

Hitkara Aahara in the Management of Diabetes Mellitus: A Critical Review

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Abstract: Diabetes Mellitus is a well-known multifactorial metabolic disorder characterized by abnormally high blood glucose due to absolute or relative lack of insulin. In ancient Ayurvedic texts this disease is described as Madhumeha, a form of Vataja Prameha, characterized by passing of excessive amount of sweet urine. The incidence of Diabetes has increased drastically in the recent times because of sedentary lifestyle and unhealthy dietary habits, which are the main etiological factors for this disease. Nidana Parivarjan is described, as the first line of treatment for every disease and since, Diabetes mellitus is a life style disorder, pathya-aahara vihara plays a very crucial role in controlling blood sugar level; so, the present paper will throw a light on Hitkaraaahara mentioned in Ayurvedic texts for the proper management and prevention of Diabetes mellitus.

Keywords: Hitkara, MadhumehaDiabetes, diet, nutrition

1. Introduction

Diabetes mellitus characterized by passing of excessive amount of sweet urine (polyuria) along with polydipsia (increased thirst) and polyphagia (increased hunger). Ancient Indian physicians identified the disease as Madhumeha / Kshaudrameha noticing that the urine of patient attracts ants and if the literal meaning of the words in "Madhumeha" i.e. "honey urine" is considered, it is akin to Diabetes mellitus. Importance of this disease can be highlighted by the fact that it is mentioned under ashtamahagada¹ by Charaka, Vagbhata, Sushruta and Gangadhara. The global prevalence of diabetes among adults has risen from 4.7% in 1980 to 8.8% in 2017 with 424.9 million people having diabetes in 2017². The prevalence of type-2 Diabetes mellitus increases with age; however, in the recent times it is seen that this disease has started affecting the younger age groups and even the adolescents are suffering from it. India actually has 2nd highest number of diabetics of any one country in the entire world, however, it is expected to have maximum number of diabetics by 2045, and will soon gain the title "Diabetic capital" of the world³. Further, approximately 4.0 (3.2-5.0) million people aged between 20 and 79 years were estimated to die from diabetes in 2017, which is equivalent to one death every eight seconds. This is higher than the combined number of deaths from infectious diseases including HIV/AIDS, tuberculosis and malaria⁴. Diabetes accounted for 10.7% of global all-cause mortality among people aged 20-79 years². Grievance of the situation can be understood by the fact that theme of First National Ayurveda Day was "Prevention and control of Diabetes through Ayurveda".

Since most ancient times Prameha is a well-known disease of affecting human beings. It is a syndrome, which includes clinical conditions involved in obesity, prediabetes, diabetes and metabolic syndrome⁵. It is a disease of mutravahasrotas and includes obstinate urinary disorders with increased urinary flow, altered consistency, and composition⁶. That is why the cardinal symptom of Prameha is "prabhootavilamutrata" i.e. excretion of large quantities of turbid urine. It includes a number of metabolic disorders characterized by specific anomaly in urine, due to excretion

of products of metabolism, which may/may not be normal constituents of urine. In various Samhitas, Prameha is classified on the basis of dominance of specific dosha and total 20 types of Prameha have been identified. Vagbhata noticeably mentioned that these 20 types of Prameha result due to specific pathological combination of dosha and dushya. That is why in each subtype peculiar type of urine is voided⁷. As mentioned above, out of these 20 types Madhumeha holds close resemblance with Diabetes mellitus. Madhava and Charaka described some special characters of urine of Madhumehiaskashaya (astringent) and madhura (sweet) rasa, pandu (pale/white) colour and ruksha (dry) in texture⁸.

