



Review Article

DIABETES MELLITUS - AN AYURVEDIC PERSPECTIVE

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ABSTRACT

Diabetes mellitus is one of the most common non-communicable diseases in the world. Diabetes management in India confronts various obstacles, including increased incidence in urban and rural regions, a lack of disease awareness among the general public, inadequate health care facilities, high treatment costs, inefficient glycemic control, and an increase in the prevalence of diabetic complications. Diabetes insulin therapy is often administered via subcutaneous injections up to four times per day. Long-term insulin therapy, along with the intrusive aspect of its administration, has resulted in issues with patient compliance, impacting patient outcomes. Diabetes is a chronic condition that arises when the pancreas does not create enough insulin or when the body cannot adequately use the insulin that is produced. Insulin is a hormone that regulates blood glucose levels. Ayurvedic preventive practises can help to keep the disease at bay. Sedentary lifestyle and eating habits are thought to be the primary causes. It is characterised in Ayurveda as *Vataja pramehas*, which can be managed conservatively with exercise, nutrition, and internal treatment.


INTRODUCTION

Diabetes mellitus has recently received widespread condemnation as the world's leading silent killer. According to WHO, the number of people with diabetes rose from 108 million in 1980 to 422 million in 2014. Prevalence has risen faster in low and middle-income nations than in high-income countries. Diabetes is a leading cause of blindness, kidney failure, heart attacks, stroke, and amputation of lower limbs. Diabetes death rates by age increased by 3% between 2000 and 2019. In 2019, diabetes and kidney disease due to diabetes caused an estimated 2 million deaths. A nutritious diet, regular physical activity, maintaining a normal body weight, and abstaining from tobacco use are all approaches to avoid or postpone the onset of type 2 diabetes.

Diabetes can be controlled and its repercussions prevented or postponed through diet, exercise, medication, and regular screening and treatment for complications. Diabetes mellitus is a disease of inadequate control of blood levels of glucose. Diabetes mellitus is derived from the Greek word diabetes, which means syphon- to pass through, and the Latin word mellitus, which means sweet.

Pathogenesis

The beta cells of the pancreatic islets of Langerhans are in charge of secreting the hormone insulin. Among other things, insulin is critical for the proper utilisation of carbohydrates in our bodies. If insulin is not present owing to a metabolic condition or is not executing its tasks effectively, these carbs accumulate in the bloodstream as glucose. The glucose then gathers in the urine, which is one of the fundamental hallmarks of diabetes mellitus. As a result, this can be classified as either a shortfall in pancreatic insulin production or a dysfunction of pancreatic insulin production.

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Madhumeha (Prameha)^[1]

Ayurvedic remedies for *Madhumeha* (diabetes mellitus) are the oldest and are classified as *Prameha*. *Pramehas* are a group of urinary illnesses characterised by excessive urination and many aberrant features caused by *Doshic* imbalances. *Prameha* is caused primarily by a lack of exercise and poor dietary habits. The basic causes of this ailment include excessive food intake in the categories of *Ushna*, *Snigdha*, and *Guru*- fish and curd are good examples. The etiological causes for *Prameha* are foods that enhance *Kapha*, *Medhas*, and *Moothra*. *Prameha* is derived from the words *Pra* (overflow) and *Meha* (*Ksharane*) (urine passing). *Prameha* is passing turbid urine as a result (*Prabhootha avila mootrata*).

Causes

Lack of exercise, excessive sleep, excess use of milk, use of newly harvested cereals, laziness, sedentary habits, consumes food and drink which are cold.

Classification^[2,3]

1. *Prameha* is classified aetiologically in *Sahaja* (defect in sperm or ovum or both at the level of

chromosome or gene) and *Apathya Nimittaja* (Unwholesome things- food and exercise etc.)

2. On the basis of body constitution

- *Sthoola* (obese)
- *Krishha* (Emaciated)

3. On the basis of dominant *Dosha*

- *Kaphaja*- ten types
- *Pittaja*- six types
- *Vataja*- four types

Out of these, diabetes mellitus is termed as *Madhumeha*. It is one of the four *Vataja pramehas*.

Sampraptighatakas^[4]

Dosha- Kapha predominant *Tridosha*

Dushya- Meda predominant along with *Rasa*, *Asrik*, *Mansa*, *Majja*, *Vasa*, *Shukra*, *Oja*, *Lasika*, *Kleda* & *Sweda*.

