

A CONTEMPORARY SCIENTIFIC SUPPORT ON ROLE OF ANCIENT AYURVEDIC DIET AND CONCEPTS IN DIABETES MELLITUS (MADHUMEHA)

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Received : 25-11-2005

Accepted : 22-12-2005

ABSTRACT

Diabetes Mellitus (*Madhumeha*) is a well-known clinical syndrome since antiquity. First time the role of Diet in the prevention, etiology and treatment of Diabetes was mentioned in Ayurveda under the heading of *Prameha* and *Madumeha*. Caraka Samhita, Susruta Samhita and other Ayurvedic classics have appropriate descriptions on the role of diet, habits and life style in *Prameha* and *Madhumeha*, which is akin to Diabetes. Recent modern (contemporary) Researches and statistics support these descriptions. Aim of this article is to alarm people regarding role of diet and lifestyle in Diabetes through Ayurvedic approach and contemporary scientific correlation with support of clinical and statistical data.

INTRODUCTION:

The description available in *Kaushika sutra* of *Atharvaveda* is considered as the first reference related to Diabetes, by the name of 'ASRAVA' (*Athrvava veda*; 1-2-4; 2-2-1,2,3,4; 6-44). *Sayana* and *Kesavabhata*, the well-known commentators of the sacred Vedas interpret *Asrava* as *mutratisara* (excessive urination) Whitney (1962) interpreted this as 'flux' and Giffith (1962) as 'morbid flow'. The word *Prameha* was first time mentioned in Charaka Samhita, which is akin to Diabetes. The word *Prameha* means "to flow", which is derived from *Sanskrit* root "Mih-Sechane". *Meha* literarily means to micturate. The verbal *Mehanam* signifies urination. The prefix 'Pra' means excess both in quantity and frequency. According to Susruta and Vagbhata *Prameha* is characterized by copious flow of cloudy or turbid urine.

The disease *Madhumeha* may be taken as Diabetes mellitus of Modern science. In some contexts the word *Prameha* has also been used as synonym to *Madhumeha* and vice versa. Majority of descriptions like etiology, prognosis, treatments of *Prameha* can be taken for the disease *Madhumeha* as the later is considered one of the types of *Prameha*. Even Shivadasen, the commentator of Charaka Samhita, supports this on his commentary on Carak Sutrastham 7/80.

According to I.C.M.R. report about 34 million Diabetic patients present in India. As per W.H.O. statistics in India, Diabetic population is increasing rapidly. Research in India suggests that, though earlier Indians were least prone to Diabetes, now they are more prone than any other population in the world. The main reasons are improvement

in living conditions, increasingly following western dietary habits, which are unsuited to our environment (Diabetes-India by Paturi Vishnu Priyarao et al.). This alarming condition can also be seen in many developing countries. This stresses the role of diet and life style in etiology, prevention and treatment of Diabetes.

Studies in India proved that average life expectancy in Diabetics is just 8 years. Indians are getting diabetes on an average around 10 years earlier and in migrated Indians these incidences are 4 times higher. A broad understanding and adoption of Ayurvedic concepts and dietary restrictions may increase life expectancy of Diabetic population. It may also be useful in preventing Diabetes.

According to Ayurveda the causes (Dietary and Life style) relating to Diabetes:

1. In the mythological origin of *Prameha* it is said that, the disease is originated in Human life after taking *Havisha* a special rich food made from milk, sugar and rice offered in *yajna* of Dakshaprajapati. (Ref. Ca.Ni. 8/11). This indicates that taking heavy foods similar to *Havisha* can cause Diabetes.
2. In Ca.Chi 6/4 in the etiology of Diabetes so many habits and diets were mentioned. Those are habituated to sitting on soft cushions for long periods, sleeping for long periods, Excessive use of curds, flesh of animals of Domestic, Aquatic and Marshy places, use of Milk and Milk preparations, new water (water of rivers and tanks during rains and floods), new grains, puddings made of jaggery /sugar and using more similar factors which increase *Kapha Dosh*a (these factors may be considered as

heavy diets, fatty foods which increase body weight, cholesterol and causes obesity etc).

