

TO ASSESS THE EFFECT OF *NIDAN PARIVARJAN* ON THE *POORVARUPA AWASTHA* OF *MADHUMEHA* I.E. PREDIABETES W.S.R. TO DIABETES MELLITUS

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ABSTRACT

Diabetes Mellitus has gained a gigantic disgrace in recent times as it is fast becoming the world's largest silent killer. The problem with Diabetes Mellitus is that it is very difficult to diagnose in the early stages. But *ayurvedic samhitakar* clearly describes the *poorvarupas* of *madhumeha* so as to make the early diagnosis of this disease. This study includes a single group of 60 patients which are in *poorvarupa awastha* of *madhumeha*. The patients were assessed on the symptoms as described in *madhav nidan* and prediabetes criteria, then *nidan parivarjan* were followed. The assessment was done before and after the study. After the study, highly significant results were observed in *pipasa*, *dehe chikkanta*, *dantadinam maladyam*, *asya madhurya*, fasting blood sugar level and glycated hemoglobin while significant result were observed in *karpad daha*.

KEYWORDS: Diabetes Mellitus, *Poorvarupa Awastha* of *Madhumeha*, Prediabetes, *Nidan Parivarjan*.

INTRODUCTION

Diabetes Mellitus has gained a gigantic disgrace in recent times as it is fast becoming the world's largest silent killer. The problem with Diabetes Mellitus is that it is very difficult to diagnose in the early stages. International Diabetes Foundation (IDF) studies shows 175 million (Out of 382 million) with diabetes are undiagnosed worldwide.^[1] But *ayurvedic samhitakar* clearly describes the *poorvarupas* of *madhumeha* so as to make the early diagnosis of this disease.

In the *Sthanasamsrya* stage.^[2]

- Vitiated *doshas* which are in circulation where ever *Srotavaigunya* (depletion of tissue) presents there they settle.
- This settlement of vitiated *dosha* causes *dosha-dushya sammurchanna*.
- This *dosha-dushya sammurchanna* takes place at particular *srotas* and produces *poorvarupas* of disease at that very *srotas*.

In ayurvedic texts first line of treatment is described as *Nidan Parivarjan*.^[3] *Nidan Parivarjan* means avoiding the known disease causing factors in diet and lifestyle of the patient. It also encompasses the idea to refrain from precipitating or aggravating factors of the disease.^[4]

Modern science describes *poorvaroop awastha* of *madhumeha* as prediabetes. Prediabetes is defined by glucose concentration higher than normal but lowers than

established thresholds for diagnosis of diabetes. Prediabetes is also known as Intermediate hyperglycaemia, a state in which the risk of developing diabetes is increased. These persons were defined as having impaired fasting glucose (IFG) [fasting plasma glucose (FPG) levels 100mg/dL (5.6 mmol/L) to 125 mg/dL] or impaired glucose tolerance (IGT) [2-h values in the oral glucose tolerance (OGTT) of 140 mg/dL (7.8 mmol/L) to 199mg/dL (11 mmol/L)]. However, the World Health Organization (WHO) and a number of other diabetes organizations define the cut-off for IFG at 110 mg/dL (6.1 mmol/L). Prediabetes is a high risk state not only for developing diabetes, but also the associated cardiovascular complications. Similarly, a glycated hemoglobin (HbA_{1c}) in the range of 5.7-6.4% also defines individuals with prediabetes and confers a significantly higher risk for the future development of diabetes and CVD. IFG and IGT are associated with obesity (especially abdominal or visceral obesity), hypertension and dyslipidaemia with high triglycerides and/or low high density lipoprotein (HDL) cholesterol.^[5]

The prevalence rates of prediabetes (IGT and/or IFG) in India is 77.2 million people respectively.^[6] In the Indian Diabetes Prevention Program study results shows that life style modifications can reduce the incidence of diabetes that is what *nidan parivarjan* in the *ayurveda*. Only a modest weight loss and a modest increase in physical activity, sustained over a longer periods, are needed to reduce risk of diabetes.^[7]

So for this reason we selected this topic to study the effect of *nidan parivarjan* in the *poorvarupa awastha of madhumeha* because if we sees improvement in the known case of diabetes then why it cannot be possible in the prediabetic or *poorvarupa awastha* i.e. one stage before the disease where yet only disease formation is taking place.

AIMS AND OBJECTIVES

1. To assess the effect of *Nidan Parivarjan* on the *Poorvarupa Awastha of Madhumeha* i.e. Prediabetes w.s.r. to Diabetes Mellitus.
2. To study the *poorvarupa awastha of madhumeha* in detail.
3. To study *nidans of madhumeha* in detail.
4. To study the prediabetes and diabetes mellitus in detail.
5. To study the relation between *poorvarupas*, prediabetes and HbA_{1c}.