Srotasa- Medovaha, *Mutravaha*, *Udakavaha*

Srortodushti- Atipravritti

Agni- Vaishamy of all *Agni* (*Dhatwagnimandya*)

Adhishthana- Vasti, *Sarva sharir*

Udbhavasthana- Amashaya

Ama- Medogata

Sanchara- Rasayani

Diagrammatic presentation of Samprapti of Madhumeha (Diabetes Mellitus)

Guru, Snigdha, Amla etc.

Kapha, Pitta Vardhaka Nidana Sevan

Tyakta vyayama, Chinta,

Samshodhana Akurvata

Sleshma, Pitta, Meda, Mansa, Vriddhi

Vata Avrita with above Vriddhadhatu

Vata prakopa

Vata leads Oja to the Vasti

Madhumeha

Kashaya, Katu, Tikta etc.

Vatavaradhaka Nidna Sevana

Dhatukshaya

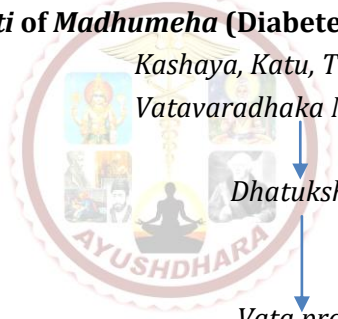
Vata prakopa

Rukshna Guna of *Vata* displaces

Madhura Rasa of *Oja* with *Kashya Rasa*

Mutrashaya Abhivahati

Madhumeha



Premonitory symptoms

We can discover descriptions of early symptoms of the disease in Ayurveda. They are filth accumulation on the teeth (mouth, eyes, nose, and ears), a burning sensation in the palms and soles, stickiness of the skin all over the body, thirst, and a sweet taste in the mouth, among other things, and *Moothra madhuryam* (sweetness of urine).

Clinical Symptoms [3,4,8,11]

The chief symptoms of *Prameha* are *Prabhootha mutrata* (polyuria), *Avila mutrata* (turbid urine), and *Medo dushti lakshanas*.

Specific Ayurvedic symptoms:

- *Kara Pada Daha*
- *Mukha talu kantha shosha*
- *Pipasa*
- *Aalasya*
- *Kaya Malam*
- *Shatpadapilikabhi – Mutrabhisaranam*
- *Gala Talushosha*
- *Dantadinam Maladhyatam*

Main Symptoms (Modern science)

- Polydipsia
- Polyurea
- Polyphagia
- Giddiness
- Bodyache
- Numbness and tingling
- Visual disturbance

Prognosis [1,14]

Sadhya

- a) **Kaphaja Prameha-** All the *Kaphaja Prameha* are curable because *Kapha* is impregnated in the *Meda* which has same qualities. *Dosha* and *Dushya* are having same qualities and having same treatment (*Samakriyatvaccha*). This is due to *Vyadhi Prabhava* otherwise disease having *Dosha* and *dushya* of same quality are difficult to treat.
- b) **Pittaja Prameha-** *Pittaja Prameha* can be curable if *Meda* is not vitiated in excess, and if these ailments are not preceded by premonitory signs and symptoms.
- c) **Vataja Prameha-** According to *Chakrapani Vataja Prameha* originating due to secondarily aggravation of *Vayu* when *Kapha* or *Pitta* is diminished.

Krichhrasadhya (Difficult to treat)

Madhumeha resulted because of *Avaranjanya* pathogenesis is said to be difficult to treat i.e., *Krichhrasadhya*. Here aggravated *Kapha* and *Meda* cause the *Avrana* and so hampers the movement of

Vayu causing its aggravation. So, any therapeutic measure like mild *Samshodhan* can work here to treat the disease.

Pittaja Prameha is palliable that means the disease needs continued treatment.

Asadhya (Incurable)

Vataja depicts an incurable form of *Prameha* and inherited diabetes, as well as a *Krishha* (lean) patient suffering from the *Sahaja* variation.

Treatment [5,6,7,10]

For every disease, a specific line of treatment is given in classics which ensure success.

Acharya Charaka says that patient with *Prameha* can be divided in two categories.

1. Those who are *Sthoola* (obese) and *Balwan* (strong). In these patients *Doshas* are in excess and so they should be administered *Samshodhana Karma* (Purification therapy).
2. Those who are *Krishha* (emaciated) and *Paridurbal* (weak), so *Santarpanakarma* (nourishing) should be given. In this category *Vayu* can be aggravated if *Shodhana* is employed.