3. In Ca.su.17/80, A.H.Ni 10/12,13 along with above dietary causes; the foods, drinks which increases *Medas* (Edipose tissue), *Mutra* (urine), and diet which are sweet, sour, salty, fatty, not easily digestible, slimy, cold, drinks like beer and molasses were also considered as the causative factors. In another context it is said that excessive intake of dry substances (*Ruksha ahara*), light food (*Laghu Ahara*), excessive use of pungent, bitter, cool items excessive fasting etc increases *Vata* and also causes *Mahdumeha* (Diabetes) (Ca.Ni 4/36)

According to Ayurveda mainly there are two types of Diabetic persons. One is *Sthula* (obese) another one *Krisah* (lean and thin). The etiology and treatment of these two types are different.

Role of Diet in diabetic susceptible persons:

“*Mandotsahamatisthulamatisnigdham
Mhaashanam!
Mrutyuh prameharupena kshipramadaya
gacchati*” - Ca.Ni. 4/51.

Death immediately comes in the form of *Prameha* (Diabetes) to those who are less enthusiastic, over corpulent, over unctuous and gluttons.

Role of Diet in Prevention of Diabetes:

“*Yastvaharam shareerasya
Dhatusamyakaram Narah
sevate vividhaschanyascheshtah sa
sukhamasnute.....CaNi 4/52*

The persons who take the diet and do the activities, which are beneficial to all *Dhatus*, will never suffer from Diabetes (*Prameha*).

It can be presumed that, Diabetes is mainly caused by heavy food, which increases *Kapha*, *Medas* etc according to Ayurveda. But it also emphasized that, excessive starvation, in take of dry substances will also cause another variety of *Prameha* (Diabetes). Thus Ayurveda recommended wholesome diet suitable to all *Dhatus* (Tissues of body).

“*Grudhnupabhyavahareshu
sranachankramanadvisham
Prameha kshipramabhyeti
needadrumivandaja*” –Ch-Ni-4/50

Ayurveda also says like bird reaches its nest, on the tree, in the same way *Prameha* (Diabetes) reaches the person who eats more, unhygienic (even by not taking bath) and lazy.

Contemporary scientific correlation:

1. Many Researches proved that Diabetes is increasing day by day due to change of dietary habits. Especially in India and other developing countries, it is due to excessive intake of fats and heavy items. Now Research support the slogan of “No oils, No fats, No food fads” for the prevention of Diabetes (Diabetes-India by Vishnu Priya Rao et al.). This supports the Ayurvedic view on the role of fats in Diabetes. Ayurvedic literature stress that fatty items, marshy animals, aquatic animals, which are heavy with fats, Milk items, are causes of Diabetes.
2. Latest Research revealed that, to prevent Diabetes one should avoid foods, which causes rise in Blood sugar levels. It has also been proved that, people who store

fats primarily in their bellies with high Blood Triglycerides, Low levels of good H.D.L should restrict bakery products, fruit juices, sugar added foods to prevent Diabetes (Gabe Mirkin Prevention of diabetes). This also proves the Ayurvedic etiology, which stressed to avoid sugar, sugar items, jaggery, molasses, beer etc.

3. The study of Barker and his colleagues (in 5654 men) and Hates and his colleagues proved that, low birth rate is one of the causes of Diabetes. It also supports the Ayurvedic concept that, wholesome diet can prevent Diabetes. So wholesome diet should be given to pregnant mother to restrict Diabetes. (A.K. Sharma et al. 1993)
4. Recent studies suggest that Milk protein have the strongest Diabetogenic effect. Especially if Cow or Buffalo Milk is introduced before the age of 2-3 months is associated with presence of antibodies to bovine serum albumin and increase the risk of IDDM. In some cases bovine serum albumin may cross-react with a protein (P.69), which can be induced on pancreatic islet beta cell membrane by the inflammatory mediator interferon gamma. This study also supports the Ayurvedic etiology concepts that, Milk and Milk products excessive use may cause Diabetes.
5. W.H.O. identified one particular type of Diabetes as Malnutrition Related Diabetes Mellitus (MRDM), which is common in India. Most of lean and thin young adults between 15 to 35 years age are affected with the diabetes, which is often reported in Kerala and Orissa states. This type can be correlated to *Krisah Pramehi* of Ayurvedic classics. According to Ayurveda this type of *Prameha* is the result of starvation,

excessive intake of dry (*Ruksha*), bitter (*Tikta*) and astringent (*Kashaya*) diet. Ayurveda also suggested the diet, which is beneficial to all *Dhatus* for prevention of Diabetes. Above modern Research confirm the theories of Ayurveda.

