



## Review Article

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**DIABETES MELLITUS: A COMPARATIVE STUDY AS PER AYURVEDIC AND MODERN CLASSICS**

Bishnu Choudhury \*

Medical Officer (Ay), North Eastern Institute of Ayurveda &amp; Homoeopathy (NEIAH), Shillong, India

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**\*Corresponding author**

E-mail: drbishnuchoudhury@gmail.com

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**ABSTRACT**

Diabetes mellitus was mentioned in Ayurvedic classics as Madhumeha and it is as old as the history of mankind. The word "Madhumeha" is combination of two terms 'Madhu' and 'Meha' (meaning honey and excessive flow respectively). Madhumeha is a disease entity, characterized by the sweetness of the body tissues along with the passage of the turbid and sweet urine in excessive amount which is due to various physical and chemical changes of body tissue. The rich literature of the Madhumeha described in Ayurvedic Classics still remains a tremendous scope of research in the field of Diabetes Mellitus. The ancient Indian knowledge of this disease is analyzed here and attempt is made to compare the ancient Knowledge of Ayurveda with modern medical science. After the study of Prameha literature, it is clear that Prameha as a whole comparable with the disease known as "Diabetes Mellitus" in modern medicine and three clinical types identified as Kaphaja, Pittaja and Vataja Prameha which can be correlated with different stages of Diabetes Mellitus. In short, vataja, pittaja and kaphaja Prameha are different types of diabetes along with hyperglycaemia. Kaphaja Prameha is due to malfunctioning of the Pancreas results improper insulin secretion and insulin resistance. Pittaja Prameha is due to over functioning of Adrenal, Thyroid, Glucagon and cortisol and Vatic Prameha is because of insulin deficiency due to autoimmune or idiopathic destruction of  $\beta$  - cell of islet of Langerhans of pancreas.

**KEY WORDS:** Diabetes mellitus, Madhumeha, Vataja, Pittaja, Kaphaja Prameha.

**INTRODUCTION**

Diabetes Mellitus has emerged as a global health hazard having tremendous socio-economic impact to the individual as well as society as a whole. In spite of tremendous advances in modern medical sciences, today Diabetes is one of the most common non-communicable diseases (NCDs). According to International Diabetic Federation (IDF), in the year 2014, worldwide about 387 million people were afflicted with diabetes, the majority of which are aged between 40 and 59, and 80% of them live in low-and middle-income countries<sup>13</sup>. According to a study carried out in the year 2013 by the Indian Council of Medical Research India has 62.4 million people with diabetes, out of which (>90%) have Type 2 diabetes<sup>5</sup>.

Perusal of history reveals the earliest description of Madhumeha is found in Vedic literature of India. The knowledge of the roga 'Madhumeha' available in Atharva veda is considered as the first and foremost and it is mentioned in Kaushika sutra as 'Sayana'<sup>3,7,8</sup>. Basically Prameha is one disease associated with and increased frequency and quantity of urine and its turbidity

which is due to various physical and chemical changes of body tissue. Prameha comprises 20 sub varieties and is further classified in to three groups i.e. Kaphaja Prameha (10), Pittaja prameha (6) and Vataja Prameha (4) which are resembles very much with different stages of diabetes mellitus. Madhumeha is a sub type of Prameha or the terminal stage of Prameha that's while the rest of 19 types of Prameha are said to reach the stage of "Madhumeha" in course of time and outlay enough if not treated properly<sup>1,2,10,16,17,18</sup>.

**AIM AND OBJECTIVE**

The ancient Indian wisdom or knowledge of the disease Prameha is highlighted here and attempt is made to compare the ancient Indian Knowledge of Ayurveda in aspect of this disease with the modern medical science.

For this purpose, right from definition, classification, pathogenesis, clinical features, concept of treatment, premonitory symptoms, complications all have been taken into account both from the literature of Ayurveda and Modern medicine.