General treatment of *Prameha*- This is the basic treatment that applied to all type of *Prameha* and includes-

- **Nidana Parivarjana:** As without *Nidana* no disease can occur, so, *Nidanaparivarjana* is the first treatment for any disease.
- **Shodhana chikitsa:** According to *Acharya Sushruta* and *Acharya Vagbhata* the process of *Samshodhana* should be done according to the strength of patient. In *Prameha Vamana*, *Virechana* are indicated.

Vamana: This is specially indicated in *Kaphaja Prameha*. According to *Acharya Sushruta* after considering the strength of patient, firstly *Tikshana Vamana* should be given to a well oleated patient.

Virechana: This is indicated in *Pittaja* type of *Prameha*. According to *Sushruta*, *Vamana* should be followed by *Virehana karma*.

- **Shamana Chikitsa-** The patient of *Prameha* who is not fit for *Samsodhana* therapy should be treated with *Shamana* treatment.
- **Aptarpana Chikitsa-** As *Prameha* is an outcome of aggravated *Kleda* and *Kapha*, so in the beginning patients should be administered the depletion therapy (*Aptarpana Chikitsa*) in *Kaphaja* and *Pittaja Prameha*. *Acharya Charaka* has mentioned that the treatment principles which are described for *Santarpanajanya Vyadhi* can be applied here.
- **Rasayana chikitsa-** As *Prameha* is a *Anushangi vyadhi* and in its Various types- there is a condition of *Dhatukshaya*. So, *Acharya Sushruta* and *Acharya*

Vagbhata have described *Rasayana* therapy for *Prameha*. For this purpose, *Shilajita*, *Swarnamakshika*, *Rajatmakshika* and *Tuvaraka* are indicated in the text.

- **Pathya sevana-** As all the *Doshas* and *Dhatus* except *Asthi* along with *Oja* are involved in the pathogenesis of *Prameha* it is very difficult to treat completely so, role of continuous *Pathyasevana* is of due importance to minimize the chances of *Upadrava*.

Diet

The following foods can be provided to diabetics:

The role of *Ahara* and *Vihara* in diabetes is equally or even more significant in controlling blood sugar levels and preventing diabetes complications. In all classics, *Ahara dravyas* are described in detail and they cover all the food groups are:

Aahara

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

Vihara

If a person regularly does strenuous exercises, bath, sprinkling of water over the body and apply ointment of *Sevya (Ushira)*. *Twaka, Ela, Aguru, Chandana* and then *Prameha* do not afflict that person. However, Ayurveda recommends starting with a light diet (*Laghu bhaksha, Laghu ahara*) and gradually increasing the amount of food. It is a rule to pay close attention to the status of *Agni*, or digestion. Because diabetes is a metabolic disorder, additional care should be paid to digestion and metabolism.

Exercise [7]

Diabetics and obese people are advised to engage in strenuous exercise. This is intended for proper fat utilisation and uses glucose in the body. Some of the hard, productive exercises prescribed by *Shushruta* are as under:

- (1) *Vyayarma* (exercises) (2) *Niyuddha* (fighting) (3) *Kreeda* (games) (4) *Gajacharya, Turagacharya,*

Rathacharya, Padacharya to ride an elephant, horse, cart riding and walking, and so on. In addition to the heavy exercises stated above, there are different exercises based on their financial situation as well as their society.

They are-

1. For rich diabetics- they should eat only *Shyamaka, Kodrava* etc., *Amalaka, Kapitha* etc., and reside with the cattle (domestic animals). The food stuff for them should be *Ruksha* (free from fat) or they may stay with the cows and eat the above with the urine and faeces of the cow compare this with the character in *Raghuvamsha*.
2. *Yoga* promotes all forms of metabolism in the body; thus, diabetics should practise various types of *yoga*. *Yoga* will undoubtedly benefit diabetes mellitus.

Yoga asana- following *yoga asana* can be practiced

- *Pashchimotanasana*
- *Kurmaasana*
- *Halasana*
- *Mayurasana*
- *Suryananaskara*
- *Pranayama (Bhastrika)*

3. For the low class, the diabetic should travel roughly 100 miles barefooted, sleeping no more than one night in a settled spot, eating only what is available via begging, and exercising constraint on his sense organs (adopt the Muni/Sage lifestyle).

Drugs [7,8,9]

Some single drugs are:

- *Amalki Swaras* may be used with *Haridra Churna* and *Madhu* (Su. Chi.-11/18)
- Patient of *Madhumeha* can take total 1 *Tula* of *Salsaradi gana kwath bhawit Shilajatu* with decoction of *Salsaradi gana* as *Anupanam*.
- Even incurable forms of *Prameha* can be cured with intake of juice of *Bhumyamalaki* in dosage of three *Gadhyana* (18 *Masha*) with powder of 20 black pepper. This formulation cures incurable *Pramehas* within seven days.
- *Haridra, Daruharidra, Triphala* and *Yava* should be made into fine powder. This powder should be soaked in water for one night. Drinking this water in early morning along with honey destroys *Pramehas* along with its roots.