6. Research proved that, infections like Mumps; Measles, hepatitis, infectious mononucleosis, Consacki virus, Encephalomyocarditis, Rubella etc may cause Diabetes. Studies also suggest that, use of new water of rivers, tanks causes so many infectious diseases including viral infections. Probably this was observed and advised not to take new water etc. that can cause viral infections and ultimately Diabetes.
7. In a recent study in Northern Europe and North America Ice lands unusual rise of IDDM in children born in month of October was found. This was found due to high Nitrosamine content of smoked mutton traditionally used at Christmas. By Rat experiments it was proved that, this effect was mediated via the parental germ cell rather than by direct effect on pancreatic beta cells of fetus.

The Ayurvedic literature cautioned that, Mutton of marshy lands (like ice lands) might cause *Prameha* hence to be restricted. Anyhow further confirmative Research is needed.

8. According to latest Research studies risk of getting Diabetes can be reduced by regular exercises. Obesity increases Insulin resistance and causes Diabetes. Though Ayurveda cautions sedentary life styles as a factor for Diabetes it also cautions excessive starvation, Excessive exercises which may also lead to another variety of Diabetes. This may be either Type-I or Malnutrition Diabetes. In

contemporary scientific world this differentiation can be distinguished by BMI (Body Mass Index). It is said if BMI is more than 25, one should lose weight to prevent Diabetes.

Recommended diet (*Pathya*) and Exercises for *Prameha rogi* (Diabetic Patient) in Ayurvedic Texts (Ref. Su.chi11/6,11&12, Yogaratnakar *Prameha chi*.)

Purana Shali (old rice), *Shashtika Shali* (rice which crops with in 60 days), *Yava* (Barley (*Hardium vulgare*)), *Godhuma* (wheat), *Kodrava* (grain variety -*Paspolum scrobiculatum*) *Uddalaka* (AC. to Dhanvantari Nighantu forest variety of *Kodrava*).

Adhaki (red gram-*Cajamus cajan*), *Kuluttha* (horse gram) and *Mudga* (green gram) should be taken with bitter and astringent leafy vegetables.

Recommended oils are *Nikumba* (*Danti-Baliospernum montanum*), *Ingudi* (*Balanitis egyptica*), *Atasi* (*Linum usitatisimum*), *Sarshapa* (*Mustard*).

Fat free meats of animals, which are having anti diuretic properties (*Badda Mutrata*), Forest animals, forest birds are recommended.

Navapatola (young *Tricosanthus dioica*), Young vegetables variety of *Banana*, *Tanduleyaka* (*Choulayee-Amaranthus spinosus*), *Vastukam* (*Bathuva-(H) Chakravarti kura* (Telugu)) , *Matsyakhshi* (*Ponnaganti kura*(Tel) *Alternanthera sessilis*) all bitter vegetables (*Tiktasakam*) like *Methica* (*Methi-Fenugruk leaves*), *Karavellaka* (*Bitter gourd*), *Maricha* (*Pepper*), *Saindava lavana* (*Rock salt*).

In Ayurveda obese Diabetic persons (*Sthulah Pramehi*) are advised to do exercises like wrestling, horse riding, vigorous walking etc but the thin or weak Diabetic (*Krusah Pramehi*) persons are advised to protect their strength and not to do exercises.

According to Ayurveda Contraindicated diet (*Apathya*): (Ref Su.chi11/6, Yogaratnakar *Prameha chi.*)

Alcohols like *Sauveera*, *Sukta*, *Maireya* and *Sura*, Milk, Oil, Ghee, Sugarcane juice or Sugar, Jaggery, Alkaline, Curd, Grain Cakes (*Pishtha*), Sour Substances, Sweet Drinks (*Panakas*), and Meats of Domestic, Aquatic and Swamp animals.

Contemporary scientific correlation:

(Ref. Diabetes causes, prevention and treatment by Ada P. Khan, Diet and Diabetes by J.Anderson, P.Kendall and S.perryman, Diabetic Bhoj by Paturi Vishnu Priya Rao).

