

**A LITERATURE REVIEW ON MADHUMEHA (DIABETES MELLITUS TYPE-2) A LIFE
STYLE DISORDER****Dr. Bhaveshwari S. Mahale*¹ and Dr. Sandeep G. Mane²**¹Pg Scholar, Department of Kayachikitsa, Siddhakala Ayurved Mahavidyalaya and Hospital, Sangamner.²Professor, Department of Kayachikitsa, Siddhakala Ayurved Mahavidyalaya and Hospital, Sangamner.***Corresponding Author: Dr. Bhaveshwari S. Mahale**

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ABSTRACT

Madhumeha, commonly known as Type-2 diabetes, is a condition that causes excessive urination of sweet, slightly cloudy, and pale urine. In Ayurveda, it is referred to as Vataj Prameha. This illness is often called a "silent killer" in modern medicine. Ayurveda, an ancient Indian healthcare system, emphasizes the importance of diet, exercise, and medication for managing Madhumeha. According to the ancient physician Acharya Charak, good health is essential for achieving life goals. Ayurvedic principles like Dinacharya (daily routine), Ritucharya (seasonal regimen), Sadvritta (ethical conduct), and Achara Rasayana (lifestyle practices) stress a balanced diet and lifestyle, but many people find it hard to follow these guidelines today. As a result, lifestyle-related diseases like diabetes have become more serious and widespread. Type-2 diabetes accounts for about 80% of all diabetes cases, and its symptoms and prognosis are similar to those of Madhumeha. Certain Ayurvedic remedies, such as Chandraprabha, Gudmar, Asana, Musta, Shilajit, Khadir, Vacha, Guduchi, and Jambu, can be effective in managing this condition. While modern medicine has its limitations, Ayurvedic practices can help patients regulate their blood sugar levels and improve their habits.^[1]

KEYWORDS: Diabetes Mellitus, Madhumeha, Prameha, Vataj Prameha.**INTRODUCTION**

Prameha refers to a group of conditions characterized by frequent urination, increased urine volume, and cloudy urine. In Ayurveda, it is explained that Madhumeha occurs due to an imbalance in the Vata and Kapha doshas, along with issues in fat and other bodily tissues, affecting the body's energy (Ojas) and leading to problems in the urinary system.

In modern medicine, a similar condition is known as Diabetes Mellitus, specifically Type 2 Diabetes. This condition involves long-term high blood sugar levels, increased thirst, frequent urination, hunger, weight loss, and weakness, all linked to issues in sugar, fat, and protein metabolism, often related to insufficient insulin production or action. Diabetes mellitus (DM) refers to a group of common metabolic disorders that share the phenotype of hyperglycemia. Several distinct types of DM are caused by a complex interaction of genetics and environmental factors. Depending on the etiology of the DM, factors contributing to hyperglycemia include reduced insulin secretion, decreased glucose utilization, and increased glucose production. The metabolic dysregulation associated with DM causes secondary pathophysiologic changes in multiple organ systems that impose a tremendous burden on the individual with

diabetes and on the health care system.^[2]

According to the World Health Organization's 2016 data, about 422 million adults worldwide suffer from Diabetes Mellitus. The prevalence of this disease is rapidly increasing; in 2013, the International Diabetes Federation reported 381 million cases, and this number is expected to nearly double by 2030. Diabetes and its complications pose a significant threat to global health resources.

Ayurvedic treatments for various diseases, including Type 2 Diabetes (Madhumeha), are available in traditional texts. However, many allopathic medications used to manage Type 2 Diabetes and high cholesterol can have adverse effects when used long-term. This highlights the need for effective and safe treatment options for these health issues.

AIMS AND OBJECTIVES

To study and survey the idea of Prameha/Madhumeha Roga, from various Ayurvedic Literature.

MATERIALS AND METHODS

A material review of the literature is presented, focusing on a detailed examination of Ayurvedic texts, journals, websites, and recent research papers. This review

includes references from both Ayurvedic and modern medical literature, along with previous studies on this topic.

REVIEW OF LITERATURE

Etymology of Prameha

The word Prameha consists two words i.e. Pra (Upsarga-Prefix) and Meha. Meha is derived from the root 'Mih Sechane' meaning to purfuse (watering), Excessive quantity and frequency is indicated by the prefix (pra). That is why the main characteristic features of prameha said to be Prabhuta Mutrata and Avil Mutrata.

Etymology of Madhumeha

The word Madhumeha consists two words i.e. Madhu & Meha. The word Madhu is derived from the root 'Manyante Visheshena Janati Jana Yasmin'. The word Meha was initially found in Rigveda as Mehanadthanam Karanallium (Rigveda 10/163.15).^[3] Madhumeha is the disease in which the excretion is having quality similar to madhu in its colour, smell, taste & consistency.

DEFINITION

Prameha

Acharya Vagbhatta describes Prameha as frequent and

copious urine with turbidity; i.e. Prabhutavil Mutrata.

