnosed as *Prameha*, and then the diagnosis goes in favour of *Raktapitta*.

Charaka further illustrated that if the urine of *Pramehi* patient is *Madhura* and *Picchila* then differential diagnosis has to be made between *Kaphaja Prameha* and *Vataja Prameha* on the basis of *Nidana Sevana*. Here if etiological factors are related with *Kapha* provocation then it is *Kaphaja Prameha* but if etiological factors are related with *Vata* provocation then it is *Vataja Prameha*. To differentiate between *Ikshumeha* & *Madhumeha*, the basis of diagnosis should be on '*Madhuryat Cha*

Tanoratah' the sweetness of whole body i.e. in the blood. Further, in *Madhumeha*, urine is not only *Madhura* but it is *Kashaya – Madhura* due to *Vata* dominance, *Ruksha* by *Sparsha* instead of *Picchila* and also *Pandu* in *Varna*.

Modern review-diabetes mellitus^[7]

Diabetes mellitus is a syndrome characterized by hyperglycemia, with or without glycosuria and disturbances in carbohydrate, protein and fat metabolism resulting due to the absolute or relative deficiency of Insulin secretion and/ or insulin action

Etiological classification of diabetes mellitus

1) Type 1 Diabetes mellitus -- β -cell destruction, usually leading to absolute insulin deficiency

Type 1A D.M. -- Immune mediated

Type 1B D.M. -- Idiopathic

2) Type 2 Diabetes mellitus -- Ranges from predominantly insulin resistance with relative insulin deficiency to a predominantly insulin secretory defect with insulin resistance.

3) Other specific types of Diabetes mellitus - Genetic defects of β -cell

destruction, Genetic defects in insulin secretion

Aetiopathogenesis: type 1 diabetes mellitus

Type 1A DM develops as a result of the synergistic effects of genetic, environmental and immunologic factors that ultimately destroy the pancreatic β cells. In genetic susceptible persons, there occurs Tcell mediated autoimmune destruction of the islet β cells that occurs over months to years. This autoimmune process is thought to be triggered by an infectious or environmental stimulus and to be sustained by a β cell- specific molecule. When diabetes becomes evident clinically, majority of beta cells are destroyed. Later when autoimmune process destroys the remaining β cells, the individual becomes completely dependent on insulin.

Aetiopathogenesis: type 2 diabetes mellitus:

Type 2 Diabetes mellitus has a complex etiology that develops in response to genetic and environmental influences, with insulin resistance & abnormal insulin secretion central to its

development. Although controversy remains regarding the primary defect, most studies support the view that insulin resistance precedes insulin secretory defects.

Genetic Factors: Type 2 DM has a strong genetic component and the disease is polygenetic & multifactorial. The concordance of Type 2DM in identical twins is between 70-90%. If both the parents have Type 2 DM, the risk to the offspring may reach 40%. It is not HLA linked and there is no evidence that autoimmunity or viruses have any role in its development.

Clinical features:

The clinical features of the two main types of Diabetes mellitus are as follows

Type I Diabetes Mellitus:

It usually begins before the age of 40 years. The onset of symptoms is generally abrupt with Polydipsia, Polyuria, Polyphagia, loss of weight and strength. In the fulminating case with ketoacidosis, the most striking features are those of salt and water depletion with loss of skin turgor, furred tongue,

cracked lips, tachycardia, hypotension and reduced intraocular pressure. Metabolic acidosis leading to deep and sighing breathing ensues.

Type 2 Diabetes Mellitus:

It usually begins in middle life or later. The typical patient is obese. The onset of symptoms is generally gradual and insidious. Pruritus vulvae or balanitis is a common presenting symptom since the external genitalia are especially prone to infection by fungi (Candida). Blurred or decreased vision due to retinopathy is found.

Depression or loss of tendon reflexes at the ankles and impaired perception of vibration sensation distally in the legs indicate neuropathy. Hypertension and signs of atherosclerosis are common and may include diminished or impalpable pulses in the feet, bruits over the carotid or femoral arteries and gangrene of the feet.

Investigations

- Blood Glucose- Fasting (70 to 110 mg/dl), Post Meal (70 to 140 mg/dl)

- Urine Test - It is tested for the presence of glucose and ketones. It is cheap & convenient but the diagnosis of diabetes mellitus cannot be based on urine testing alone, the main disadvantage being the individual variation in renal threshold. Thus a diabetic patient may have a negative urinary glucose test while a non-diabetic individual with a low renal threshold for glucose may have a positive urine test.
- HbA1C

COMPLICATION OF DIABETES MELLITUS

Diabetic ketoacidosis, Hyperosmolar coma, Hypoglycemia, Retinopathy, Cataract, Glaucoma, Nephropathy, Neuropathy, Coronary artery disease, Cerebrovascular disease, Peripheral vascular disease etc.

