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YAVA – A BOON FOOD TO MADHUMEHI VIS-À-VIS TYPE 2 DIABETES MELLITUS

Dr. Vijayalakshmi S.*[1] and Dr. Abdul Khader[2]

[1]Associate Professor and PhD Scholar, Department of Kayachikitsa,
[2]Professor and PhD Guide, Department of Kayachikitsa,
Sri Kalabyraveshwara Swamy Ayurvedic Medical College Hospital and Research Centre, Vijayanagar, Bangalore-560104.

***Corresponding Author: Dr. Vijayalakshmi S.**
Associate Professor and PhD Scholar, Department of Kayachikitsa, Sri Kalabyraveshwara Swamy Ayurvedic Medical College Hospital and Research Centre, Vijayanagar, Bangalore-560104.

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ABSTRACT

Ayurveda has given utmost importance to Pathya in maintaining the healthy state and also in the management of diseases like Prameha. As the incidence and prevalence of diabetes is continuously rising warrants an effective strategy for its prevention and control. As told by Acharya Sushruta Apathyanimittaja Madhumeha which simulates with type 2 Diabetes mellitus is caused due to apathya ahara and vihara. Hence nidana parivarjana and pathya palana plays an important role in correcting the samprapti and preventing its reccurance. This article highlights the importance of yava pradhana ahara in Madhumeha and scientific evidences which supports the mechanism of yava which helps in the prevention and management of Prameha.

KEYWORDS: Madhumeha, Yava, Type2 Diabetes mellitus, Barley.

INTRODUCTION

Diabetes Mellitus is a heterogeneous group of metabolic disorder characterized by variable degrees of insulin resistance, impaired insulin secretion, and increased hepatic glucose production presenting with the common feature of chronic hyperglycaemia due to disturbance of carbohydrate, fat and protein metabolism.

Prevalence of Type 2 Diabetes mellitus(T2DM) has risen dramatically over the years due to the increased calorie consumption and sedentary life-style that has been indisputably linked to development of obesity and T2DM. The imbalance between energy intake and expenditure is the most important underlying pathology and is regulated by complex interaction between multiple genes and environmental factors. Dietary culprits chiefly include processed, energy-dense foods characterized by high sugar and fat. Micronutrient imbalances that include intake of diet low in Vitamin D, Vitamin B12 and increased body iron stores have also been implicated in the pathogenesis of T2DM. The lack of physical activity due to increased preference to access motorized transport, escalators and elevators, professions which entail little physical activity and a sedentary posturing increase T2DM risk. Other environmental factors such as sleep deprivation, socioeconomic status has also shown to have a bearing on development of T2DM. The disease is most often suspected to be due to defects both at the level of insulin resistance and insulin secretion.

The ideal management for diabetes would allow the patient to lead a completely normal life, to remain not only symptom-free but in good health, to achieve a normal metabolic state and to escape the long-term complications of diabetes.

The various treatment options according to modern science include

1. Diet and Lifestyle modifications
2. Diet + Oral hypoglycaemics
3. Diet and Insulin
4. Diet + OHA + Insulin

The American Diabetes Association uses the term "Lifestyle Management" to refer to aspects of diabetes care, including self-management education and support, Nutrition therapy and psychosocial care.

Nutrition Therapy is an important component in the management of Diabetes which describe the optimal coordination of caloric intake with other aspects of diabetes therapy. Recent recommendations for the dietary management of diabetes mellitus states that diet needs to be individualized, so that there is need to control glucose and lipid in diabetics. In a majority of individuals with diabetes, this is best done with a diet that is low in fat and high in complex carbohydrate, particularly whole grain cereals. Cereals such as barley are particularly high in the soluble fiber β-glucan, a 50% reduction in glycemic peak can be achieved with a

concentration of 10% β-glucan in a cereal food. A significant lowering of serum cholesterol concentrations can also be anticipated with the daily consumption of ≥ 3 gm of β-glucan.

Ayurveda has given utmost importance to Pathya in maintaining the healthy state and also in the management of diseases like Prameha. Acharya Charaka has clearly mentioned that the individuals who follows a dietary regimen and lifestyle that brings or maintain saamyata in dosha and dhatus can have a healthy and happy life.[1]

As mentioned by Acharya Sushruta santarpana ahara rasa is mainly responsible for the manifestation of diseases such as Prameha.[2] Hence pathya ahara plays an important role in preventing and managing Prameha. One of the most indicated ahara dravya in prameha is Yava.