Madhumeha

Madhumeha is a clinical entity in which patient passes large quantity of urine similar to Madhu having kashaya & Madhura taste, Ruksha texture & Honey like colour and thus body attains sweetness. (A.H.Ni.10/18, Cha.Ni.4/44) Acharya Sushruta narrated the term Kshaudrameha, in place of Madhumeha. The Kshaudra is one of the varieties of Madhu. So it is clear to us, that Kshaudrameha resembles madhumeha.

SYNONYMS

Following synonyms are mentioned for Madhumeha in the ancient classics.

(1) **Ojomeha** [Cha.Su.17/80]

(2) **Kshaudrameha**: (Acharya Sushruta)

(3) **Paushpameha**: (Anjana Nidana)

CLASSIFICATION

(1) Doshik [Clinicopathological classification]

Twenty types of prameha have been described by the different authors of Ayurvedic Classics. Among these, 10 are of kaphaja type, 6 are of pittaja type and 4 belong to vataja type.

Prameha Types	Charak	Sushruta	Vagbhat	Madhav
Kaphaja prameha				
Udakameha	+	+	+	+
Ikshubalikarasmeha	+	+	Ikshumeha	Ikshumeha
Sandrameha	+	+	+	+
Sandraprasadmeha	+	Surameha	Surameha	Surameha
Shuklameha	+	Pishtameh	Pishtameh	Pishtameh
Shitameha		Lavanameha	+	+
Siktameha	+	+	+	+
Shanairmeha	+	+	+	+
Alalmeha	+	Phenameha	Lalameha	Lalameha
Shukrameha	+	+	+	+
Pittaja Meha				
Ksharameha	+	+	+	+
Kalameha	+	Amlameha	+	+
Nil meha	+	+	+	+
Lohitameha	+	Shinitameha	Raktameha	Raktameha
Manjishtameha	+	+	+	+
Haridrameha Vataja Meha	+	+	+	+
Vasasmeha	+	+	+	+
Majjameha	+	Sarpimeha	+	+
Hastimeha	+	+	+	+
Madhumeha	+	Kshaudrameha	+	+

(2) Prognostic Classification

Prognosis is an inevitable part of Chikitsa so far as a wise physician is concerned. Success of treatment depends on an unbiased prognosis.

Sadhya Kaphaja Sthula (Obese) Apthyanimittaja (Acquired) Early Stage Without complication	Yapya Pittaja Usually not much obese Acquired Acute Stage With Complication	Asadhya Vataja Krisha (Asthenic) Sahaja (hereditary) Advanced Stage With Complication
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CLASSIFICATION OF MADHUMEHA**Constitutional - Sthula & Krisha**

[Cha.Chi.6/15][Su.Chi.11/3]

Etiological - Sahaja[Hereditary] & Apathyanimittaja**[Acquired]** [Su.Chi.11/3]**SAHAJA**

Sahaja prameha occurs as a result of Beejadosha i.e. genetic origin. [Su.Chi.11/3] While describing prognosis, Acharya Charaka has narrated that prameha or madhumeha occurring due to Beeja dosha is incurable. [Cha.Chi.6/57]

APATHYANIMITTAJA

Apathyanimittaja type itself suggests its etiology. It occurs due to Ahitahara. Sampraptighataka has many things to do with the prognosis & treatment of the disease. On analyzing the samprapti, Apathyanimittaja madhumeha is of two types.

(A) According to Samprapti**□ Avaranjanya & Dhatukshayajanya**

In Avaranjanya madhumeha, Kaphavardhaka nidanasevana leads to vata avarana, which in turn leads to Ojas Karshana which comes to the basti & patient passes Madhur, Kashaya, Ruksha Mutra, which is said to be Madhumeha. Whereas in Dhatukshayajanya, due to vatavardhak nidan, vataprakopa occurs & the madhuratwa of Oja is displaced by Kashaya rasa & it is brought to the basti leading to Madhuvat Mutratyaga, leading to Madhumeha.

(B) According to etiological factors**Santarpanjanya & Apatarpanjanya**

Santarpanjanya madhumeha which is directly due to intake of nutritious diet, which are having kaphavardhaka properties. The excess intake of such substances will primarily lead to the vitiation of kapha, pitta, meda & mamasa, which in turn cause madhumeha by doing avarana of vata. [Cha.Su.17/78-81] If the substances which deplete the dhatu & aggravate vata are consumed then it leads to Apatarpanjanya Prameha. They act through vitiation of vata which in turn leads to the manifestation of madhumeha. In nutshell, Sahaja & Apathyanimittaja are types of Madhumeha. The Krisha, Dhatukshayajanya & Apatarpanjanya can be correlated with Sahaja madhumeha. The Sthula, Avaranjanya & Santarpanjanya can be correlated with Apathyanimittaja madhumeha.

