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### EFFECT OF PHALTRIKADI KWATH AS MONOTHERAPY ON THE PATIENTS OF MADHUMEHA VIS-A-VIS TYPE-2 DIABETES MELLITUS

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### ABSTRACT

Diabetes is one of foremost lifestyle disorders affecting a large number of populations worldwide. If left uncontrolled, it may lead to fatal outcome. Ayurveda can offer a large scope in combating this menace. Ayurvedic medicines offer good glycemic control as well as prevent diabetic complications. The present study aims to evaluate the effect of *Phaltrikadi Kwath* as monotherapy in the management of Madhumeha vis-a-vis Type 2 Diabetes Mellitus on the basis of clinical and laboratorial parameters. The trial drug Phaltrikadi Kwath consisting of 6 herbal drugs i.e. *Amalki, Haritaki, Vibhitaka, Daruharidra, Indravaruni and Nagarmotha,* has been described in Charak Samhita Prameha Chikitsadhyaya. All the 30 patients were assessed on clinical and laboratorial parameters to evaluate the effect of Phaltrikadi Kwath in Type 2 Diabetes Mellitus. The results observed were marked in symptomatic control. As well as a good glycemic control was observed in all the patients. Phaltrikadi Kwath was well tolerated by all the patients throughout the treatment period with no evidence of any adverse effects.

Keywords: Madhumeha, Diabetes Mellitus, Phaltrikadi Kwath, Blood Sugar

### INTRODUCTION

Prameha as described by Acharya Charak is one of the Santarpana Janya Vikara. It is also one of the eight most devastating diseases in Ayurveda (Ashta Mahagada). The 20 types of Prameha as described in various Ayurvedic texts include most of the metabolic disorders characterised by the most common feature  $mutrata^{1}$ . Prabhuta Avila The classification of Prameha is according to the most characteristic changes in the urine. Madhumeha is a type of Vataj Prameha which is described as incurable in Ayurveda. The features of Madhumeha are very much close to the Diabetes Mellitus.

Diabetes is one of the most prevalent lifestyle disorders worldwide. It is a syndrome of metabolic diseases in which there are high blood sugar levels over a prolonged period. Symptoms of high blood sugar include frequent urination, increased thirst, and increased hunger. If left untreated, diabetes can cause many complications. Commonest of them are Neuropathy, Nephropathy, Retinopathy, Micro-angiopathies, Diabetic ketoacidosis etc.<sup>2</sup>.

Diabetes is due to either the pancreas is not producing enough insulin in the body or the cells of the body are not responding properly to the insulin produced. There are two main types of diabetes mellitus:

- Type 1 DM results from the pancreas' failure to produce enough insulin. This form was previously referred to as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes". The cause is unknown and is linked with genetic predisposition.
- Type 2 DM begins with insulin resistance, a condition in which cells fail to respond to insulin properly. As the disease progresses a lack of insulin may also develop. This form was

previously referred to as "non- insulin dependent diabetes mellitus" (NIDDM) or "adult-onset diabetes". The primary cause is excessive body weight or Obesity and not enough exercise <sup>3, 4</sup>.

# AIM OF STUDY

To study the effect of classical Ayurvedic preparation *Phaltrikadi Kwath* to control blood sugar in patients with Type 2 Diabetes Mellitus.

### MATERIALS AND METHODS

### **Selection of patients**

A total of 30 patients of either sex of DM-2 were screened from OPD and IPD of Chaudhary Brahma Prakash Ayurved Charak Sansthan, Khera Dabur during the period 2011-12. Most of the cases that were included in the study were newly diagnosed for Diabetes or the patients who are known case of Diabetes but are not taking any treatment.