Importance Of *Pathya* In *Madhumeha-Diabetes Mellitus*^[8]

- One should consume food which is having low glucose level,

instead of white one should consume brown rice, reduce carvings for sweets, high fiber rich diet, should consume *Madhu* (Honey), one should consume food in divided doses. Consume fruits, green leafy vegetables, almonds, sprouted food.

- One should not have carving for non veg food, tea, coffee, soft drinks etc
- One should exercise daily for specific period of time.
- One should strictly follow the daily diet plan which is low is having low sugar and nutritious.
- One should consume food mentioned by Ayurved such as karvellak, papaya, jambu, haridra.

Early morning:

Kick start your day with a cup of herbal infusion and honey. The ideal way to prepare herbal infusion would be to pour sufficient quantity of piping hot boiling water in a jar of dry stocked herbs. Sip this water with a teaspoon of honey to kick start your body's metabolism. An ideal mix of herbs would be: a tsp of crushed mulethi, a bark of cinnamon, three pods of crushed cardamom, a tsp of crushed

coriander seeds.150 – 300ml of drink is ideal to give essential metabolism to kick start the day

Breakfast:

Insoluble fiber rich whole cereals like *Bajra / Ragi / maize* and its preparations is an ideal breakfast for a diabetic. Try varieties with the native cereals as pancakes / steamed idlis / paddu / versions of roti. Fermenting the cereal mix enhances its micro-nutrient bio-availability. Consuming it with spicy condiments like mint / coriander / tomato / herbal chutneys ensures adequate digestion and absorption for diabetics with sluggish digestive metabolism. 40-60gms of dry cereal mix flour is sufficient to make a king sized breakfast. For the patient suffering from Diabetes food ingredients containing *syamaka, kodrava and uddalaka* variety of rice, *godhuma* (wheat), *canaka, adhaki* and *kulattha* pulse beans which are stored for a long time after harvesting are always wholesome.

Mid- morning snack / drink: A bowl of whole protein snack like steamed and spiced sprouts sprinkled with jambira lemon juice supplements the body with essential proteins for the day. *Canaka, adhaki* and *kulattha* pulse beans which are

stored for a long time after harvesting are always wholesome. 60gms of the snack gives almost equal amounts of protein for the day.

Lunch: A thali plate meal with whole steamed red rice or Saamai rice, a bowl of horse gram dal / dal soup, one bowl of steamed legumes and one bowl of steamed veggie, a glass of buttermilk gives enough calories and satiety for the diabetic appetite. 50gms of cooked steamed rice, 40 gms of cooked dal, 100 gms each of legumes and veggies and 150 ml of butter milk is the ideal portion size.

According to Acharya Caraka**In insulin resistant Diabetes:**

“Rough food articles such as boiled barley, barley cakes, flour of parched grains and *Apupa* (a dietary preparation) should be eaten with palatable meat-soup of chicken. He should take *Sali* rice with soup of green gram and bitter vegetables added with oil of *danti* and *ingudi* or linseed and mustard. In cereals, he should use *sastika* and wild rice. The diet should consist mainly of barley.

In non-insulin dependent Diabetes: “[he should] eat various preparations of barley added with honey. Barley grain dipped in a

decoction of triphala for the whole night makes a saturation food when taken with honey. The patient may also take them regularly mixed with vinegar for alleviation of prameha. He should use flour of parched grains, bolus, parched grains and other various edibles made of barley impregnated with decoctions of drugs prescribed in the treatment K prameha. For non-vegetarians, various preparations of barley mixed with the meat of deer should be prescribed. The seeds of bamboo and wheat may also be used in forms similar to those of barley.

Evening: A glass of warm spiced light mulethi milk tea [100ml] aids digestion of the previous meal simultaneously maintaining the transition of digestive metabolism from the day to evening.

Dinner: A bowl of oats porridge / broken wheat porridge with buttermilk and a medium sized bowl of steamed veggies is the best way to wind up the day. Alternatively, wheat and its preparations like roti / phulka / tandoor with sumptuous veg curries maintains satiety for the diabetic appetite.

Conclusion:

The Diabetes Mellitus which is the fastest growing disease in India occurs mostly

after 40 years of age, but study shows that it can occur at any age. Males are more prone to Diabetes Mellitus than females. Considering the occupation, servicemen people and businessmen are more prone to Diabetes Mellitus

Thus, the causative factors such as living sedentary lifestyle, consumption of viruddha ahar, heredity etc are responsible for manifestation of Madhumeha. In Diabetes there is disturbance in functioning of pancreas which causes disturbance in secretion of Insulin.

So, for healthy living in Diabetes one should strictly follow Pathya, avoid Apathya, practice pranayaam, yoga which is necessary for Diabetes.

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