NIDANA

Ayurvedic classics elaborately describes about the general etiological factors of prameha and according to Acharya Charaka, this disease is tridoshik in origin. Etiological factors can be classified into Sahaja & Apathyanimittaja. [Su.Chi.11/3]

Etiological Factors of General Prameha [Cha.Chi.6/4]

1. Asyasukham
2. Swapnasukham

3. Excessive indulgence in dadhini i.e. various preparation of curd.
4. Gramya, Audaka, Anupa mamsa i.e. meat of domestic, aquatic, wet land animals.
5. Payamsi i.e. excessive use of milk & its preparation.
6. Navannapanam i.e. new grains & drinks.
7. Guda vaikrutam i.e. various preparation of sugar & jaggery.
8. Other substances which increases kapha may cause prameha.
9. Sushruta adds snigdha (unctuous), medya (fatty) & drava (liquid) type of food also among causative factors where as charaka does not mention this. [Su.Ni.6/3]
10. According to Vagbhatta, the diet & activities which increase meda, mutra & kapha are supposed to cause prameha. [A.H.Ni. 10/1-3]

(a) Kaphaja Prameha Nidana [Cha.Ni.4/5]

The following etiological factors help in the immediate manifestation of prameha due to kapha.

1. Frequent & Excessive intake of fresh corns like Hayanak, Yavaka, Chinaka, Uddalaka, Naishdha, Itkata, Mukundaka, Mahavrihi, Pramodaka & Sugandhaka
2. Intake of pulses like fresh harenu & Masha with ghee.
3. Intake of the meat of domestic, marshy & aquatic animals.
4. Intake of vegetables, tila, palala, pishtanna, payasa (a type of milk preparation), krishara, Vilepi & preparations of sugarcane.
5. Intake of milk, fresh wine, immature curd & curd which are mostly liquid, Sheeta & immature in nature.
6. Avoidance of unction & physical exercise.
7. Indulgence in sleep, bed rest & sedentary habits
8. Restoring to even such regimens which produce more of kapha, fat & urine.

(b) Pittaja Prameha Nidana [Cha.Ni.4/24]

1. Intake of Ushna, Amla Lavana, Kshara & Katura Dravyas.
2. Intake of food before the digestion of the previous meal.
3. Exposure to excessively hot sun, heat of the fire, physical exertion & anger
4. Intake of mutually contradictory food articles.

(c) Vataja Prameha Nidana [Cha.Ni.4/36]

1. Excessive intake of Dravyas having predominantly kashaya, katu, tikta rasa, Ruksha, Laghu & Sheeta veerya
2. Excessive indulgence in sex & physical exercise.
3. Excessive administration of emesis, purgations, asthapana & shirovirechana Resorting to suppression of the manifested urges, fasting, assault, exposure to sun, anxiety, grief, Excessive blood letting, Keeping awake at night & irregular posture of the body.

Specific Etiology of Madhumeha

The person indulging in food substances having guru, snigdha qualities & excessive indulgence of Amla & lavana rasa substances & navanna pana, excessive sleep, sitting in a same place for longer duration, avoiding exercises & thinking process & also not performing the shodhana process in a proper time. [Cha.Su.17/78] Acharya Sushruta has narrated that untreated prameha in its initial stage, gets converted into Madhumeha & becomes incurable. [Su.Ni.6/30] According to Acharya vagbhatta, the urine of madhumehi will be simulating with that of madhu. Two type of vata vitiation has been mentioned, one is due to dhatukshaya & second due to

margavarana.

POORVARUPA

Poorvarupa are a valuable signs & symptoms to predict the nature of disease and a way to check the full blown symptoms by proper medicaments. As a matter of fact, premonitory symptoms are produced at the stage of sthana samshraya and it is one kind of warning to the person to stop the ingestion of causes of prameha. As madhumeha is classified under the vatika type of prameha, poorvarupa of prameha can be taken as poorvarupa of Madhumeha.

Poorvarupa	Cha	Sus	A.H.	A.S.	Ma.Ni.
Kesheshu Jatilibhava	+	+	-	+	-
Asya Madhurya	+	-	+	+	+
Karapadadaha	+	+	+	+	+
Karapada Suptata	+	-	-	-	-
Mukha Talu KanthaShosha	+	-	+	+	-
Pipasa	+	+	-	+	+
Alasya	+	-	-	+	-
Kaye malam	+	-	-	+	-
Kaya Chhidreshu Upadeha	+	-	-	+	-
Paridaha Angeshu	+	-	-	-	-
Suptata Angeshu	+	-	-	+	-
Shatpada Pipilika Mutrabhisaranam	+	-	+	+	-
Mutre cha Mutradosham	+	-	-	-	-
Visra sharir gandha	+	+	+	+	-
Sarvakala Nidra	+	-	-	+	-
Sarvakala Tandra	+	+	-	+	-
Snigdha gatrata	-	+	-	+	-
Pichhila & guru gatrata	-	+	-	-	-
Madhur mutrata	-	+	-	-	-
Shukla Mutrata	-	+	-	+	-
Sada	-	+	-	+	-
Shwasa	-	+	-	+	-
Keshanakhativridhi	+	+	+	-	-
Sheeta Priyata	+	-	+	+	-
Hridaya NetraJihwa Shravanopdeha	-	-	+	-	-
Sweda	+	-	+	+	-
Dehe chikkanata	-	-	-	-	+

These symptoms are due to the circulation of ama in the body e.g. excessive kleda formation in body fluids. Thus body fluid contain large amount of end products but they are not absorbed and the normal functions of these products are seriously affected and above symptoms starts to appear. So poorvarupa symptoms go hand in hand with the symptomatology of following clinical condition.

