

A CRITICAL ANALYSIS OF THE SHADRASATMAK AAHAR IN THE MANAGEMENT OF DIABETES MELLITUS

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ABSTRACT

Every part of the Panchabhautik Sharir is the outcome of the Panchabhautik aahar that we eat. Aahar or diet constitutes interplay of various tastes or rasa. Ayurved depicts that- a balanced diet including all six basic rasa, taken in the right quantity and at the right time artistically enriches the health of the body mind and soul. However with various technological advancements and modernization of the world, lifestyle and dietary patterns underwent a drastic change. This witnessed the upsurge of various lifestyle disorders which has

engraved the lives of the human race today, one of which is Diabetes Mellitus. According to the International Diabetes Federation its prevalence is estimated to increase from 425 million people in 2017 to 629 million people by 2045 in the world with associated health, social and economic costs. Researchers are carried out around the globe in search for solutions in slowing or even reversing these conditions especially from investments in easily modifiable factors which include diet, physical activity and weight. And this led to an emergence and acceptance of fad diet plans, ketogenic and weight loss diet plans etc; fading out the age old traditional dietary patterns. Moreover the ancient Ayurved seers have very well quoted pathya aahar in Madhumeha which resembles Diabetes Mellitus. Thus the present article focuses on analyzing the efficacy of Shadrasatmak Pathya aahar mentioned in Ayurved texts along with its nutritional importance as a holistic approach in the management of Diabetes Mellitus.

KEYWORDS: Shadrasatmak Aahar, Diabetes Mellitus, Lifestyle Disorders, Ayurveda.

INTRODUCTION

Amongst the widespread health issues in the 21st century sedentary lifestyle and stressful mental conditions have resulted into many dreadful diseases- very common of all is Diabetes Mellitus- an ideal example of a lifestyle disorder. The modern literature describes it as a metabolic disorder involving carbohydrate protein and lipid metabolism, characterized by hyperglycemia resulting from defects in insulin secretion from β -cells of pancreas or peripheral action of insulin (insulin resistance) or both.^[1] When left undiagnosed or mistreated it leads to progressive diabetic tissue damage with various micro and macro vascular complications. **Prevalence** - According to a data published by IDF Diabetes Atlas- In 2000, the estimated prevalence of diabetes (type 1 and type 2 combined, both diagnosed and undiagnosed) in people aged 20–79 years has raised from 151million (4.6% of the global population at the time) to 463 million (9.3%) in 2019.^[2] Without sufficient action to deal with the problem, they predict 578 million people (10.2% of the population) will have diabetes by 2030. That number will hike to a staggering 700 million (10.9%) by 2045.^[3] Amongst this, type 2 diabetes or DM has become the most common type, contributing for approximately 90% of all diabetes worldwide.^[4]

Moreover, the ancient Ayurved medicine is well versed with this disease since age long. Prediabetes - one of the clinical entities appearing before Diabetes strikes a close similarity with that of Prameha. Diabetes Mellitus on the other hand resembles with Madhumeha described in Ayurveda. Madhumeha is also one variety of Vataj Prameha and is enlisted in Mahagada due to its chronicity and severity. Acharyas emphasized the fact that, all the Prameha eventually gets converted into Madhumeha, if untreated.^[5] Depending upon its etiology, constitution, and management; Prameha in Ayurvedic literature has been classified under several classes. One classification describes Prameha as either- i) Sahaj of genetic origin with lean, thin and emaciated physical state (IDDM) or ii) Apathyanimittaja of dietary irregularities, lack of exercise (NIDDM).^[6] And therefore Acharyas then had mastered the therapy of managing this disorder with judicious balance of ‘Aushada’ (some herbs as medicine), ‘Ahar’ (therapeutic diets) and ‘Vihar’ (exercise). These indigenous methods alone may not be as effective as insulin in lowering the blood sugar but the combination therapy seemed to correspond with the modern methods of drug, diet and exercise.

