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## Management of Juvenile Diabetes mellitus w.s.r. Yava

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### ABSTRACT

Introduction: - Juvenile diabetes is a burning problem in today era, the cause is unknown but is assumed to encompass a amalgamation of genetic and environmental factors. There is no identified approach to check Juvenile diabetes. Handling with insulin is essential for survival. A diabetes diet and workout are significant parts of management. Still complications of this disease are unavoidable in majority of cases. According to Ayurveda it includes in Jataja Pramehi which is considered as Asadhya in nature. Almost all Ayurveda classics have acclaimed the use of Yava in Prameha to preventing or delaying complication of diabetes.

Aim and Objective- Critical evaluation of Yava in Juvenile diabetes mellitus

Materials and Methods – Samhitas, Nighantu, Internet, Journals, Articles

Discussion- In short term complication of this disease hypoglycaemia, diabetic ketoacidosis and long term complications like macro vascular changes, eye, kidney, and nerve disease create more harmful and danger conditions for the children which are all due to poor blood glucose control. Yava is widely mentioned by our Acharya in treatment of Prameha due to its property and action. In recently the fathomable fibre, assorted relation beta glucan, reduced glycaemic response was appraised.

Conclusion- Thus Yava by its virtue of slow glucose releasing property, helps to maintain blood glucose level and prevent sudden fluctuation in compare to wheat. So the use of Yava in daily diet of diabetic children can prevent the complication and improve the life style.

### KEYWORDS

*Juvenile diabetes, Jataja Pramehi, Yava, Insulin*



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## INTRODUCTION

Juvenile diabetes is one of the common childhood diabetes characterized by insulin deficiency due to damage to beta cell of pancreas. Before treatment the blood sugar level increased in the body. There are several classical symptoms which is frequent urination, increased hunger, weight loss and increased thirst. The prevalence of diabetes among school children (up to 18 years of age) in USA is approximately 1 in 500. Reliable prevalence and incidence data from India are not available. The incidence in European countries is increasing at the rate of 3% per year<sup>1</sup>. There is unknown cause of type 1 diabetes. Usually, the body's own immune system that is responsible for fighting against harmful bacteria and viruses erroneously destroy the insulin-producing (islet of Langerhans) cells in the pancreas. There may be several other possible causes that include genetic and exposure to viruses and other environmental factors. Prevention of juvenile diabetes is very difficult. Survival of these patients depends upon the treatment with insulin. If ignored, diabetes can cause many complications. Rapid onset is responsible for causing diabetic ketoacidosis and nonketotic hyperosmolar coma. Long-term complications

include heart disease, stroke, kidney failure, foot ulcers and harms to the eyes. Furthermore, Low blood sugar may causes several complications due to high dose of insulin. In Ayurveda the juvenile diabetes is included in Jataja Prameha which is Asadhya in nature. Diet and workout are imperative parts of management. There is detailed explanation of controlling of Prameha in Samhita. Among them all Ayurveda classics have acclaimed the use of Yava in Prameha.

## MATERIALS AND METHODS

There is detailed explanation of Yava in numerous Ayurvedic Samhitas and Nigantus. It is retained beneath Shukadhanya varga in Charak Samhita, Sushurta Samhita and Astanga hridaya. Acharya Vagabhata was the main to give the idea of Vichitra pratyarabdha dravya and specified Yava as an illustration of this. In Bhavaprakasa Nighantu it is also mentioned in Shukadhanya varga.

## DISCUSSION

Insulin acts mainly on three tissues: liver, muscle and adipose tissue. It induces glucose- uptake, glycogen synthesis and lipogenesis in the liver, and stop gluconeogenesis. In muscle, insulin brings about glucose uptake and oxidation, and



glycogen synthesis. In adipose tissue, glucose-uptake and lipid synthesis occur. Thus, in diabetes mellitus, hyperglycaemia results due to glycogenolysis, gluconeogenesis, lipolysis and absence of glucose uptake. Concomitant rise in the counter regulatory hormones aggravate hyperglycaemia and ketogenesis.