MATERIALS AND METHODS

The present study included patients, various investigations and diet-lifestyle modifications.

Criteria for selection: For the present study, uncomplicated 60 patients with *poorvarupas of Madhumeha* irrespective of sex, religion, education, etc. were randomly selected from the OPD and IPD of the SVNHT's Ayurved Mahavidyalaya, Rahuri Factory, Ahmednagar, Maharashtra.

Inclusion Criteria

1. Patients with prodromal signs and symptoms of *madhumeha*.
2. Patients of both sexes will be selected for study.
3. Patients of 20-70year age group patients was included.

Exclusion Criteria

1. Diagnosed cases of *madhumeha* (NIDDM & IDDM).
2. Patients below 20 years and above 70 years of age was excluded.
3. DM produced due to other illnesses.

Investigations

- Fasting Blood Sugar (BSL-F).
- Glycosylated Haemoglobin (HbA_{1c}).

Plan of Study

A single group of 60 patients randomly selected for the study were observed for various *nidans sevan* and *poorvarupas of madhumeha*. A specially designed case paper with informed consent, where history taking was followed to find out *Hetus* and *poorvarupas of Madhumeha* was prepared. These patients were advised to do *nidan parivarjan* and to follow the following diet regimen.

• Dietary Regimen^[8]

Diet chart was prepared on the basis of *pathya ahara* and *vihara* as described in various *ayurvedic* texts.

a) *Nidan Parivarjan*

b) *Apathya*

Table 1: *Apathya Ahara Vihara.*

<i>Ahara</i>	<i>Vihara</i>
<i>Dugdha, dadhi, takra, ghrut, taila, Ikshu vicara, gudpishta aana, sura, madha, anoop mamsa, udada, adhayaasan, virudhasan, kapha-medha virdhak aahar, madhur-amla-lavan rasa etc.</i>	<i>Divasayan, ati methun, swedan, dhumrapaan, vegdharan, raktamokshan etc</i>

c) *Ahara Vyavasthapatra*

Table 2: *Ahara Vyavastha.*

Time	Food
Early Morning	Light Tea – 1 cup(2 tsp Milk, No sugar)
Breakfast	<i>Godughda</i> ¾ glass – 150 ml without sugar
Lunch	One large bowl of <i>Tikta shakas</i> Soup, without Butter One wati salad – Cabbage, Cucumber, Onion, Carrot, Tomato, etc. One <i>Roti or Chapati</i> , or 3 <i>Phulkas</i> (without oil) One wati thin <i>Dal</i>
4 pm	Light tea-without sugar- 1cup
Dinner	Thin soup and fresh salad or boiled <i>tikta shakas</i> 2 thin <i>phulkas</i> 1 bowl <i>tikta shakas</i> 1 bowl thin <i>dal</i> or pulses

- Avoid sweets
- Increase protein in diet
- 45min/day daily walk.

Criteria for Assessment: The following criteria were used.

Subjective Parameters: In this study, Patients are assessed on the poorvarupas of madhumeha mentioned in Madhav Nidan.^[9]

Table 3: Gradation of Subjective parameters.

<i>Lakshana</i>	Grade		
	Grade 0	Grade 1	Grade 2
<i>Asya Madhurya</i>	Absent	Present	-
<i>Karpad Daha</i>	Absent	Slightly Present	Present
<i>Pipasa</i>	Normal	Feel more thirsty than normal but relieved by taking water	Not relieved even by taking enough amount of water
<i>Dantadinam Maladhyatam</i>	Absent	Pt may have bad odour and feeling of uncleanliness of teeth, need to do brushing more than 2times/day.	Feeling of odour and uncleanliness persists even after doing brushing more than 2 times/day
<i>Dehe Chikkanata</i>	Absent	Present	-

Objective Parameters

After interpretation of the laboratory investigations, patients were taken on following criteria:^[10]

Table 4: Interpretation of Objective parameters.

Tests	FBS/BSL-F	HbA _{1c}
Level	100-125mg/dl 5.6-6.9 mmol/L	5.7-6.4%

OBSERVATIONS AND RESULTS

Table 5. Changes in Subjective Parameters before and after treatment: Out of total symptoms, highly significant results were seen in complaints, *asya madhurya*, *dantadinam maladhyatvam*, *pipasa*, *dehe chikkanta*, while significant result was seen in *karpad daha*.

Table 5: Shows Statistical Analysis by Student's t Test for Paired Data in Subjective Parameters.

