The Clinical Study Of Dietary Management Of NIDDM With Yava(Barley)

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Abstract:
Ayurveda has got three fold management of all diseases i.e. ahar (diet), (exercise) and Aushadha (drug). History of dietetics is very old, which is essential factor for the maintenance of life. It is described in the texts that the intake of proper diet creates advantageous effect and improper diet creates harmful effect in human. According to ayurveda as wellas modern science diet plays an important role in etiopathogenesis of diseases. wholesome and unwholesome diet are responsible for happiness and misery. Disease specific dietary measures are the unique concept of chikitsa. In ayurveda yava is mentioned as a specific diet in diabetes. NIDDM. (type 2) which is the most prevalent NCD in todays life. Ruksha santarpan draya as yava is specifically advised by charakacharya in prameha chikitsa. The important pharmacological actions of yavadrate consumption, is effect on Carbohydrate Metabolism, The role of micronutrients of yava (barley) in diabetic health has now turned out to be an effective mean to avoid as well as to control prameha (Diabetes Mellitus). A properly selected diet plan is important in disease management. The present paper aims at putting forward the importance of yava in the dietary management of NIDDM.

Key words: Yava, Hordeum vulgare, Barley, NIDDM, dietary management.

INTRODUCTION:
Diabetes Mellitus is the most common NCD worldwide and its prevalence is increasing day by day.
The drastic disease diabetes can be controlled by giving comprehensive attention to Ahar (Diet). Nowadays the modern medical scientists are also following the same approach. The discovery of OHA and insulin have been controlling the diabetes, to a big extent, but have many side effects. So the role of Ahar (Diet) and vihar (Exercise) cannot be underrated. Yava (Hordeum vulgare) is one of the specific diet explained in prameha i.e. Diabetes treatment. Among all pathya, yava is more highlighted by charakacharyas by telling “yavapradhanastubhavet pramehi” The different preparations of yava are ex-plainled in the text like Yavaud (yavanna), Vatya( yavamanda), Yava Saktu (flour of yava), Apoopa ( chapatti, poori), Dhana (fried yava).

Approximately 50% of the new cases of diabetes can be controlled by dietary management which aims to prevent diabetic microangiopathy by avoiding sustained hyperglycaemia. To reduce the incidence of atherosclerosis by lowering blood lipids, maintaining an ideal body weight and avoiding hyperinsulinemia.

Need of study

Type-2 diabetes mellitus is one of the most prevalent NCD, life style disorders in today's era. Ayurveda, the science of life mentions Prameha which resembles NIDDM in terms of etiology, pathogenesis and presentation of the disease. Therefore, the treatment by dietary management
prescribed in Ayurveda for Prameha has been adopted in the present study, aiming to counteract the complex metabolic derangement of NIDDM and to explore the potential of dietary management by yava in the treatment of NIDDM.

**Aim**

_The study of dietary management of NIDDM with yava(Barley)_

**Objects**

1. To Study yava (Barley) and its role in NIDDM in detail.
2. To Study NIDDM in detail according to modern texts.

**Material and methods**

**Study type** - a clinical comparative study

**Study protocol**

Group A: 30 Patients with newly diagnosed NIDDM with BSL, fasting upto 120 & pp upto 180 mg/dl, not taking any medication

Group B: 30 Patients with concomitant anti-diabetic (Allopathic) medication, whose blood glucose is not well under control FBS>126mg/dl, PPBS>200mg/dl. Their sugar level with present treatment was taken as baseline level.

**Inclusion criteria**

Patients of NIDDM satisfying subjective & objective criteria.

Age - 35 and 70 years

Sex - male and female

**Subjective criteria** includes the patients with symptoms as follows Polyuria, Polydipsia, Polyphagia, Excessive sweating, Lithargic feeling, Fatigue, leg cramps, General weakness.

**Objective criteria** includes laboratory investigations like CBC, ESR, Urine for routine and microscopic examination, lipid profile, Serum insulin and S. HbA1c.

**Exclusion criteria**

Patients of IDDM (type-1 diabetes mellitus).

Patients below 35 and above 70 years of age.

Patients of uncontrolled hypertension, tuberculosis, carcinoma, and HIV

Proper CRF was prepared for case taking. Consent of all patients was taken.