**Table 1: Comparison of Madhumeha with Diabetes Mellitus**

Sl. No	Particulars	Madhumeha	Diabetes mellitus
1	Definition	The patient usually passes honey like or sweetish urine and sweetness present in the body of the patients is called Madhumeha.	Diabetes mellitus is a syndrome characterized by polyuria, polydipsia, polyphagia and persistent hyperglycaemia with or without glycosuria and associated with disorders of carbohydrate, protein and fat metabolism and to deficiency of insulin.
2	Aetiology	a) Sahaja b) Apathyanimitija (Acquired) c) Ashyasukham & Swapnasukham d) Avoidance of Vyama e) Sukhahara & Bahuahara	a) Hereditary – diabetes have been noted to be genetically determined/ juvenile onset. b) Acquired – due to over nutrition or acute infection like mumps, coxsackie etc virus precipitates the onset of the disease. c) Sedentary habits. d) Lack of physical activity. e) Excessive eating

3	Antagonist	Excessive Vasa and Amla Rasa	Excessive free fatty acids.
4	Clinical features	a) Prabhuta Mutrata b) Trishnadhikya c) Khaudha d) Hasta-pada Daha e) Murcha	a) Polyuria b) Polydipsia c) Polyphagia d) Burning sensation of palm and sole. e) Diabetic coma.
5	Investigations	a) Attraction of ants towards the urine for its sweetness.	a) Glycosuria.
6	Types	a) Krishya Prameha b) Sthoola Prameha	a) Juvenile diabetes/ Type 1 Diabetes mellitus (IDDM) b) Obese diabetes/ Type 2 Diabetes mellitus (NIDDM)
7	Treatment	a) Brimhan Chikitsa b) Saman Chikitsa c) Samsodhan chikitsa d) Dietetic e) Exercise and Yoga	a) Insulin therapy b) Oral Hypoglycaemic Agent c) Bio-purification therapy d) Dietetic e) Exercise and Yoga

**Table 2: Premonitory symptoms of Madhumeha along with Modern explanation**

Premonitory symptoms in Ayurvedic terminology	Literary meaning	Modern terminology
Karapadao suptadaho	Numbness and burning sensation in hand and feet.	Diabetic neuropathy or vitamin deficiency (B <sub>1</sub> , B <sub>6</sub> , B <sub>12</sub> ).
Paridaho suptata cha angushu	Burning sensation and numbness in various organs of the body.	
Madhurjya amayashya	Sweet taste in the mouth.	Hyperglycaemia leading to glycosuria and infection.
Madura sukla mutrata	Sweet and whitish urination.	
Sadpada pippilicha sarira mutra saranam	Attraction of insects and ants by the body and urine.	Osmotic diuresis leading to electrolyte imbalance.
Mukha talu kantha sosha	Dryness in mouth, palate and throat.	
Pipasa/ Tandra	Thirst/drowsiness.	Obesity induced symptoms
Khewda anga gandha	Excessive sweating and foul smelling of the body.	
Shithila anga	Looseness of the body.	Improper hygiene due to chronic illness or excess secretion of growth promoting hormone.
Aalashya	Laziness.	
Malong kaye	Dirtyness in the body.	Diabetic nephropathy.
Talu gala jihva danta mule mala utpada	Excessive excreta in palate, tongue and teeth etc.	
Jathilata bhabe keshapu	Matting of the hair.	Pneumonitis/ ketoacidosis
Kesha nakha ati vridhhi	Excessive growth of hair and nail.	
Mutra doshan	Appearance of abnormalities in urine.	
Swash	Dyspnoea.	