- Prediabetic Stage
- Early Diabetes
- Subclinical diabetes.

RUPA

According to Sushrutacharya, the person should be

diagnosed as pramehi when complete or partial prodromal symptoms of prameha accompanied by polyuria gets manifested. [Su.Ni.6/25-26] Gayadasa opines on this assertion that in this ailment all prodromal symptoms gets converted into Rupa because of the specific nature of the disease i.e. Vyadhiprabhava. From, above description, it can be postulated that the prodromal symptoms along with main symptoms continues as disease progresses.

Specific Symptomatology of Madhumeha

Urine Characteristics

Madhumehi passes urine having Kashaya & Mdhura taste, Pandu varna & Ruksha quality. [Cha.Ni.4/44]

Gangadhara opines on this assertion that the madhura rasa of oja is displaced by kashaya rasa. Chakrapani opines that vayu, because of its prabhava converts madhura oja into kashaya oja. According to Sushruta, the urine of Madhumehi resembles with that of honey, as described above. Similar description is found in Ashtanga Hridaya & Ashtanga Samgraha.

Psychological manifestation

The special manifestation related to behavioural pattern is depicted by Sushruta that, Madhumehi prefers standing to walk, sitting to stand, lying down to sit, & sleeping to lying down. [Su.Ni.6/28]

General Symptomatology

(A) Urine Characteristics

(1) Prabhuta Mutrata (Quantity)

This is the cardinal sign of prameha described by all acharyas. Gayadasa opines on [Su.Ni.6/6] that excess urine quantity is because of liquification of the dushyas and their amalgamation. It may be suggested that the prabhuta mutrata is more akin to metabolic changes. The excessive urination helps in the elimination of excessive accumulation of carbohydrate, protein & fat metabolites. The excessive urination is due to an improper metabolism of carbohydrates, proteins & fats resulting in water & electrolytes imbalance.

(2) Avila Mutrata (Turbidity)

Patient passes urine having hazy consistency. Gayadasa & Dalhana opine that, the characteristic features of urine is because of the nexus between Mutra, Dosha & Dushya. Avila mutrata is more akin to urinary pathology. This avila mutrata i.e. turbidity of urine occurs due to body reaction with the doshas. This can be due to presence of sugar, phosphates, acetone, chyle, sperm, silicates, albumin, bile pigments and salts, blood, pus or casts etc. in the urine. Observed facts contribute to the opinion that quantity of the urine may remain normal or may be reduced in the later stage of this disease. so both the symptoms have been emphasized to be a characteristic of this disease by ancient Indian scientists.

(3) Pichhila Mutrata (Consistency)

At the time of diagnosis, Charaka mentioned to consider the etiological factors also to assess the involved dosha after knowing the character of urine, pichhila & madhura.

(4) Kashyapa has described the symptoms listed here.

- Akasmata Mutra Nirgama: Child excretes urine suddenly without any intention.
- Makshika Akranta Mutra: Flies get attracted towards the urine.
- Shweta & Ghana mutrata: Child passes urine having shweta colour & turbidity.

(B) Associated Signs & Symptoms

Acharaya Sushruta has described two types of prameha along with their manifestations as follows:

(i) Sahaja Pramehi (Krisha-Asthenic)

- Ruksha (Dry body)
- Alpashi (consumes less food)
- Bhrish Pipasa (Voracious thirst)
- Parisarpansheelata (Restless, always desires to wander)

(ii) Apathyanimittaja (Sthula-Obese)

- Bahuashi (Voracious eater)
- Snigdha (Unctuous body texture)
- Shayyasanswapnasheela (Like to sit down & sleep always) Acharya Kashyapa has also narrated symptoms like Gaurava (Heaviness of the body), Baddhata (tightness) & Jadata (Steadiness, laziness).

SAMPRAPTI OF MADHUMEHA

When sadhya roga changes into krichrasadhya or asadhya it can be called as vidhi samprapti. It commonly occurs in the untreated condition. As far as madhumeha is concerned, we can partly include it in vidhi samprapti. Acharya Sushruta explains it as if all the pramehas are not treated first, they will gradually pass to stage of madhumeha. Acharya Charaka has described madhumeha vividly. Vagbhattacharya divides madhumeha into two types, according to samprapti. The madhumeha is included in vataja type. If vataprakopa occurs due to sarvadhatushaya, it is called dhatukshayajanya madhumeha. And if vataprakopa manifests as result of vatavarana, it is called avaranjanya madhumeha. Acharya Sushruta explains it as if all the pramehas are not treated first, they will gradually pass the stage of madhumeha.

Samprapti Vishishta Anilatmaka Madhumeha:[Cha.Ni.4/37]

The pathogenesis of madhumeha is explained in Charaka Samhita, Nidanasthana 4th chapter. Due to causative factors in the person susceptible for prameha, vatakopas occurs. This kupita vatadosha attracts the vital dhatus like vasa, majja, lasika & oja to basti. The vata dosha is having rukshatva and it again changes the madhura rasa of oja into kashaya rasa. This kashaya oja is excreted through urinary tract later. This condition is termed as madhumeha.