Signs & Symptoms	Mean Score		Relief%	S.D. (±)	S.E.(±)	‘t’	P
	BT	AT					
Subjective Parameters							
Asya Madhurya	1.000	0.348	65.21	0.487	0.102	6.423	<0.001
Dantadinam maladhyatvam	1.964	0.393	80.00	0.504	0.0952	16.50	<0.001
Pipasa	2.000	0.333	83.33	0.477	0.736	22.638	=<0.001
Karpad Daha	1.000	0.556	44.44	0.527	0.0176	2.53	=0.0353
Dehe Chikkanata	1.000	0.478	52.17	0.511	0.106	4.899	<0.001

Table 6. Changes in Objective Parameters before and after treatment: After the study, BSL-F range of 51 (85%) patients down to become within normal range. As the value of P is =<0.001, this shows that *nidan parivarjan* has significant effect on BSL-F range.

After the study, HbA_{1c} range of 37 (61.66%) patients down to become within normal range. As the value of P is =<0.001, this shows that *nidan parivarjan* has significant effect on HbA_{1c} range.

Table 6: Shows Statistical Analysis by Student's t Test for Paired Data in Objective Parameters.

Signs & Symptoms	Mean Score		S.D. (±)	S.E.(±)	't'	P
	BT	AT				
Fasting Blood Glucose Level	121.21	96.31	3.21	0.415	60.014	=<0.001
Glycosylated Hemoglobin (HbA _{1c})	6.122	5.572	0.222	0.0287	19.183	=<0.001

Criteria for assessment of overall effect of study Statistical Analysis

The collected data was analysed statistically in terms of mean score (x), Standard deviation (S.D.) and Standard error (S.E.). Student 't' test for paired data was carried out at the level of 0.05, 0.001 and 0.001 of P levels. The result was interpreted as:

- P > 0.05 Insignificant improvement.
- P < 0.05 and P < 0.01 Significant improvement.

- P < 0.001 Highly significant improvement.

Overall Assessment of the Study

Table 7. Symptoms Wise Assessment: Out of total symptoms, excellent relief have seen in *Pipasa*, *Dantadinam Maladhyatvam* while good relief have seen in *Asya Madhurya*, *Karpad Daha* and *Dehe Chikkanta*.

Table 7: Symptoms Wise Assessment.

Status & Valuation	Grade	Symptoms
Excellent (Above 75%)	Grade I	<i>Pipasa, Dantadinam Maladhyatvam</i>
Good (50-75%)	Grade II	<i>Asya Madhurya, Karpad Daha, Dehe Chikkanta,</i>
Moderate (25-50%)	Grade III	NIL
Poor (Below 25%)	Grade IV	NIL

Table 8. Patients Wise Assessment: Out of total 60 patients, 41 patients have excellent relief, 16 patients have good relief while remaining 3 patients have moderate relief from the symptoms.

Table 8: Patients Wise Assessment.

Status & Valuation	Grade	No. of Patients
Excellent (Above 75%)	Grade I	41
Good (50-75%)	Grade II	16
Moderate (25-50%)	Grade III	3
Poor (Below 25%)	Grade IV	NIL

DISCUSSION

Taking in to consideration into the various observations, results obtained during study and discussion, following facts can be extracted:

The prolonged *nidan sevana* of *guru, snigdhadhi ahara* and *avyayamadi vihara* leads to *Kapha dosha sanchaya*. Especially *bahudrava* quality of *sanchita Kapha* is increased.

The *Anukulatva* between *nidan, dosha* and *dushya* i.e. these three factors are combined together in such a specific way that they lead to *Prakopa of bahudrava Kapha* rapidly and *Bala Prameha* in future. The *Bahudrava Kapha dosha* is prone to develop *Prameha* and as it is already present in excess quantity from the beginning, hence it gets provoked rapidly when the *anukula nidans* are continued. This type of *Anukulatva* may be seen in person having *Kaphaja prakriti* and who are having genetic predisposition for *Prameha*.

The provoked *Kapha* has affinity towards *bahu-abaddha meda* due to their similar properties, so they combine with each other. The *vikrita Kapha* combines with *bahu abaddha meda* and causes its vitiation, the other important *dushyas* are *sharira kleda* and *mamsa*, which are already increased in large quantity, prior to vitiation of *kapha*. In this stage, premonitory symptoms of the disease are manifested, so for the good prognosis it is essential to manage the disease in *sthana sanshraya* stage itself.

It implies that by walking and following proper Diet regimen utilization of more sugar present in blood is there; or one can say that *Bahu-Dravata of Kapha* and status of *Abaddha-Meda* reduced by improvement in metabolism; so that over all, it affects the progression of disease.

So due to *nidan parivarjan* and exercise, this defective metabolism gets improved and hence reduction in the

values of BSL-F and HbA1c are also seen.

CONCLUSION

So by this study we postulated that:

- Though Diabetes is irreversible if established once. The *poorvarupa awastha of Madhumeha* can be controlled or prevented with the best use of diet management and lifestyle modification i.e. *Nidan Parivarjan*.
- Also, *nidan parivarjan* is definitely able to reduce the levels of BSL-F and HbA1c in the *poorvarupa awastha of Madhumeha* i.e. Prediabetes.

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