Ayurveda has two goals i.e. to promote and preserve the health of healthy person and to eradicate disease in the ailing. For the fulfillment of first goal, knowledge of hitkara and ahitkaraaahara is important. Advocacy of specific diet in specific disease condition is a characteristic of holistic Ayurvedic approach. Those food articles which maintain the balanced condition of dhatus, i.e. keeps the individual healthy, maintains normal body functions; and balances the vitiated dhatus i.e. prevents diseases and repairs the abnormalities that arise in the body are known as hitkaraaahara. On the other hand, the food articles that vitiate normal dhatus are known as ahitkara aahara.⁹ The word pathya derives its origin from root word 'Patha' that literally means a way or channel. It is defined as the "diet plan which is not harmful to the channels of the body and is favorable to the mind or the regime which do not adversely affect the body and mind"¹⁰. The importance of Pathyaaahara, also known as wholesome diet is emphasized, by mentioning pathya and apathyain each and every disease condition. The significance of diet can be understood with the fact that it has been called as Mahabhaishajya (the super medicine) in Kashyapa Samhita. Further, Vaidyajeivanam, an Ayurvedic text dedicated to dietetics quoted:

**"Pathye sati gadaartasyakimaushadhnishevane
Pathyeasatigadaartasyakimaushadhnishevane."**

~ (VaidhyaJeevana: 1/10)

i.e. “If wholesome diet (*pathya*) is given there is no need for separate medicinal treatment (prophylactic nutrition) and if unwholesome diet (*apathya*) is being used, no medicine can cure the disease”.

Hippocrates, father of modern medicine, too emphasized on the importance of food by saying: “Let food be thy medicine and medicine be thy food.”~ (Hippocrates 400 BC). In this regard, *Charakacharya* has mentioned that the diet, which provides basic nutrition to the body, helps to maintain the healthy state of the body and prevents the occurrence of diseases, should be consumed¹¹. *Yogaratanakara* described that etiology, drug treatment and *pathya* are three important factors which should be studied thoroughly before starting the treatment.

NIDANA: (Etiology) The causes of *Prameha* are summed up in the Table No: 1.1

Table 1.1: Causes of Prameha

Common Causes	
<i>Aahara</i> ^{12, 13}	<i>Vihara</i>
<i>Ayasukha</i> (greed of delicious and tangy food)	<i>Swapnasukha, divaswapana</i> i.e. excessive sleep during day & night.
Excess consumption of <i>dadhi</i> (curd) and <i>payansi</i> (milk and its preparation)	<i>Alasya</i> and <i>avyayami</i> .e. laziness and lack of exercise
Intake of <i>mamsa</i> (meat) of <i>gramya</i> (domestic), <i>anoopa</i> (marshy) & <i>audaka</i> (aquatic) animals.	<i>Udvega</i> (anxiety), <i>shoka</i> (grief), <i>abhighata</i> (mental/physical trauma)
Excessive intake of <i>Guda-vaikrita</i> (various preparations of jaggery e.g. sugar, <i>khanda</i> etc.).	Lack of personal hygiene and purification of body
Excessive use of <i>navannapana</i> (new grains & drinks)	
Foods that have high caloric value and increase <i>kapha</i>	
Intake of <i>madhura</i> (sweet), <i>amla</i> (sour), <i>lavana</i> (salty), <i>snigdha</i> (unctuous), <i>sheeta</i> (cold), <i>guru</i> (heavy), <i>picchhila</i> (slimy), and <i>shlakshna</i> (smooth) <i>aahara</i> ¹⁴ .	
SPECIFIC CAUSES	
<i>Kaphaja Prameha Nidana</i> ¹⁵	
Excessive intake of <i>newhayanaka</i> (a kind of red rice), <i>yavaka</i> (<i>chhotayava</i>), <i>chinaka</i> (fennel), <i>uddalaka</i> (type of Kodo millet), <i>itkata</i> (kind of reed or grass), <i>mukunda</i> (a kind of grain), <i>mahavrihi</i> (large rice), <i>pramodaka</i> (kind of rice), <i>sugandhaka</i> (basmati rice)	Avoidance of <i>udavartana</i> (scrubbing of body) and physical exercise.
Excessive use of fresh pulses like <i>Harenu</i> (pea) and <i>Masha</i> (<i>urad/black gram</i>) along with ghee.	Excessive indulgence in sleep, rest and sedentary habits.
Intake of <i>mamsa</i> (meat) of <i>gramya</i> (domestic), <i>anoopa</i> (marshy) & <i>audaka</i> (aquatic) animals.	
Intake of <i>tila</i> (sesame), <i>palala</i> (a kind of sweet made of sesame and sugar), <i>payasa</i> (milk and rice preparation), <i>krishara</i> (khichadi), <i>vilepi</i> (rice gruel), <i>ikshuvikara</i> (sugarcane or items prepared from sugarcane).	
Intake of milk, alcoholic preparations, various curd preparations, liquid,	