Madhumeha Due To Shuddha Vata:[Cha.Chi.6/6]

Due to the kapha & pitta kshaya, and with the kshaya of vasa, majja, lasika and oja, vatadosha gets aggravated and draws oja towards basti leading to madhumeha.

Dhatukshayajanya Madhumeha:[Cha.Chi.6/11]

The kshaya of vital dhatus vasa, majja, lasika and oja leads to vataprakopa. This vitiated vata further makes ksharana of these dhatus through mutravaha srotas resulting in Vasameha, Majjameha, Hastimeha & Madhumeha respectively. When kapha and pitta gets depleted the vata provocation occurs and it leads to depletion of vasadi dhatus.

Madhumeha Establishment due to Avarana: [Cha.Su.17/78-80]

Aharas with a predominance of guru, snigdha, amla and other kaphapittakara substances, leads to the provocation of kapha and pitta doshas. Which in turn vitiate medas and mamsa. These increased dosha-dushya causes vata avarana by which gati or movement of vatadosha is obstructed. Finally vitiated vata attracts and carry the oja towards basti resulting in the madhumeha condition.

Apratikarita Madhumeha:[Su.Ni./6/30]

Acharya Sushruta has described that all types of madhumeha, if not treated in time, gets converted into madhumeha. This is the later stage of disease

SAMPRAPTI GHATAKAS**Dosha**

Kapha : Bahu +Abaddha in avaranjanya madhumeha and Kshina in dhatukshayajanya madhumeha

Pitta : Vriddha-in avaranjanya madhumeha and Kshina-in dhatukshayajanya madhumeha

Vata : Avritta- in avaranjanya madhumeha and Vriddha-in dhatukshayajanya madhumeha

Dushyas: Rasa, Rakta, Mamsa, Meda, Majja, Vasa, Lasika, Oja, Shukra, Ambu [Cha.Chi.6/8] Sweda [A.H.Ni.10/4]

Srotas : Medovaha, Mutravaha, Udakavaha

Srotodushti : Atipravritti, Sanga

Sanchaya : Tissue level

Prakopa : Sarva sharira

Prasara : Rasayani

Sthanasamshraya : Mutravaha Srotas

Agni : Dhatwagnimandya

Ama : Dhatugata (Aparipakwa Dhatu)

Udbahva : Amashaya

Swabhava : Chirkari

UPADRAVA

The term upadrava is applied to a disease which has taken place on, produced by the sampraptighatakas of original disease & be cured if original disease is treated successfully. Acharaya Charaka enumerated the general complications whereas Acharya Sushruta & Acharya Vagbhatta described according to the Dosha predominance.

(1) General Complications [Cha.Ni.4/48]

Trishna, Atisara, Daha, Daurbalya, Arochaka, Avipaka, Putimamsa Pidaka, Alaji, Vidradhi etc.

(2) Specific Complications**(a) Kaphaja meha [Su.Ni.6/15]**

Makshikopasarpanam, Alasya, Mamsopachaya, Pratishyaya, Shaithilya, Arochaka, avipaka, Kaphaprasedha, Chhardi, Nidra, Kasa & Shwasa.

(b) Pittaja meha [Su.Ni.6/15]

Vrushanayorvadaranam, Bastibheda, Medhra toda, Hridshula, Amlika, Jwara, Atisara, Arochaka, Vamathu,

Paridhumayanam, Daha, Murchha, Pipasa, Nidranasha, Panduroga, Pittavidmutranetratva & Vidbheda (A.H.)

(c) Vataja meha [Su.Ni.6/15]

Hridgraha, Laulya, Anidra, Stambha, Kampa, Shula, Baddha purishatva & shosha, kasa, shwasa.

Complications of Madhumeha

Acharaya Charaka has mentioned 7 types of pidaka as complication of madhumeha, While Sushruta & Vagbhatta has mentioned 10 pidakas. Sushruta has mentioned that madhumeha along with pidaka is asadhya. He narrated that these pidaka occurs due to Tridosha and vitiated meda & mamsa.

These pidakas are,

Pidaka	Charaka	Sushruta	Vagbhatta
Sharavika	+	+	+
Kacchhapika	+	+	+
Jalini	+	+	+
Sarshapi	+	+	+
Alaji	+	+	+
Vinata	+	+	+
Vidradhi	+	+	+
Putrini	-	+	+
Masurika	-	+	+
Vidarika	-	+	+

SADHYASADHYATA

Generally the concept of prognosis in the case of prameha re given by all acharyas as, Kaphaja Prameha-Sadhyata, Pittaja Prameha-Yapya and Vataja Prameha-Asadhyata when occurred due to dhatukshaya & Krichrasadhyata when established due to avarana.

Pittaja mehas are considered as yapyata, while vataja pramehas are having the status of asadhyatva. This is the result of the nature of disease & associated dhatus. Kaphaja meha can be treated with katu, tikta& kashaya rasas, then both the kapha dosha and the associated dushyas (sama dhatus) can also be treated with the same treatment at the same time. In case of pittaja prameha & vataja prameha, the disease and associated vitiated dhatus are having opposite qualities. So yapyatva & asadhyatva arises respectively.