### INCLUSION CRITERIA

- Patients having classical symptoms of diabetes and elevated blood sugar levels
- Patients between age groups of 30 and 65 years
- Increased fasting blood sugar (FBS) >126 mg/dl more than two occasions
- Increased postprandial blood sugar (PPBS) >200 mg/dl

# EXCLUSION CRITERIA

- Patients of DM-1 or juvenile onset diabetes
- Patients <30 years and >65 years
- Patients of DM-2 on insulin therapy

- Patients with Fasting Blood sugar > 250mg/dl and PP blood Sugar > 350mg/dl
- Diabetes with severe complications such as tuberculosis, other pyogenic infection, blindness, stroke, etc.
- Pregnant and lactating mothers
- Patients under corticosteroid therapy.
- Diabetes due to endocrinopathies e.g. Phaeochromocytoma, Acromegaly, Cushing's syndrome, hyperthyroidism etc.
- Certain genetic syndromes sometimes associated with diabetes mellitus e.g. Down's syndrome, Klinefelter's syndrome, Turner's syndrome etc <sup>5</sup>.

# Investigations

**Blood Examination** 

- CBC
- ESR
- KFT to assess the renal status
- LFT
- Blood Sugar- Fasting and Post-Prandial

### Urine Examination

Urine for each case was examined for routine examination like specific gravity, reaction, sugar, albumin and acetone routinely and microscopic examination for crystals, casts and cells.

# PROTOCOL OF STUDY:

Total 30 patients were selected and were advised only *Phaltrikadi kwath* available in the Pharmacy of the hospital with some simple dietary restrictions and life style modifications.

# DRUG REVIEW

*Phaltrikadi Kwath* has been described in *Charak Samhita Chikitsa Sthan* chapter 6, *Prameha Chikitsa adhyaya*. The contents of the *kwath* are- *Amalki*, *Haritak*i, *Vibhitaka*, *Daruharidra*. *Indravaruni and Nagarmotha*<sup>6</sup>. Dose of *Kwatha*: 40ml twice daily Duration of study: 45 days Dictory and L ife style modification

# Dietary and Life style modifications

All the patients were advised some dietary and life style modifications to be followed throughout the treatment  $^{7}$ .

### **Apathya Ahara (Dietary Restrictions)**

Vegetables: Potato, Sweet potato, Arbi Fruits: Fruits having high sugar content e.g. Banana, Mango, Chikoo Dry Fruits: Resins, Cashew nuts Cereals: Rice, new Wheat Pulses: Urad dal, Rajma, White gram Liquids: All types of cold drinks and sweet beverages

**Physical Exercise:** All the patients were advised for exercises like morning/ evening walk and simple *Yoga Asana*.

### Assessment criteria

The assessment of the treatment was based on both subjective and objective parameters.

### (A) Subjective Assessment

It is based upon the symptomatology<sup>8,9, 10</sup> and its grades. To assess the subjective features of DM-2, the clinical symptomatology was graded into four grades (0-3) scale on the basis of severity and duration. The changes in the gradations of each symptom were noted to assess the therapeutic response of trial treatment. The clinical gradations of symptoms were as follows.

- Polyuria-PrabhutaMutrata-Frequency of urine Grade 0: 3 - 6 times per day, no or rarely at night Grade 1: 7 - 10 times per day, 1 - 2 times per night Grade 2: 11- 14times per day, 3 - 4 times per night Grade 3: > 15 times per day, > 4 times per night
- 2. Polydipsia- Pipasa Adhikaya

Grade 0: Feeling of thirst 5– 6 times/ 24 hours Grade 1: Feeling of thirst 7- 8 times/24 hours Grade 2: Feeling of thirst 9 – 10 times/24 hours Grade 3: Feeling of thirst 11-12 times/24 hours

- Turbidity in urine Avila Mutrata Grade 0: Crystal clear fluid Grade 1: Faintly cloudy or hazy with slight turbidity. Grade 2: Turbidity clearly present and newsprint easily read through test tube Grade3: Newsprint not easily read through test tube
- 4. Increase in Appetite (Polyphagia)-*Kshudha- Adhika* Grade 0: As usual / routine (2- 3 meals)
  Grade 1: Slightly increased (3 – 4meals)
  Grade 2: Moderately increased (4 – 5 meals)
  Grade 3: Markedly increased (6 – 7 meals)
- Kara-Pada Suptata/ Daha Grade 0: No Suptata Grade1: Kara-Pada Suptata/ Daha incontinuous