While lipolysis is caused by insulin deficiency, enhanced oxidation of the fatty acids so produced is induced by glucagon. Glucagon induced the carnitine palmitoyltransferase system of enzymes, which translocate fatty acid into mitochondria for beta oxidation, and thus cause ketogenesis.

When blood sugar overdoes the renal threshold of 180mg/dL, glycosuria diuresis, electrolyte loss, dehydration and acidosis cause cerebral obtundation as well as circulatory failure<sup>3</sup>.

Preserving a normal blood sugar level can intensely reduce the risk of many difficulties. The ingestion of foods with a squat glycaemic index is a helpful alternative in controlling diabetes. Important between these foodstuffs are those ridiculous in fibre, mainly those with a high level of beta-glucans.  $\beta$ -glucans (BGs) are non-starch polysaccharides. Lessons have recommended that nutrients containing BGs have anti-diabetic effects. These fibres give the impression to form a

obstacle in the small intestine which averts glucose and additional nutrients captivation, plummeting subsequently the glycaemia, and also prevent the complication<sup>2</sup>. Furthermore, it is theorized that BGs may act in triggering metabolic conduits through PI3K/Akt, which plays a crucial role in the pathogenesis of diabetes<sup>4</sup>. Yava (*Hordeum vulgare* Linn.), generally known as barley, fits to family Poaceae. Yava is well-known shukadhanya (cereal) used in Samhita used in altered medicinal arrangements as well as in nutritive form for several santarpanjanya roga like prameha (diabetes).

Yava is widely mentioned by our Acharya in treatment of Prameha due to its property like Ruksha, Sita, Laghu, and action like Mehanasan, Mutra dosha har.

यवः कषायो मधुरः सुशीतलः प्रमेहजितकफापहारकः।

अशूकमुण्डस्तु यवो बलप्रदो वृष्यश्च नृणां बहुवीर्य्युपुष्टिदः<sup>5</sup>॥

In recently the answerable fibre, assorted linkage beta glucan, reduced glycaemic reaction was evaluated.

The advantage of functional foods and herbal medicines during the daily life has been demonstrated. For this determination, numerous lessons on well-designed diets and medicinal plants in accumulation to their dynamic constituents have been skilled to authorize their worth in governing the diabetes and its complications<sup>6</sup>. Barley



is frequently recognised for its great aggregate of dietary fiber such as  $\beta$ -glucan. Barley is an amusing foundation of magnesium, a mineral that performs as a co-factor for more than 300 enzymes, together with those involved in glucose metabolism and insulin secretion. According to Nilsson and coworkers, consumption entire grain barley by human can control blood sugar for up to 10 h after consumption<sup>7</sup>. What appears to have been answerable for barley's usefulness in regulating blood glucose is possibly its soluble fiber content<sup>8</sup>.

Our Acharyas maintained verity of recipes and practical utility of Yava in dietary practice for management the Prameha.

अपूपसक्तुवाट्यादिर्यवानां विकृतिहिता<sup>9</sup>।

मन्थस्य पाने यवभावनायां स्युभोजने पानविधौ पृथक् च<sup>10</sup>॥

भृष्टान् यवान् भक्षयतः प्रयोगच्छुष्कांश्च सक्तुन्न भवन्ति मेहाः<sup>11</sup>।

In daily routine we also make uttapam, idali, upma, for full feel palatable and health purpose.

## CONCLUSION

Juvenile diabetes is sweltering problem and increased day by day. The insulin is the mainstay of the treatment for maintaining the blood glucose still the complication arise and create the harmful condition for children. Maintaining the blood glucose by diet is the only solution for preventing or

delaying the complication. Ayurveda comes handy here by describing Yava in this disease condition. Yava possess ant diabetic property and action. Recent researches also proven the benefit of Yava in Diabetes by its virtue of  $\beta$ -glucan and fibres. Different recipes like bhakhri, roti, different spicy items which is palatable for children is use in daily dietary practice playing good role for management of diabetes.



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