However, in the quest of technological advancements in medicine from ancient to modern times, the approach towards management of Madhumeha (DM) had shifted majorly from

holistic to drug oriented. And in the due course the indigenous food therapy seemed to liquidate. Nevertheless researches today again turn back to fetch for holistic perspectives, where diet (Ahar) and exercise (vihar) was found exceptional entities that could support the medicinal interventions in DM. According to the Global Burden of Disease Study carried out in 188 countries Diet was found leading contributor to morbidity and mortality worldwide.^[7] To cope up with it Medical nutrition therapy further became an integral component of diabetes management wherein various 'Diet plans' gained popularity in the markets, which is seen to lack in a very basic concept of 'wholesomeness'. On the other hand Ayurveda says that; in both the conditions, viz. health and disease, the wholesomeness and the unwholesomeness is a prime factor to be considered, as without proper diet, the use of any drug is futile.^[8] And thus understanding and implementing the concept of Pathya Aahar in daily practice is of prime importance. Since this Panchabhautik Sharir is nurtured by the Panchabhautik Aahar we take; the Shadrasas in the aahar are a blend of these panchamahabhutas and a Shadrasatmak aahar according to the Charak Samhita is said to promote a healthy life. Taking into consideration all the basic principles of Aahar and Madhumeha the present article will further review the importance of Shadrasatmak ahar and pathya in the management of Diabetes Mellitus.

MATERIAL AND METHODS

- A thorough literature search was done on the concept of Ahara (Dietetics) and Madhumeha (DM) from standard textbooks of Ayurveda and Nutrition,
- Research articles from different online journals of standard e-database like PubMed, PubMed Central, Google Scholar, etc were searched to get relevant research papers related to the manuscript.
- The collected data was judiciously studied and correlation is done logically i.e. by using *Yukti Pramana* (logical inferences) where ever necessary to put for a fair conclusion.

RESULTS

Review literature

Madhumeha (Diabetes Mellitus) in Ayurveda- Hetu/Etiology

All the Ayurved texts have elaborated common etiological factors of Prameha but Charaka narrated specific etiological factors of Madhumeha.^[9] Prameha Nidana is of 2 types^[10] – Sahaja (Hereditary) and Apathya Nimitaja (Acquired). Apathya Nimitaja (Acquired) is further of three types- 1. Kaphakara 2. Pittakara 3. Vatakara.

Amongst these, specific causes stated in Ayurveda include- Guru, Snigdha, Amla, Lavana, Navaanapana, excessive nidra, asyasukha, avyayama, chinta.^[11] These causes fairly resemble with causes of Diabetes Mellitus as explained by the modern science as - Insulin Resistance, Pancreatic beta-cell failure, Genetic predisposition, Environmental and dietary factors, metabolic disturbances and abnormalities of insulin secretion and action.^[12]

Rupa/Symptoms

A peculiar state of the body of a Madhumehi patient has 'bahudravashleshma dosha vishesha'.^[13] The patient also passes excessive sweet urine and exhibits sweetness all over the body.^[14] The samhitas have recorded an observations that, - 'if too many ants swarm around a spot of urine, one can state that person is a patient of Prameha (diabetes) of any variety'^[15], if neglected will finally lead to 'Madhumeha' and in due course become incurable.^[16]

Samprapti ghatak

Prameha is a result of complex interactions of bijadushti, dosha and dushya. Acharya Vagbhata describes the events in Samprapti of Madhumeha in two ways - 1. By the aggravation of vata caused by dhatu kshaya, 2. By the obstruction of vata caused by dosha covering it.^[17] Madhumeha which is caused by Dhatu kshaya reflects as thin and emaciated individual due to Ojakshya. In Margavaranjanya Madhumeha the vitiated Kapha and Meda obstruct the passage of Vata. The obstructed Vata is vitiated again and carries doshas to Basti and thus manifests as Madhumeha.

Management of Madhumeha

Aetiological factors (hetu) that play a major role in the diseases are fairly known since ages and thus it is the prime duty of a physician to detect the hetu and adopt appropriate chikitsa together with pathya aahar and vihar. The current article will however focus more on Pathya aahar. Thus stating the importance of 'Aahar' Acharya Charak narrated that - The life of all living things is food & the entire world seeks food. Complexion, clarity, good voice, long life, understanding, happiness, satisfaction, growth, strength & intelligence are the results of food we eat.^[18] According to Acharya Sushruta ; Aahar nourishes & gladdens the heart and increases the body strength. It improves memory, digestive power, and energy, strengthens mind and ojas & provides longevity of life.^[19]

As per the basic concepts of Ayurveda - any dravya (substance) be it ahar or aushadhi exhibits certain qualities viz- rasa, guna, veerya, vipak, prabhav through which it acts.