1. Researches proved that simple carbohydrates are broken down easily and increases blood glucose levels fast. Hence simple sugars like table sugar, honey, candy, jam, cakes and pastries etc are contraindicated and complex carbohydrates like cereals, vegetables, bread are recommended at least to 50% of Diabetic diet.

In Ayurveda the indicated diet contains majority of complex carbohydrate rich diet. Simple

carbohydrates like sugar, sugar made items; jaggery, *Panakas* (sweet drinks), grain cakes etc

are also contraindicated in Ayurvedic classics.

2. Modern Research supports use of fiber content rich diets. Fiber content is not absorbed or

metabolized in small intestine and reaches large intestine relatively unchanged. This fiber

content slows the movement of food and decreases after blood glucose levels. Fiber content

also supports digestive system. Recent studies also suggest that, fiber content also improve

the ability of cells to receive and utilize insulin. Examples of Fiber food are whole grams,

majority of fresh fruits, fresh vegetables, leafy vegetables legumes etc.

In Ayurveda fiber rich food like green vegetables, for example, *Patola*, *Tanduleyakam*,

Mastyakshi etc are indicated. *Yava* (Barley) which is high in fiber content (4 gm in 100 gms)

among all relative grains is highly recommended in Diabetic diet in different forms. Old rice

varieties, *Mudga* (green gram) usage as *Yusha* suggests that comparatively whole green gram

has more fiber content (4.1) than green gram Dal (0.8). In Ayurveda bitter leaves and

vegetables are recommended which now proved for delayed absorption thus less rise of

blood glucose after meal.

3. Modern Research suggests Diabetics to avoid fruits with high simple sugars like Banana,

Sapota (Cheekoo), Grapes, and Mango etc. but suggest Orange, Watermelon, and Apple

Guava etc. Ayurveda recommends *Jambu* (*Syzigium cumini*) *Kapitha* (*Feronia limonia*),

Amlaki (*Emblica officinalis*) etc fruits.

4. Modern Researches stress to avoid fatty meats including Egg-Yolk, Liver, and Kidney etc,

but suggest Tandoori, Research also contraindicates diet like Ghee, Butter, fried preparations

like *Poori*, *Parata*, Milk, Milk Products, Cream, *Khoya*, Curd, Cheese etc.

In Ayurveda fatty animals like domestic, aquatic and marshy lands are contraindicated and

recommended forest animals and birds meat, which is relatively fat free. In Ayurvedic

Prameha (Diabetes) etiology and contraindicated diet- majority of above items were

mentioned. Even it has also been mentioned that similar to these preparation which increases

Kapha should also be avoided.

5. Latest studies cautions, Diabetics not to use oils except as cooking media. In Ayurvedic

literature pungent oils like *Nikumba*, *Sarshapa*, etc are indicated. Research should be done in

the role of these oils in Diabetes.

6. Earlier exercise was considered as a major tool to control Diabetes to certain extent and it

was recommended to each and every Diabetic patient. But now as it is mentioned in

Ayurveda that, *Krisah Pramehis* are contra indicated exercise and advised to protect their

strength, in the same way in modern medicine, exercise was restricted to some persons who

are mainly under insulin deficiency & Type- I Diabetics. It is further said that, in type I

(insulin-dependent) Diabetes, there are risks of hypoglycemia during or after exercise or of

worsening metabolic control if insulin deficiency is present. Type - II (non-insulin-dependent)

Diabetic patients treated with Sulfonylureas are also at some increased risk of developing

hypoglycemia during or after exercise. Exercise in other hand may even lead to ketosis in the

person whose Diabetes is poorly controlled or who is not producing enough insulin.

CONCLUSION:

Ayurvedic literature on Diabetes under the heading of *Prameha* and *Madhumeha* is ancient India heritage, which are most scientific and time tested. Most of Ayurvedic concepts including diet, Lifestyle and Habits were proved scientific. It is time to highlight this ancient Indian wisdom at global level and make the scholars aware about the depth of knowledge and foresight of ancient Indian Ayurvedic scholars. Let our present Ayurvedic scholars, Research organizations aim to prove the role of Ayurvedic dietary concepts and Ayurvedic life style in Diabetes with all possible modern correlations and clinical studies for the prevention of Diabetes and betterment of Diabetic sufferers.

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