Grade 2: *Kara-Pada Suptata/ Daha* continuous but bearable & not severe Grade 3: *Kara-Pada Suptata/ Daha* severe & unbearable

- Generalised Weakness- Daurbalya Grade 0: Can do routine exercise/work Grade1: Can do moderate exercise with hesitancy Grade 2: Can do mild exercise only, with difficulty Grade 3: Cannot do mild exercise too
- *Nidradhikya* (Increased Sleep) Grade 0: Normal & sound sleep for 6

  8 hrs. /24 hrs. with feeling of lightness
  Grade 1: Sleep> 8 -9 hrs. /24 hrs. with slight heaviness in the body.
  Grade 2: Sleep >9- 10 hrs. /24 hrs.
  With heaviness in the body associated with Jrimbha.
  Grade 3: Sleep >10 hrs. /24 hrs. With heaviness in the body associated with Jrimbha.

# (B) OBJECTIVE ASSESSMENT

Objective assessment was done on the following basis

- Fasting blood Glucose
- Postprandial blood Glucose

All the patients were assessed on the basis of all the subjective and objective parameters at an interval of 15 days.

# RESULTS

Diabetes Meintus-type 2.																	
S.No	Symptoms	Initially			15 days after			30 days after			45 days after						
					treatment				treatment				treatment				
		Grades			Grades				Grades				Grades				
		3	2	1	0	3	2	1	0	3	2	1	0	3	2	1	0
1.	Prabhuta	22	6	2	0	15	12	3	0	8	13	4	5	2	10	12	6
	Mutrata																
	(Polyuria)																
2.	<i>Pipasa adhikya</i> (Polydipsia)	3	18	9	0	2	16	8	4	0	8	13	9	0	6	14	10

# Table 1: Showing the improvement in clinical symptoms of the patients of Diabetes Mellitus-type 2

3.	Avil Mutrata (Turbidity of urine)	2	8	15	5	0	6	14	10	0	3	15	12	0	2	11	17
4.	<i>Kshudha</i> <i>Adhikya</i> (Polyphagia)	1	4	21	4	0	4	18	8	0	2	20	8	0	1	17	12
5.	Kara pada suptata/ Daha	16	10	2	2	15	7	6	2	1 0	8	7	5	8	5	12	5
6.	Daurbalya (Generalised Weakness)	5	7	14	4	2	8	13	7	0	6	14	10	0	4	14	12
7.	Nidradhikya (Increased sleep)	2	17	8	3	2	8	12	8	1	6	13	10	1	2	14	13

Table 2: Showing the change in Fasting and Post Prandial Blood sugar levels

Blood Sugar	Mean Blood Suga	$r \pm S.D.$	t value	p		
	BT	AT				
Fasting	$200 \pm 10.38$	90 ± 11.46	38.966	< 0.001 (H.S.)		
Post Prandial	$280\pm8.64$	$168 \pm 15.38$	34.77	< 0.001 (H.S.)		

# DISCUSSION:

The symptoms like Prabhuta (Polyuria), Mutrata Pipasa Adhikva (Polydipsia) and Kshudha Adhikya (Polyphagia) improved drastically in about 90-93% of patients. The symptom Avil Mutrata (Turbidity of urine) is almost abolished in 93.3% of patients. Although improvement of Kara-Pada Suptata/ Daha symptom is not very high it signifies that the Phaltrikadi Kwath is not able to revert the already established neuropathy in Diabetics. The Daurbalya and Nidradhikya symptoms were relieved in most of the patients signifying that the ayurvedic concept of Madhumeha and Ojas meha are same and Phaltrikadi Kwath is able to improve the state of Oja in body. Highly significant improvement in Fasting and Post Prandial Blood sugar levels is noted (p < 0.001).

# CONCLUSION:

On the basis of above observations and results it is concluded that *Phaltrikadi Kwath* not only gives symptomatic relief in patients with Diabetes but also establishes a good glycemic control. ACKNOWLEDGEMENT:

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