Amongst these Rasa is a special sense known through the Rasna or Rasanendriya (the tongue or taste buds). Ayurveda states six types of Rasa.^[20] - viz; Madhura- Sweet, Amla- Sour, Lavana- Salty, Katu- Pungent, Tikta- Bitter, Kashya- Astringent. Acharya Sushruta clarifies that different combination of Mahabhuta^[21] leads to the formation these Shadrasas. Also there is Anu-Rasa which is secondary taste perception, perceived after primary taste. The food we ingest is thus a permutation and combination of these shadrasas and determining their importance in dietetics Acharya Charak wisely stated in the Agrya Sangraha that daily consumption of only a single rasa leads to weakness whereas on the other side consumption of shadrasatmak aahar strengthens the body.^[22]

Pathya aahar is an integral part of the management of every disease, and so it is of Madhumeha. Ayurved texts have advised various pathya aahar elements that can be included in the aahar of a Madhumehi. A keen study of those various dravyas reveals that – no rasa is completely exempted from consumption but a balance of all the six rasas has wisely been put forth. The Pathya aahar in Diabetes in context to the composition to their rasas and action on the body is further elaborated in Table No.1.^[23]

Table No. 1: Pathya-aahar in Prameha.

Aahar varga		Rasa	Guna	Virya	Vipaka	Karmukata
Cereals	Yava (barley)	kashay madhur	laghu ruksha	sheeta	katu	Balavridhikar, Medoghna, mutraghna
	Godhuma (wheat)	madhur	guru snigdha	sheeta	madhur	Sandhankrut, Jeevaniya, Bruhan and Sthairyakrut
	Shyamaka Kodrava (grain variety)	kashay madhur	laghu	sheeta	madhur	Kapha and Pittahara
	Shashtishali (rice)	kashay	laghu snigdha	sheeta		Sthairyakrut, tridoshaghna
Pulses	Chanaka (Bengal gram)	madhur kashay	laghu	sheeta	madhur	Rukshata utpattikara
	Mudga (green gram)	kashay madhur	ruksha vishada	sheeta	katu	Kaphapittanashak
	Kulatha (horse gram)	kashay	ruksha	ushna	amla	kaphavatanashak
	Aadhaki (toordal)	Kashay madhur		sheeta	katu	pittashleshmahara
Taila	Nikumbha (Danti)	katu	Teekshna Ruksha, Guru	ushna	katu	shothhara, deepana yakriduttejaka, pittasaraka
	Ingudi (Balanitis aegyptiaca)	tikta madhur katu	laghu snigdha	ushna	katu	raktashodhak, deepana kaphanissaraka, mutrala

	Sarshapa (Mustard)	katu	teekshna	ushna	katu	vata kaphanashak
	Atasi (flax seeds)	madhur amla	guru snigdha	ushna	katu	grahi, kaphanissarak, hridya
Tikta Kashay Shak e.g.	Methica (fenugreek)	tikta	laghu snigdha	ushna	katu	Deepan, pachana, vedanahara
	Karavellaka (bitter gourd)	tikta katu	laghu	ushna	katu	Deepan, pachan, medonashak
	Patola (pointed gourd)	tikta	laghu snigdha	ushna	madhur	vedanasthapan
Mansa e.g.	Harina (deer flesh)	madhur	laghu	sheeta	madhur	mala-mutrabaddhakara
	Shashaka (rabbit)	kashay madhur	vishad ruksha	sheeta	katu	sannipathara, laghupaki
	Lava, titira	kashay madhur	laghu	sheeta	katu	agnivardhak,
Phala e.g.	Jambu (jamun)	kashay madhur	laghu ruksha	sheeta	katu	stambhan, deepan pachan, mutrasangrahaneeya
	Kapitha (bela phala)	madhur amla kashay	guru	sheeta	madhur amla katu	grahi, ruchya, lekhana
	Amalaki (amla)	amla madhur kashay	guru ruksha	sheeta	madhur	balya, rochana, deepana, anulomana