Yapyatva

Pittamehas are explained to be with this status. The disease is requiring continuous treatment. Once the treatment is stopped the disease is again provoked. Also vishamakriyatva i.e. the disease is cured by langhana therapy but the associated vitiated dhatus are not. This also leads leads to yapyatva.

Krichrasadhyatva & Asadhyatva

Madhumeha is included in vatajameha. Here vata provocation might be due to sarvadhaturkshaya as it occurs after kaphaja & pittaja pramehas. The another important cause is avarana. When vata provocation is due to dhatukshaya the type is included in asadhyata

madhumeha, while the other produced by avaranjanaya vata is considered as krichrasadhya. Charakacharya mentioned that madhumeha produced due to beejadosha is incurable.

ARISHTA LAKSHANA

The following two features are mentioned by Charaka as arishta lakshana i.e. the signs of incurability or indication of ensured death.

1. The person in whose body, The flies are attracted after bath also is sure to die due to Prameha. [Cha.In.5/16] The sweetness of body is in large proportion and after bath also the skin remains sweet. Extensive hyperglycemia may produce diabetic coma & patient may die.
2. The person who drinks various kinds of oils & ghees or other unctuous preparations with Chandala in his dreams may die of prameha in future. [Cha. In. 5/17] We may understand that the person who drinks sneha in dream also may be habituated to drink it in day time in excessive quantity. The reason we see that such persons are ought to die by increased Upadeha in marma places.

DIFFERENTIAL DIAGNOSIS

To differentiate prameha, from other disease, Acharaya Charaka has explained that we have to think for the presence or absence of poorvarupas. When the colour of urine is either Haridra or Rudhira, if it is associated with poorvarupas of prameha, then we can diagnose prameha, but if poorvarupa of Prameha are not present, it is only the provocation of Rakta & Pitta. [Cha.Chi.6/54] Acharya Charaka describes that when madhumeha is present, sometimes it is difficult to distinguish it from kaphaja mehas. Because the mutra in madhumeha is with madhura taste & having pichhila swabhava and appearance like honey. So Acharya Charaka instructs to consider the presence of rupa and Nidanas. If there are symptoms of Doshakshaya (kapha-pittadi kshaya in comparison to vata), then it is vatika prameha & If there is history of santarpanjanya nidana, then it is kaphasambhava prameha. This is important because if madhumeha rogi is having less strength due to dhatukshaya & vatakopas is treated with kaphamehopkramas, it will be producing adverse results. [Cha.Chi.6/55] For Ikshumeha & Madhumeha, the basis of diagnosis should be on 'Madhuryat cha tanoratah' the sweetness of whole body i.e. in the blood.

Risk factors

1. Family history
2. Obesity (BMI > 27kg/ m²)
3. Age > 45 years
4. Hypertension (B.P. > 140/ 90 mm of Hg)
5. HDL < 35mg/ dl and/ or triglycerides levels > 250mg/ dl
6. Habitual physical inactivity

Complications

The following complications may occur in the later stage

of Diabetes mellitus:

1. Burning sensation over palmar and plantar region (Diabetic neuropathy)
2. Boils and carbuncles
3. Gangrene
4. General debility
5. Retinopathy
6. Renal tissue damage (nephropathy)
7. cardiovascular diseases.

Investigations

- i. Measurement of the plasma glucose level
 - a. Random blood sugar (RBS)
 - b. Fasting blood sugar (FBS)
 - c. Postprandial blood sugar (PPBS)
- ii. Urine routine and microscopic examination
- iii. Glycosylated Hemoglobin (HbA1c)
- iv. Lipid Profile

Other related Investigations

- i. Blood urea and serum creatinine
- ii. E.C.G.
- iii. Fundus examination
- iv. Serum electrolytes.

Treatment^[11,12,13,16]

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. Sthulya (Obese)
2. Krusha (Asthenic)

1. In Sthulya (Obese)

The treatment must be mainly based on proper utilization of excess fat i.e. He should be given:

- 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 – vama – (induction of emesis) virecana (induction of purgation) basti (applicatin of medicine through the anal route – in specific conditions)
 - Physical exercise

2. In krusha (For Lean patient)

Asthenic type the treatment should be mainly based on the line of increasing stamina and vitality by way of tonics (brumhana) 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), Kshaya (Tuberculosis), 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 diabetes:- 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:

PATHYA-APATHYA^[10]

Those Aaharas and viharas which are suitable to pramehi are called Pathya and those which induce prameha are called Apathya. Pathya is having a key role in the management of Madhumeha. Even in modern science also Diet & Exercise are included in diabetes management. So before stepping to manage we have to consider for the Pathya-Apathya. Pathya and Apathya Aharas and Viharas according to different Ayurvedic classics are as follows:

