

A CLINICAL ASSESSMENT OF THE EFFECT OF PATHYA AHARA IN PREVENTION OF MADHUMEHA (DIABETES MELLITUS)

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ABSTRACT

Pre-diabetes is a condition in which the patients have high blood glucose level but not in the diabetic range. While in this preliminary stage, patients are at risk for not only developing type II diabetes, but also for cardiovascular complications. Ayurveda has also explained the *Purvarupas* (prodromal symptoms) of *Prameha* to diagnose the disease in its early stage, which can be correlated with modern Prediabetes. It is well known that diabetes is a disease of modified lifestyle, so more emphasis should be given to *Pathya ahara*. In this study 25 subjects with evidence of Pre-diabetes and fulfilling the proposed criteria of selection were enrolled for clinical trial. Along with general advice of *Pathya-apathya* a specific food article was included in the diet of patients i.e. 100 gm. powder of roasted Bengal Gram (*Chanaka* powder / *Sattu*) with water per day at morning. Three follow-ups were done at an interval of two months each, for total period of six months. The clinical effects were assessed on the basis of subjective and objective parameters. The intra-group comparison was done by using paired t test. After completion of study the results were found statistically significant in terms of most of the clinical symptoms and blood sugar levels.

Key words: *Apathya, Chanaka, Pathya, Prediabetes, Purvarupa.*

INTRODUCTION

The first and foremost desire of man is healthy long life. In spite of all sorts of advancements of science, in this world man is not able to sail himself in the boat of happy and healthy life. Unnatural ways of lifestyle, irregular food habits, unhealthy food intake, unlimited desires, anxiety, anger and grief etc. directly or indirectly result into occurrence of many diseases to an alarming extent, and Diabetes Mellitus (DM) is one of them. In Ancient treatise we find a vivid description of *Madhumeha* (Diabetes Mellitus) solely attributed to metabolic derangement along with genetic predisposition. Type II DM is preceded by a period of Impaired Glucose

Tolerance (Prediabetes). Prediabetes is often described as the “grey area” between normal blood sugar and diabetic levels. The *Purvarupa* of *Prameha* given in classics can be tentatively correlated with modern Prediabetes condition. In this study main focus was on prevention of Diabetes Mellitus through *Pathya ahara*, hence patients of Prediabetes were registered for clinical study.

MATERIAL AND METHODS: This study was conducted in the Department of Swasthavritta and Yoga, Sir Sundar Lal Hospital, I.M.S., B.H.U., Varanasi. 25 subjects with evidence of Prediabetes and ful-

filling the proposed criteria of selection were enrolled for clinical trial

Inclusion Criteria:

- Age 30-60 yrs.
- Family History of Diabetes.
- Plasma Glucose level:
Fasting : 100-125 mg/dl
Postprandial: 140-199 mg/dl

Exclusion Criteria:

- Age <30yrs. and >60yrs.
- Patients of IDDM.
- Patients of NIDDM.
- Diabetes due to Endocrinopathies e.g. Pheochromocytoma, Acromegaly, Cushing’s syndrome, Hyperthyroidism etc.

Advice and Follow-up:

All cases were advised to adhere on the Pathya Ahara according to the principles of Ayurveda and modern medicine. Pathya-Apathya chart for Diabetics has been prepared and was given to the patients.

Along with this, a specific food article included in their diet i.e. 100 gm. powder of roasted Bengal Gram (*Chanaka* powder / *Sattu*) with water per day at morning. After giving above advice, patients were reviewed at an interval of two months for total period of six months. Out of 25 registered cases, total 19 cases were turned up for full follow-ups.

Statistical Method:

The appropriate statistical methods were applied by using SPSS software version 16.0 to analyze the data for finding results. Paired t test was applied to assess the intra-group comparison between the values of subjective and objective parameters, at the time of registration (BT) and final follow-up (AT).

OBSERVATIONS AND RESULTS

Effect of Pathya Ahara on Subjective Parameters:

Subjective Parameters	Mean ±SD		Mean Difference	Paired t value	p value
	BT	AT			
<i>Prabhuta Mutrata</i> (in Quantity)	1.14±1.31	0.24±0.44	0.90±1.18	3.52	p<0.001
<i>Prabhuta Mutrata</i> (in Frequency)	1.36±1.47	0.09±0.29	1.28±1.48	3.63	p<0.001
<i>Pipasa</i>	1.90±1.22	0.57±0.60	1.33±1.23	4.93	p<0.001
<i>Karapada-daha</i>	1.67±1.20	0.81±0.51	0.86±0.84	4.60	p<0.001
<i>Sveda-Pravriti</i>	1.43±1.33	0.33±0.58	1.10±1.14	4.42	p<0.001
<i>Mukha-Madhurya</i>	0.43±0.51	0.24±0.44	0.19±0.40	2.17	p<0.05

On intra group comparison (between BT and AT), the effect of Pathya Ahara revealed promising results. Results were highly significant (p < 0.001) for maximum number of symptoms viz. *Prabhuta Mutrata* (in Quantity), *Prabhuta Mutrata*

(in Frequency), *Pipasa*, *Karapada-daha* and *Sveda-Pravriti*. Significant improvement was observed in case of *Mukha-Madhurya*.