sweet & newly harvested grains	
<i>Pittaja Prameha nidana</i> ¹⁶	
Excess intake of <i>ushna</i> (hot), <i>amla</i> (sour), <i>lavana</i> (salty), <i>kshara</i> (alkaline) & <i>katu</i> (spicy) <i>dravya</i> .	Exposure to excessively hot sun and heat
Taking food before the digestion of previous meal (<i>adhyashana</i>).	Excessive exertion and anger.
Use of inappropriately prepared food or intake of food that is liable to hamper the digestion.	
Intake of mutually contradictory food (<i>vishamaahara</i>)	
<i>Vataja Prameha nidana</i>	
<i>Dhatukshayajanya</i> ¹⁷ : Excessive use of material, which is predominantly <i>kashaya</i> (astringent), <i>katu</i> (spicy), <i>tikta</i> (pungent), <i>ruksha</i> (dry), <i>laghu</i> (light) and <i>sheeta</i> (cold).	Excessive indulgence in <i>maithun</i> (sexual activities), <i>vyayam</i> (exercise), <i>panchakarma</i> (excess bio-purification), <i>vegavidharana</i> (suppression of natural urges), <i>upavas</i> (fasting), <i>abhighata</i> (trauma), <i>aatapsevana</i> (sunbath), <i>shoka</i> (grief), <i>raktasraav</i> (bleeding), <i>ratrijagrana</i> (nocturnal awakening).
<i>Avaranajanya</i> ¹⁸ : Excessive intake of <i>guru</i> (heavy), <i>snigdha</i> (oily), <i>amla</i> (sour), <i>lavana</i> (salty) <i>aahara</i> , intake of new grains and beverages.	Indulgence into excessive sleep and sedentary habits, giving up of mental & physical exercise and avoidance of <i>sanshodhanachikitsa</i>

HitkaraAahara: Food articles which are suitable to a patient and help in curing the disease are called *Hitkaraaahara* and those, which induce disease, are called *Ahitkaraaahara*. *Pathyasevana* has a key role in the management of *Madhumeha*. Even in modern science diet and exercise are included in diabetes management. *Charaka* has also emphasized on the role of balanced diet in the management of *Prameha*¹⁸.

Acharya Charaka has categorized all the food items into twelve classes viz a viz 1. *Sukandhanya* (Cereals) 2. *Samidhanya* (pulses or legumes) 3. *Mamsa* (meat) 4. *Saka* (vegetables) 5. *Phala* (fruits) 6. *Harita* (salads/raw consumed) 7. *Madya* (fermented drinks/alcohol) 8. *Jala* (water) 9. *Gorasa* (milk and milk products) 10. *Iksu* (products of sugar-cane) 11. *Kritanna* (food preparations) 12. *Aharayogi* (Adjuncts). On the basis of this classification *hitkaraaahara* for *Prameha* mentioned in different *Ayurvedic* classics are as follows¹⁹:

Shukadhanya: *Yava* (barley) are the best. *Godhuma* (wheat), *jeernashali* (old rice), *sashtikshali* (a type of rice which crops in 60 days), *kodrava* (*P.scrobiculatum*), *shyamaka*.

ShimbiDhanya: *Mudga* (*V. radiate*-Green gram), *Chanaka* (*C. arietinum*-Bengal gram), *Kulattha* (*D. biflorus*), *Adhaki* (*C. cajan* - Pigeon pea) etc.

ShakaVarga (Vegetables): All types of *tikta* (bitter vegetables) and *kashayashaka* (astringent) e.g. *Karela* (*M.charantia*-Bitter gourd), *Methi* (*T.foenum*-Fenugreek), *Patola* (*V. luffa*, Vietnamese gourd), *Rasona* (*A. sativum*-

Garlic), *Udumbara* (*F.racemosa*-Cluster Fig), *Shigru* (*M. oleifera*-drumstick) etc.