Some other formulations of *Madhumeha-*

(A) Ghrita/Taila

There are *Trikantakadya Sneha* (Ch.Chi.6/38-39), *Dadimadya ghrita* (*Dadima, Vidanga* and *Haridra*), *Salmali ghrita, Brihat Dadimadya ghrita, Mehamihir Taila* (B.R.), *Prameha nashak taila* and *Pramehanashak ghrita* (A.Hr.Chi).

(B) Asava-Arishta (Fermented preparations)**Dose-** 20-40 ml*Lodhrasava or Madhvasava (Lodhra, Kachura, Pushkarmoola etc.)**Dantyasava (Dantimula, Lodhra, Murva, Vidanga).**Bhallatakasava, Devadarwadiarishta***(C) Leha (Paste)***Saraleha, Gokshurakadya avleha (Bhava Prakash), Vangaavleha (Vanga, Madhu, Gandhaka).***(D) Udaka (Medicated water)***Sarodaka, Kushodaka, Madhukodaka, Sidhu (wine of barley) Madhvika (wine made from Munakka).***(E) Vati (Tablet): Dose- 125-250mg, Anupana-Madhu, lukewarm water**

- *Meha mudagada vati*
- *Sukramatrika vati*
- *Trikatukadya modaka (B.R.)*
- *Sivagutika (Shilajatu, Triphala, Kutaki)*
- *Chandraprabha vati (Kachura, Shilajatu, Triphala, Kutaki)*
- *Shilajatvadi vati (Shilajit, Abhrak, Swarna, Guggulu etc.)*
- *Indra vati (Rasa sindur, Vanga, Arjuna etc.).*
- *Gokshuradi vati*
- *Chandrakala vati*
- *Aarogyavardhini vati*

(F) Churna (powders): Dose- 3-6gms.*Nyagrodadi churna (Ashwatha, Amaltas, Asana), Eladi churna (B.R.), Karkatbijadi churna, Triphala churna (Y.R.).***(G) Lauha (Iron preparations)***Vidangadi Lauha- Vayavidanga, Triphala, Musta, Pippala, Shunthi, Jeerakdvaya, Lauha Bhasma (B.R.)***(H) Paka***Pugapaka, Ashvagandhapaka (Y.R.)***(I) Rasa/ Bhasma (Metallic preparations):****Dose- 125-250mg**

- *Vasantakusumankar rasa (Suvarna, Rajat, Abhrak)*
- *Brikta Bangeshwar rasa (Parad, Gandhaka, Vanga, Abhrak)*
- *Suvarna banga (Saindhava, Vanga, Parad, Gandhak)*
- *Trivanga bhasma (Naga, Vanga, Yashada); Apurvamalinivasanta rasa (Vaikranta, Abhraka, Tamra)*
- *Harishankar rasa (Swarnmakhik, Parada, Gandhaka)*
- *Panchanana rasa (Parad, Gandhaka, Abhraka, Lauha, Vanga)*

CONCLUSION

Diabetes mellitus, according to Ayurveda, is not a disease that can be cured with just medicine or a dietary plan. Though it is a *Yapya* (not completely curable/difficult to cure) disease, the above treatment procedure will not only make the person free of Diabetes Mellitus, but will also protect the person to live a long (*Deergha jeevanam*), healthy (*Sukhayu*), and useful to society (*Hitayu*). The only cure is for man to manage his senses and live in peace with nature by avoiding certain dangerous diets and lifestyle choices that contribute to it. Ayurveda is not only capable of avoiding diabetes through the use of *Pathyapathya* and *Sadvrita palana*, but it is also capable of regulating diabetes, preventing complications, and curing complications.

Latest Research Work on Diabetes Mellitus

1. Circulating microRNAs in young individuals with long-duration type 1 diabetes in comparison with healthy controls.
2. Prevalence of diabetic retinopathy and vision-threatening diabetic retinopathy in adults with diabetes in china.
3. Adynamic response to cold pain reflects dysautonomia in type 1 diabetes and polyneuropathy.
4. Life expectancy after bariatric surgery or usual care in patients with or without baseline type2 diabetes in Swedish Obese subjects.
5. Casual associations between cardiorespiratory fitness and type2 diabetes.

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