Effect of Pathya Ahara on Objective Parameters:

Objective Parameters	Mean ±SD		Mean Difference	Paired t value	p value
	BT	AT			

FBS	112.78 ±8.12	106.69 ±11.34	6.08±10.31	2.57	p<0.05
PPBS	153.53 ±13.89	141.24 ±10.35	12.28±14.23	3.76	p<0.05

In case of fasting blood sugar initial mean \pm S.D. was 112.78 \pm 8.12 which was decreased to 106.69 \pm 11.34 at completion of study, it was statistically significant result (t=2.57, p<0.05). In case of post-prandial blood sugar initial mean \pm S.D. was 153.53 \pm 13.89 which decrease to 141.24 \pm 10.35 after complete follow-up, it was statistically significant result (t=3.76, p<0.05).

DISCUSSION

Pathya is the first and foremost step while considering the prevention of *Madhumeha*. The specific diet i.e. powder of roasted *Chanaka (Sattu)* selected for the trial, has *Kashaya Rasa*, *Ushna Virya*, *Laghu*, *Ruksha Guna* and *Kaphavatahara* properties and is indicated in *Prameha Chikitsa*. *Ushna Virya* and *Kashaya Rasa* help to normalise the functions of *Jatharagni* and *Dhatvagni*. That in turn helps to form the *Dhatus* in proper proportion with *Samyak* qualities. *Laghu* and *Ruksha Guna* helps in *shoshana* of *Bahudrava shleshma* and reduction of vitiated *Meda* and *Kleda*. Thus once these factors get normalized in the body they consecutively clear the path of *Vata*, which stops the depletion of vital *Dhatus* and restore normal physiology. Thus the disease *Madhumeha* gets alleviated.

In modern perspective, several lines of recent scientific evidence have shown that individuals who followed a low- Glycemic Index diet over many years were at a significantly lower risk for developing both type 2 diabetes and coronary heart disease than others (Jennie et al, 2003). The Gly-

cemic Index (GI) is a measure of the effects of carbohydrates on blood sugar levels. While modifying diet for prevention of diabetes due importance should be given to the GI of popular and staple food items for not only to provide adequate calories, proteins, fibres etc. but also to prevent post-prandial hyperglycemia. Bengal gram (*Cicer arietinum*) or *channa dal* contain 64% carbohydrates with GI 33 to 42, protein 22%, fibre 13.6gm/100gm and gives 327 kcal/100gm. Therefore the food items with low-GI diet are ideally suited as staples in Type II DM's provided these could quantitatively replace rice and wheat products in daily diet as the main energy sources. This will ensure adequate calories, satiety and at the same time control postprandial hyperglycemia (Ghosh JM, 2005).

Bhrista Ahara has been given much importance in the management of *Prameha* by all *Acharyas*. According to *Charak* "a person who takes *Bhrista Yava* regularly does not develop *Prameha* in future" (Ca.Ci.6/48). In this context *Vagbhata* had also given importance to *Bhrista Chanaka*. According to him "*Pramehi* should take condiments prepared from fried *Chanaka*" (A.S.Ci.14/14). The increased level of fat in blood and body results in decreased action of Insulin. So the low fatty diet in the form of *Bhrista Chanaka* may promote the proper functioning of Insulin. After roasting (*Bhrista*) the carbohydrate and fat content of *Chanaka* are reduced while at the same time protein and energy content get increased. So *Bhrista Chanaka* is useful in reducing the blood glucose level in Diabetes (Pandey Susheela, 1997).

CONCLUSION

Madhumeha (Diabetes Mellitus) can be prevented if intervention in the form of *Pathya Ahara* is applied in early stage, either Prediabetes or healthy state. Food article beneficial in *Madhumeha* specially powder of *Bhrista Chanaka* improves digestive power, and restores the normal physiology of body tissues. The use of food items which are *Kapha-vatahara* is an important underlying principle in the prevention of *Madhumeha*. This study proves that specific diet maintains the normalcy of blood glucose level. People at risk should be educated about this scientific fact and advised to follow it at the earliest, for better prevention of *Madhumeha* (Diabetes Mellitus).

ACKNOWLEDGEMENT

Our heartfelt gratitude to Prof. Ram Harsh Singh Sir, Distinguished Professor, Faculty of Ayurveda, IMS, BHU, Varanasi, for continuous support and guidance during this study.

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