**Dietary medicine and duration**

Apoopa (chapatti) prepared with Saktu of dhana (flour of fried yava), was included in patients regular diet (breakfast, lunch, dinner) with antidiabetic diet.

**Duration:** 2 months.

The patients under both the groups were provided a proper antidiabetic diet chart planned according to the classics and keeping good glycemic index of the dietary substances and calorie requirement of the patients. Simultaneously they were asked to maintain a routine of 30 min walk in the morning and in the evening hours, follow up was taken after every 15 days.

Evaluation of the data through statistical estimation within the group and comparison between the groups AT by diet (After Treatment) were assessed using paired and unpaired Student’s t test, respectively. The statistical estimations particularly sample means, SD (Standard Deviation), SEM (Standard Error of Mean), calculated t value and P (Probability) values were obtained by applying the standard formulae. For
comparison of the subjective parameters, Chi-square test was used. P < 0.05 was considered as statistically significant.

**Properties of yava**

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**Statistical analysis**

There was statistically highly significant (P < 0.001) reduction of 69% and 64% in polyuria in group A and B, respectively. In lethargic feeling , there was statistically highly (P < 0.001) significant reduction of 59% and 43% in group A and B, respectively. In polyphagia group A and B showed statistically highly (P < 0.001) significant reduction of 82% and 71%, respectively. In Polydipsia , group A and B showed statistically highly (P < 0.001) significant reduction of 63% and 64%, respectively. In excessive sweating, group A and B showed reduction of 53% and 43% respectively.

In FBS parameters, there was statistically significant (P < 0.01) reduction of 12% and 10% in group A and B. In PPBS, there was statistically highly significant (P < 0.001) reduction of 24% in group A and 18% in B, which is statistically significant (P < 0.05).
was statistically significant reduction (P < 0.05) in S. cholesterol, S. triglyceride, and S. HDL in both the groups. There was statistically insignificant (P > 0.05) increase of 59% fasting S. insulin and statistically significant (P < 0.05) increase of 87% in pp S. insulin levels. There was statistically significant (P < 0.05) reduction of 40% in S. HbA1c. Group A showed statistically significant (P < 0.05) reduction of 53% in urine sugar and Group B showed statistically insignificant (P > 0.05) reduction of 38.4% in urine sugar.

DISCUSSION
In the trial there was highly significant relief subjectively in the symptoms like Polyuria, Polydipsia, Polyphagia, Excessive sweating, Lithargic feeling, Fatigue, leg cramps, General weakness in group A and statistically significant in group B after 2 months. The clinical response of dietary management on FBS and PPBS was observed in 2 groups of patients showed highly significant and significant results in groups A and B respectively in all follow-ups.

Yava(Barley) is having kashayarasa, rukshaguna which reduces the excess Kelda from body by its shoshana effect. It also reduces the excess appetite so that patient’s intake will be reduced. Lekhana guna of yava makes medodhatu vilayana, which helps in reducing Medodusti and beneficial in obesity. Due to pureeshavardhaka property it acts as doshanulomana. Yava also reduces the dhatushaithilaya in prameha and improves glucose and lipid control in the patients. Most of the cereals being low in fat and high in carbohydrate however tend to have high GI but barley, oat etc are exception for this. Soluble dietary fibres which increases the viscosity of meal bolus once it has reached the small intestine, where the absorption of nutrients occurs. This high viscosity delays the absorption which prevents sudden fluctuations of blood sugar.

Conclusion:
1. The Dietary management is highly effective in early detected cases of NIDDM patients.
2. Dietary management can be used as a supportive/accessory treatment in chronic NIDDM patients which requires a long term follow-up.
3. Disease specific dietary measures are the unique concept of Ayurveda. Yava (Barley) is one of the important pathya ahara in prameha because of kashaya rasa and ruksha guna, reducing excess kleda from body.
4. Yava (Barley) can be a good supplier of protein, fibres and micronutrients in diet of NIDDM patients.
5. Consumption of Yava foods help to lower blood glucose.
6. The Soluble fibre β-glucan in barley is effective in lowering blood cholesterol and triglycerides and also affect glycemic responses.