Table No. 2: Other food articles include.^[24]

Aahar varga	Dravya
liquids	Madhu, Madhudaka, Puran madya, ushnodak
food articles	Dhani (popcorn of jowar), Murmura (puffed rice), puran guda
spices	Maricha (pepper), Saindhava (rock salt), Hingu- (asafoetida), Haridra- (turmeric), Ardraka (ginger)

Table No. 3: Action of Shadrasas on the body.^[25]

RASA	MAHABHUTA	ACTION
MADHUR	prithvi + jala	saptadhatu – ojavardhak, truptikara, balya
AMLA	prithvi + teja	Ruchya, agnideepak, anulomak, hridya, truptikara
LAVAN	jala + teja	bhedana, srotoshodhan, Ruchya, kaphavishyandak
KATU	vayu + teja	mukha shuddhikara, grahi, krumighna, srotorodhhara
TIKTA	vayu + aakash	srotoshodhan, aruchinashak, kleda–meda–vasa–majja–lasika– puya – sweda – mutra –purisha–pitta–kapha shoshak
KASHAY	vayu + prithvi	samgrahi, kledaghna, sandhankara, ruksha

Contemporary scientific correlation

On the contrary the modern science assesses any food substance by the composition of carbohydrates, proteins, fats, vitamins and mineral elements into it. However many of the theories still go hand in hand as researches have proved that simple carbohydrates are broken

down easily and increases blood glucose levels fast. Hence simple sugars like table sugar, jam, cakes and pastries etc are contraindicated and complex carbohydrates like cereals, vegetables, are recommended at least to 50% of Diabetic diet.^[26] Recent studies suggest that Milk protein have the strongest Diabetogenic effect. The Caesin protein which contributes to around 80% of the milk is the slow digesting protein in milk and milk products triggering diabetes. Thus studies also support the Ayurvedic etiological concepts that, excessive use of milk and milk products may cause Diabetes. Besides this the modern science also determined the necessity of dietary interventions in the management of DM with medications. Since then various popular diet plans have come up with their promises of weight reduction and sugar control.

However, study shows a significant prevalence of micronutrient deficiency in popular diet plans, a condition shown to be scientifically linked to a higher risk of debilitating diseases including cancer, osteoporosis, heart disease, birth defects and overweight/obesity.^[27] In 2010, results of a study that looked at 146 South Asian Indians living in the United States suggested that those who followed a high-protein diet also had a higher risk of type 2 diabetes.^[28] Also W.H.O. identified one particular type of Diabetes as Malnutrition Related Diabetes Mellitus (MRDM), which is commonly found in India. Most of the emaciated young adults between 15 to 35 years age are affected with this. DM of this type can be correlated to Krisah Pramehi narrated in the Ayurvedic classics. According to Ayurveda this type of Prameha is as a result of starvation, excessive intake of ruksha(dry), tikta (bitter) and kashay (astringent) diet.

DISCUSSIONS

The most pragmatic aim of the statement put forth by *Vaidya Lolimbaraj* in *Vaidyajeewanam* that goes as '*Pathye Sati Gadartasya Kimauhsadh Nishevane*' symbolizes the importance of Pathya. It is crucial to remember that the food we eat can either be the safest and most powerful form of medicine or the slowest form of poison. And thus in the management of Madhumeha (DM) which is strongly termed as a 'Yapya Vyadhi', aahar (diet) plays a key role accompanying medicines and vihar (exercise). The Ayurved texts reveal a systematic list of ahar dravya indicated as pathya in Madhumeha. These foods include old roasted cereals like barley, jawar, ragi; pulses like mung dal, horsegram, tur dal, bittergourd, patol, seeds of kamala, jamun, amla, fig, puran madhu, meat of animals who live in dry region etc. A keen

study of these dravyas indicate that they all exhibit various rasa within them and that the combination of all these foods would then constitute a shadrasatmak ahar.