Pathya

(a) Aahara

- **Shook Dhanya :** Jeerna Shali, Shashtika, Kodrava, Yava, Godhuma, Uddalaka, Shyamaka
- **Shimbi Dhanya:** Chanaka, Adhaki, Kulattha, Mudga
- **Shaka Varga:** The leafy vegetables with a predominance of tikta-kashaya rasa, Patola, Karvellaka, Shigru
- **Phala Varga:** Jambu, Dadima, Shringataka, Amalaki, Kapittha, Tinduka, Kharjura, Kalinga, Navina Mocha.
- **Mamsa Varga:** Vishkira mamsa, Pratuda, Jangala mamsa
- **Taila Varga:** Danti, Ingudi, Sarshapa, Atasi
- **Udaka Varga:** Sarodaka, Kushodaka, Madhudaka
- **Kritanna Varga:** Apupa, Saktu, Yavodana, Vaty, Yusha
- **Others:** Madhu, Hingu, Saindhava, Maricha, Lasuna

(b) Vihara

To have walks, travelling on elephants, horses and different plays, different form of marshal arts, roaming in different places without chappal and umbrella.

Apathya

(a) Aahara

Jala, Milk, Ghee, Oils, Curd, Sugar, Different types of rice preparations, anupa, gramya and audaka mamsa, Ikshurasa, Pishtanna, Navanna.

(b) Vihara

Eksthana asana, Divaswapa, Dhoompana, Sweda, Raktamoksha, Mutravega dharana.

Exercise^[13]

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 Shushruta are as under:-

- (1) Vyayarma (exercises) (2) Niyuddha (fighting) - (3) Kreedha (games) (4) Gajacharya, turagacharya, rathacharya, padacharya to ride an elephant, horse, cart riding and walking etc.

Yogic practices

Certain yogic postures are believed to stimulate the pancreas and improve its function. Some yogic practices are effective in Diabetes mellitus; still, these yogic postures should be performed only under the guidance of a qualified yoga therapist. The duration of each yoga should be decided by the Yoga therapist.

- Katiichakrasana, Gomukhasana, Shashankasana, Tadasana, Pavanamuktasana, Shalabhasana, Dhanurasana, Pashchimottanasana, ushtasana etc.

Drugs^[13,14,15]

As regards drugs, there are so many drugs and formularies but the main drugs are either bitter (Tikta) 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-cholesterimic drug.

Single formulations

1. Guduchi swarasa (Tinospora cardifolia) – 10ml twice a day with honey (A.H.Ci 12/6).
2. Amalaki Curna (Phyllanthus emblica) – 6 gm twice a day with honey (A.H.Ut. 40/48).
3. Karavellaka Phala Curna (Momordia charantia) – 3 gm twice a day with water (D. V. P. V. Sharma., II. 685).

Compound preparations

1. T. Chandraprabha, 500 mg twice a day with water/milk (S.S.Ma.K.).
2. T. Vasant kusumakara Ras, 125 mg twice a day with Honey (R. S. Rasayana Vajikarana Adhikara).
3. Brihat vangeswara Rasa, 125 mg twice a day with Ajadugdha/Godugdha (B. R. Pramehacikitsa).
4. Nisamalaki Vati, 500 mg trice a day with Triphala Kasaya (A. H. Prameha Cikitsa).
5. T. Mehari Ras (Vangabhasma, parada bhasma and Rasasindura) - 125 mg twice a day with Ajadugdha/Godugdha.
6. T. Meghanada Rasa (Purified parada, gandhaka, oxides of kanta loha, teekshna loha and swarnamakshika, shilajatu, manashila, triphala and haridra. Prepared with bhringaraja juice), 125 mg twice a day with Ajadugdha/Godugdha.

7. Mauktika kadamugha, 125 mg twice a day with Ajadugdha/Godugdha.
8. Praval bhasma, 100 mg twice a day.
9. Mehmudgara (BR), 125 mg twice a day.
10. T. Suvarnamalini vasant ras (Ay.SS), 125 mg once a day.
11. Tarakeshwara Rasa (BR), 125mg twice a day with Ajadugdha/Godugdha (page 65 – Impcops Therapeutic index)
12. T. Suvarna vangaraja, 125 mg twice a day (Dr Subhas Rana KC text book)
13. T. Arogyavardhini, 500 mg twice a day
14. Trivanga bhasma, 100 mg twice a day
15. T. Apurvamalini vasanta, 100 mg twice a day (BR)

Medicated Ghee

1. Dhanvantara ghrita 5 to 10 gm/day - (Bhavapraksh page 496)
2. Dadimadya ghrita 5 to 10 gm/day - (Bhavapraksh page 494)
3. Sinhamrita ghrita 5 to 10 gm/day - (Bhavaprakash page 496)

Avaleha

1. Saraleha: (Bhavaprakash): 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: 3to 5 mg / day.
2. Gokshuradyavaleha (Bhavaprakash): 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.

Kwatha (decoction)

1. Darvi, Surahwa, Triphala, Musta.
2. Triphala, darvi, Vishala, Musta.

Composition of the above two decoctions are same except for one drug. The first contains Surahwa (Devadaru) and the second contains Vishala. Vishala is drastic purgative and so can be used in constipated persons. The dose and duration of therapy, pathya-apathy (wholesome and unwholesome) may be conveniently decided by the physician on case to case basis on Ayurvedic parameters.