### Description of complications

If proper treatment and care is not taken, the disease Prameha leads to lots of complications. Charaka, Sushruta and Vagabhatta have given vibrant description about the complications of Prameha. Sushrut and Vagabhatta mentioned separate complications for each types but Charaka mentioned it as a whole. Following charts gives details posture of the various complications in relation with modern point of view –

**Table 3: Complications of Madhumeha along with modern explanation**

Complication according to Ayurveda	Literary meaning	Complication according to Modern Medical Science
Avipaka (K)	Indigestion	Autonomic Neuropathy
Kapha praseka (K)	Salivation	
Badhhapurisa (V)	Constipation	Peripheral Neuropathy
Vrisana ayarbadaran (P)	Tearing pain in the scrotum	
Vasti medra toda (P)	Pain in urinary bladder & penis	
Daha (P)	Burning sensation	
Kampa (V)	Trembling	
Shoola (V)	Pain	
Anidra (V)	Insomnia	Coronary heart disease
Hridshoola (P)	Angina or IHD	
Hridgraha (V)	Cardiac arrest	Diabetic ulcer
Prameha Pidaka (V,P,K)	Boils and different abscess and ulceration	
Makshi kopa samparna (K)	Attraction of files and towards the body	Hyperglycemias leading to infection
Swash (K)	Dyspnoea	
Pipasa (P)	Thirst	
Sthambha (V)	Stiffness	
Loulyam (V)	Desire for sweet things	
Sosha (V)	Phthisis or muscle wasting	
Shaitihilya (K)	Lassitude	
Murcha (P)	Syncope or coma	

(V- Vataja, P – Pittaja, K – Kaphaja)

So from the above table we can say that, whatever the complication mentioned by the ancient Ayurvedic Scholar are the same as that of modern science which are described after various experiment and with proper evident.

## DISCUSSION

Prameha comprises 20 sub varieties of diseases with various physical and chemical changes in urine and is further classified in to three groups i.e. Kaphaja Prameha (10), Pittaja prameha (6) and Vataja Prameha (4) which are resembles very much with different stages of diabetes mellitus. Madhumeha is a sub type of Prameha or the terminal stage of Prameha that's while the rest of 19 types of Prameha are said to reach the stage of "Madhumeha" in course of time and outlay enough if not treated properly. It has been observed that with progression of the disease there is increased hyperglycaemia and simultaneously fall in plasma insulin. The patient of Kaphaja Prameha has actually hyperinsulinemia and of Pittaja Prameha has moderate insulin and patients of Vataja Prameha hypoinsulinemia or no insulin. Thus the former two are insulin independent diabetes of today and the last one is insulin dependent diabetes. Plasma cortisol is excessive in Pittaja Prameha. In the literary study, it has been establishing that in the Kaphaja Prameha there is predominance of cortisol and catecholamines and in Vataja Prameha there is absolute deficiency of insulin.

There is always possibility that insulin independent type of diabetes leads to the stage of insulin dependent diabetes i.e. Vataja Prameha. Thus the concept of different stages of diabetes mellitus is well comparable with the main type of Prameha as describe in Ayurveda. Madhumeha can develop as a single disease or may be a complication of kaphaja or pittaja prameha. Modern Medical Science also says that Type 2 diabetes can converted to Type 1 due to untreated or improper management.

## CONCLUSION

From the above study we may conclude as – the word Prameha can be used as a synonym of Diabetes mellitus. Two types of Prameha namely Sahaja and Apathyanimittija can be compared with insulin dependent (hereditary/ juvenile onset) and non-insulin dependent (maturity onset / acquired) diabetes respectively. If all Pramehas are left untreated or improperly treated, leads to Madhumeha. In short we can say that the vataja, pittaja and kaphaja prameha are different types of diabetes along with hyperglycemia. Kaphaja Prameha is due to malfunctioning of the Pancreas results to improper insulin secretion and so insulin resistance. Pittaja Prameha is due to over functioning of Adrenal, Thyroid, Glucagon and cortisol and Vataja Prameha is because of true insulin deficiency due to autoimmune or idiopathic destruction of  $\beta$  – cell of islet of Langerhans of pancreas. So it can be concluded that description of aetiology, pathogenesis, clinical features, complication etc. appears to be similar in both Ayurveda and Modern Medicine in respect of Madhumeha i.e. Diabetes Mellitus.

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