Description about Yava

Cereals and their components are the vital foods, largely used because of the energy that they supply, owing to their high carbohydrate contents. Barley is an important grain and an extensively used cereal, because of its dietary health benefits, availability and cost effectiveness. It is considered as fourth most important crop in the world after wheat, maize & rice. Other than playing its part as a major food crop, it is also used in beverages & beers and used as a major diet for major diseases.

Yava (Hordeum vulgare) is a type of Shuka dhanya which is mentioned in all the samhitas as a pathya in Prameha. Yava can be used in various forms of preparations like medicinal and dietary preparations.

Acharya Charaka has mentioned Yava has ruksha, with aguru guna, sheeta veerya, Madhura kashayarasa and increases vata and pureesha. Promotes stability, strength and is effective in treating the diseases caused due to vikruta shleshma. Acharya Sushruta has highlighted that yava has katuvipaka and does kapha pitta shamana. It is indicated as pathya in vrana like that of tila. It induces alpamutrata and hence good for prameha rogi. In avarana conditions, it helps in removing avarana caused by medas and hence does srotoshodhana. In niravarana conditions due to rookshaguna, sheetaveerya, Kashaya rasa and katuvipaka it is naativardhaka and naatipratyaneekaha. It induces stability, and improves agni, intelligence, svara and varna. It imparts vilekhana action in sthula purusha. It does shonita and pitta prasadana. In Ashtanga sangraha yava is mentioned to have guru, saraguna and is said to be vrushya and imparts stability. It is helpful in alleviating diseases caused by vikruta pitta, kapha, mutra vikaras, medovikaras, peenasa, shwasa, kasa, urusthambha kantagata rogas like galaganda etc., and twakvikaras like kushta etc.

Raw Yava provides 352 kcal of energy/100g. It is a rich source of essential nutrients including fat (1%), carbohydrates (78%), protein (10%), dietary fibers, vitamin B (niacin), vitamin B6, and also several dietary minerals such as manganese (63%) and phosphorous (32%). Barley consists of starch, sugars, fats, protein, vitamins, minerals etc. A major component of carbohydrate is a soluble dietary fibre.[3]

Barley is known for its higher content of dietary fiber such as β-glucan, that helps to decrease the diabetes mellitus. Barley leaves also have higher antioxidant activity that might be valuable in metabolic syndrome prevention or therapy, as well as diseases produced by oxidative stress. This property is mostly accredited to saponarin, a flavonoid with powerful antioxidant activity found in young green barley leaves. Barley is a rich source of magnesium that acts as a co-factor for various enzymes, comprising those involved in glucose metabolism and insulin secretion. Barely is a very good source of fibers, selenium, phosphorus and copper. It was found that regular ingestion of grains lowered the risk of type II diabetes by lowering blood sugar level and also provided with various health benefits.

Classical recommendation of Yava to select freshly harvested in krusha Pramehi as it is anabhishyandi, one year old yava in sthula Pramehi.

Preparations of Yava in Prameha

Food of the patient suffering from madhumeha should contain Yava predominantly.

In Samhitas various preparations of Yava which are beneficial in prameha are described like

1. He should take various edible preparations of Yava mixed with honey like Mantha, Churna, Odana etc., (Su Chi 6/21), (A H Chi, 12/14), (GN 2.30)
2. Along with jala the Roasted Yavachurna should be mixed and taken for one month which cures Prameha. (BP Mad38-61)
3. Manthas (flour of different types of corn mixed with water), kashayas (decoctions), barley powder, linctus prepared of barley and other light- eatables (C Chi 6/18)
4. Yavaudana (cooked barley/Yavanna) without adding any unctuous articles, vatya (barley porridge/ Yavamanda), saktu (roasted flour of Yava) and apupa (pancakes/ Chapati), Dhana (fried Yava) mixed with the meat soup of gallinaceous and pecker birds and animals inhabiting arid land (C Chi 6/19).
5. Various food recipes of yava with honey are indicated in kapha dominant prameha(C Chi 6/21)
6. Barley soaked in the decoction of triphala and kept overnight should be mixed with honey. It is a refreshing or tarpaka diet. It should be taken by the patient suffering from prameha regularly to overcome the disease. Barley should be soaked separately with each of decoctions prescribed for the treatment of kaphaja prameha and taken by the

patient in the form of saktu, apupa, dhana and other types of eatables along with jaggery (C Chi 6/22).