DISCUSSION

Ayurveda's holistic approach to Madhumeh emphasizes individualized treatment based on dosha balance. Unlike modern medicine, which often focuses solely on medication and blood sugar monitoring, Ayurveda advocates for a lifestyle transformation encompassing diet, exercise, and mental well-being. Integrating Ayurvedic practices with conventional diabetes care can provide a more comprehensive management plan for individuals facing Madhumeh.

CONCLUSION

Madhumeh, or Type 2 diabetes mellitus, poses significant health challenges globally. Ayurveda offers valuable insights into prevention and management through natural remedies, dietary modifications, and lifestyle changes. Continued research into the integration of Ayurvedic principles with contemporary medical practices holds promise for enhancing diabetes care and improving patient outcomes.

REFERENCES

1. Dr. Subhas Kumar Sahani, A Critical Review On Madhumeha (DM TYPE-2) A Life Style Disorder, wjpmr, 2023; 9(11): 85-89.
2. Kasper DL, Fauci A.S., Hauser S.L., Longo D.L., Jameson J.L., Loscalzo J. et.al, Harrison's Principle of Internal Medicine, Diabetes Mellitus: Diagnosis, Classification and Pathophysiology, McGraw-Hill Companies, 19th Edition, 2015; II: 417: 2399.
3. Rigveda 10/163.15.
4. Astanga Hrdayam of Srimadvagbhata, edited with Nirmala Hindi Commentary by Dr. Brahmanand Tripathi, Nidansthan 10, Chaukhamba Sanskrit Pratishthan, Delhi, 2008; edition, 494-501.
5. Astanga Hrdayam of Srimadvagbhata, edited with Nirmala Hindi Commentary by Dr. Brahmanand Tripathi, Chikitsasthan 12, Chaukhamba Sanskrit Pratishthan, Delhi, 2008; edition, 715-720.
6. Acharya Vidhyadhar Shukla, Prof Ravidatta Tripathi, Charaksamhita of Agnivesha edited with Vd Manorama Hindi commentary (Marathi translation by Vd. Vijay Kale) forwarded by Acharya Priyavata Sharma, Nidansthan 4, Chaukhamba Sanskrit pratisthan, Delhi, 2013; edition, 501-512.
7. Acharya Vidhyadhar Shukla, Prof Ravidatta Tripathi, Charaksamhita of Agnivesha edited with Vd Manorama Hindi commentary (Marathi translation by Vd. Vijay Kale) forwarded by Acharya Priyavata Sharma, Chikitsasthan 6, Chaukhamba Sanskrit pratisthan, Delhi, 2016; edition, 164-177.
8. Kaviraj Dr Ambikadatta Shastri, Sushruta Samhita of Maharshi Sushruta edited with Ayurveda tattva Sandipika forwarded by Dr Pranajivana Manekchanda Mehta, Nidansthan 6, Chaukhamba sanskrita sansthan Varanasi, edition, 2022; 325-331.
9. Madhava Nidanam; Madhavakara, Translated into English by Dr. K. R. Srikantha Murthy; Chaukamba Oriental Publisher & Distributor, Varanasi; Krishnadas Academy, 1987; 33.
10. Gaurav Gairola, a Literary Study on Madhumeha (Diabetes Mellitus) According to Ayurvedic Classics - a Brief Review, wjpmr, 2021; 10(8): 1580-1587.
11. Charaka Chikitsa sthanam; By Agnivesha; Translated into English by Dr. Ram Karan & Vaidya Bhagwan Das; Chaukamba Sanskrit Series, Varanasi & Krishnadas Academy, 2001.
12. Sushruta Samhita: By Kaviraj Kunjalal Bhashagraha; Chaukamba Sanskrit Series, Varanasi.

- 1963; II(13): 286-391; The Medical treatment of Madhumeha.
13. Ashtanga Hridayam- Chikitsa sthanam; Vagbhata, Translated into English by Dr.K.R. Srikantha Murthy; Chaukamba Oriental Publisher & Distributor, Varanasi; Krishnadas Academy; Section - 4; Chapter – 12; 383-390; Chikitsa.
 14. Basavarajeeyam – 9th Chapter, 433.
 15. P.V. Sharma Dravyaguna Vijnana - Part –II; Chaukamba Vidya bhavan, Chowk, Banaras, 1956.
 16. A Practical hand book of Panchakarma Procedures – CCRAS: Chapter – Vamana; Page – 17; Chapter – Virechana; Page – 21; Slokas – Astanga Hridaya Sutrasthana, 2009; 18–1,2: 8,9.
 17. Subhas Kumar Sahani, A Critical Review on Madhumeha (DM type-2) a Life Style Disorder, wjpmr, 2023; 9(11): 85-89.
 18. https://www.researchgate.net/publication/260920476_Diabetes_mellitus_Madhumeha-an_Ayurvedic_review
 19. <https://www.wjpmr.com/download/article/114102023/1698732880.pdf>