PhalaVarga (Fruits): *Jambu* (*S.cumini*-Black berry), *Amalaki* (*P.emblica*-Indian gooseberry), *Kapittha* (*L.acidissima*-Wood Apple, Curd Fruit), *Tala phala* (*B.flabellifer*-Sugar palm), *Kharjura* (*P.sylvestris*-Date Palm), *Dadima* (*P.granatum*-Pomegranate), *Shringataka* (*T.bispinosa*-water chestnut), *Tinduka* (*D.malabarica*- Gaub Tree).

Mamsa Varga (Flesh): *Vishkiramamsa*, *Pratuda* and *Jangalamamsa* like *Hiranamamsa* (Deer flesh), *Shashakamamsa* (Rabbit), *Kapota* (pigeon), *Titira* (francolin) etc.

TailaVarga: *Sarshapataila* (mustard oil) is best. Oil of *Danti* (*B.montanum* -wild croton), *Ingudi* (*B.aegyptiaca*-desert date), *Atasi* (*L.usitatissimum*-flax) etc.

UdakaVarga: *Sarodaka*, *Kushodaka*, *Madhudaka*.

KritannaVarga: *Apupa* (cake of barley dipped in honey), *Saktu* (*sattu*), *Yavadana* (cooked barley), *Vatya* (*baati*), *Yusha* (soup).

Bija (Seeds): *Kamala* (*N. nucifera*-lotus), *Utpala* (*N.Stellata*), *Vansha* (*B. vulgaris*-Bamboo) seeds.

Others: *Madhu* (Honey), *Hingu* (Honey), *Saindhava* (rock salt), *Maricha* (pepper), *Lasuna* (Garlic), *Haridra* (turmeric).

2. Discussion

Role of diet in etiology, treatment and prevention of Diabetes was mentioned for the first time in *Ayurveda*. Many studies in recent years have provided the evidence that more than 50% of the cases of Diabetes type 2 can be controlled only with the modification of diet. In modern medicine dietary/lifestyle modification is the first line of treatment in a diabetic patient followed by hypoglycemic drugs and ultimately insulin therapy. This shows the importance of *hitkaraaahara* in management of diabetes. Modern medicine recommends that 40-60% of total energy intake should be carbohydrates, however these should mostly be in the form of complex carbohydrates²⁰. In *Ayurveda* too complex carbohydrates like *godhuma*, *jeernashali*, *sashtikshali*, *kodrava* etc. are mentioned *ashiikaraaahara* and *ikshuvikara* (sugars, jaggery etc.) are advised to be avoided. Fibre rich diet mentioned in *Ayurvedic* texts like *yava* and *shaka* (vegetables e.g. *methi*, *patola*) are advised to *madhumehi*. This is further supported by modern researches²¹. Fibres delay the absorption of macronutrients, provide a feeling of satiety, delay absorption and retard the breakdown of carbohydrates and thus maintain blood glucose. Fruits like *Jambu*, *Amalaki*, *Kapittha*, *Tala phala* are considered *hitkara* in *Ayurveda* which is akin to modern medicine. Recent studies have shown that the glycaemic index of *Mudga*, *Chanaka*, *Kulattha*, *Adhakiis* very low and hence, are considered *hitkara* in the patient of diabetes²².

3. Conclusion

Ayurveda has the holistic approach in the management of diabetes. The vast literature of *Ayurveda* focuses on preservation of health as well as treatment of diseases. For the management of any disease *hitkaraaahara* plays an crucial role as it not only promotes health but also normalizes the vitiated *dhatu*s and hence, acting as a preventing factor for the disease. Diabetes is a lifestyle disorder where sedentary habits, overeating, junk foods, sugar rich beverages etc. are the main causative factors. Similar *nidana*/causes are mentioned in *Ayurveda*. Further, looking deep into the recent studies on diet in diabetes have shown close resemblance with the *hitkaraaahara* mentioned in classics for the management of *Madhumeha*.

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