7. Various eatables prepared from the barley or bamboo seed or wheat previously eaten by asses, horses, cows, swans and deer and collected from their dung should be given to the patient suffering from Prameha (C Chi 6/24).
8. Two recipes of decoction are described for the treatment of all varieties of prameha such as darvi, surahva, triphala and musta mixed with honey or haridra along with the juice of amalaki can be used for the impregnation of barley and for the preparation of different kinds of food and drinks (C Chi 6/26).
9. Persons habitually taking roasted barley, dry corn-flour, mudga and amalaka do not suffer from prameha, shvitra, mutrakrucchra and kaphaja kushtha (C Chi 6/48).

DISCUSSION

As told by Acharya Kashyapa no medicine equivalent to healthy diet.[4] In Prameha yava pradhana ahara is been advised in all the classics. Among the dasha dushyas, except pitta, pavana and rakta all others are pruthvi and jala mahabhuta predominat which gives a hint that vayu, akasha and agni mahabhuta pradhana dravyas like yava is needed. Except vata other dosha and dushyas can be managed by yava. Prameha patients are advised to take laghu bhojana and hence Yava being attributed with aguru or laghu guna is said to the best one. Yava has to be administered based on doshas, deha of patient etc., and can fix the matra, kala and processing to be made according to it.[5] In the management of Prameha, ahara or aushadha which has the three characters such as Medoghna to reduce etiological factors, which brings about baddha mutra to reduce the signs and symptoms and that which helps in doing sama sarveshu dhatushu has to be selected. Yava has the ability to do all these functions and hence it is given more emphasis in Prameha chikitsa. Barley has lot of micro nutrients including Manganese which is a major component of barley has antidiabetic property. Barley alone has so many properties like antidiabetic, antioxidant and anti-inflammation. Beta cells reduce its function because of the impact of free radicals and chronic inflammation → reduced insulin secretion→ reduced glucose uptake → reduced energy. Barley has high carbohydrates in the form of poly saccharides in the form of insoluble fibres. Major part of barley is carbohydrates in the form of soluble and insoluble fibres.

Various research studies have shown that when whole barley is consumed it interacts with the enzymes of intestine and lowers serum cholesterol and attenuates the postprandial glycemic response. Fermentation of beta glucan in the colon reduce the production of short chain fatty acids, which prevents cholesterol biosynthesis. The hypocholesterolaemic effect of β-glucan in barley is due to the increased bile acid synthesis,[6] and improved bowel health by inhibited feed intake and increased cecal fermentation.[7] There are good and bad bacteria in intestines. Beta- glucan will help to maintain the normalcy of good bacteria like Prevotella capri in intestines which inhibits the growth of bad bacteria. β-glucan will help to regulate harmonal secretion and maintain metabolism and prevents chronic low-grade inflammation so that stress induced DM with free radicals causing inflammation will be checked by whole barley consumption. Chronic consumption of barley β-glucans can decrease fatty liver by increasing small intestinal contents viscosity and improving glucose, lower glycated hemoglobin and relative kidney weights,[8] strengthen the angiogenic ability of reactive oxygen species-exposed endothelial cells for preventing heart disease,[9] and accelerate the wound closure by promoting the migration and proliferation of human dermal fibroblasts.[10]

CONCLUSION

As mentioned by Acharya Charaka various food recipes prepared with yava as predominant food is to be advised in Prameha patients. With all the evidences, yava can be considered as a good Pathyaahara for prevention and management of Prameha. As ayurveda emphasizes on Nidana parivajana the first line of treatment should be resorting to pathya ahara suitable in that particular condition. Yava possesses properties which can help in breaking down the Samprapti of Prameha. Barley is rich source of protein, soluble fibers and micronutrients. The soluble fiber β-glucan in Barley is effective in reducing rate of gastric emptying, reduces appetite and carbohydrate absorption. Low glycemic index of Barley decreases need of antihyperglycemic medications and helps in reducing dose of these medications. Both in experimental animals and clinical research studies, Barley and its various products have been described to have preventive as well as therapeutic antidiabetic properties. All properties of Yava are helpful in lowering and maintaining impaired lipid levels and blood glucose level. Hence Yava can be used in prevention as well as management of Diabetes mellitus. Yava helps in preventing or delaying the onset of type 2 DM in high-risk individuals such as obese or with prediabetes by promoting weight reduction, improves glycaemic control and helps in managing diabetes-related complications. Hence all the research reports and conceptual analysis strongly suggest that Yava should be the predominant food article in Diabetic menu.

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