Kasyapa has mentioned the order of rasa to be administered in the diseases caused by doshas i.e., nija vyadhis. Applying this theory in the planning of diet for a Madhumehi patient who exhibits bahudravashleshma awastha; the kaphaj vyadhi karma i.e. katu tikta kashaya shall be applied. Katu rasa initially will destroy pichhilata and gauravta of kapha by virtue of its laghu and vishada guna. It will also boost the agni and decrease the production of ama and kapha dosha (e.g. maricha, katu tikta shaka). Tikta rasa will help remove sweetness in the mouth and dries the kapha (shoshan) due to its ruksha guna (e.g. karavellak). Kashay rasa will dry away the sneha of kapha by solidifying it (e.g. jamun). Eventually to prevent any excessive effects of these rasas a balance amount of other three i.e. Madhur, Amla and Lavan is also important to nourish the body at the same time.

Aacharya Charak has described the constituents of wholesome daily diet in Sutrasthan. Good & fine rice like 'Sastika' & 'Sali'(red rice), green gram, rock salt, amla, rain water, milk, ghee, flesh of animals living in forest(jangal), & honey should be adopted in diet generally.^[29] The diet advised above is a balanced mixture of all the six rasas. And thus even in sate of Madhumeha - the Shadrasas in the pathya ahar mentioned in Madhumeha probably would act in the following manner also in relation to the modern nutritional science.

Madhur rasa – Not directly in the form of crude sugar or simple sugars, since they are easily broken down and raise the blood sugar levels quickly, instead Yava (Barley) which is high in fiber content among all relative grains is highly recommended in Diabetic diet in different forms. Old rice varieties, Mudga in the form of Yusha, madhu, puran guda, mansa, jamun etc. despite of being Madhur rasa nourishes and strengthens the sapta dhatus.

Amla rasa – When taken in a balanced proportion amla rasa acts as agnideepan and anuloman. The best example is amla which acts as a rasayan.

Lavan rasa- Saindhav (rock salt) represents the mineral content of food. Among all salts, saindhav is preferred because it possesses cooling property as compared to others. It adds taste to every food it's mixed with and thus makes the food complete and palatable.

Katu rasa – The spices and condiments advised exhibit katu rasa which helps pacify the increased kapha dosha, triggers secretions of glands, helps in lekhana of the leena doshas when taken in a balanced quantity.

Tikta rasa – It is the only rasa which helps restore the prakrut aakash in the body channels (srotas). The bitter leaves and vegetables recommended have now proved for delayed absorption thus less rise of blood glucose after meal. Karavellak specifically is described as mehahar by Bhavprakash.

Kashaya rasa – Being kledanashak kashay rasa together with tikta rasa clears the obstructions in the body channels and thus helps regulating tridoshas.

The modern science also suggests the same despite of the different parameters. Contemporary research supports the use of fiber content rich diets. Since it is not absorbed or metabolized in small intestine thus reaches large intestine relatively unchanged. This fiber content delays the movement of food and decreases after blood glucose levels. Fiber content also supports digestive system. It has also known to improve the ability of cells to receive and utilize insulin. And undoubtedly the foods described in Madhumeha are all rich sources of fibers. However when planning a diet for a particular Madhumehi patients his prakruti, agni and dosha sthiti all need to be taken into due consideration. And accordingly a wholesome diet enriched with all six tastes in their planned proportions administered at the right time shall undoubtedly contribute in the controlling Diabetes Mellitus.

CONCLUSION

Ati Sarvatra Varjayet is a wisely narrated statement in the Indian literature. And Ayurveda promotes it in the form of Pathya. This is the reason very often; traditional medicinal systems are criticized for their strict dietary restrictions and people are therefore seen chasing crash diet courses. Nevertheless the locally cultivated foods are always packed with wholesomeness in comparison with the synthetically prepared or derived shakes and diets. And the very basic property of any food which we come into contact at first is the taste (rasa). The six rasas in their original form thus are an integral and inseparable part of our diets. Craze and addictions to faulty eating practices have come up with grave side effects, one of which is diabetes mellitus (Madhumeha). However, from the above study it can be concluded that; Ayurveda still upholds a remedy wherein atisevan and viruddha samyog which has lead

to conditions like these can efficiently be controlled, provided a balanced consumption of all of the shadrasas are advised and adopted judiciously.

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