

## A Clinical Study On The Effectiveness Of *Vasantkusumakar Rasa* In Stress Induced Diabetes Mellitus (*Prameha*)

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### Abstract:

**Background-** Today stress has become an inevitable part of modern life. Stress is not only an etiological factor but also a major triggering factor of Type II DM (*Prameha*). It has long been suspected to have major effects on metabolic activity and acts as a potential contributor to Type II DM (*Prameha*)

**Hypothesis-** *Vasantkusumakar Rasa* is effective on stress induced Type II DM (*Prameha*)

**Aim-** To study the effect of *Vasantkusumakar Rasa* on stress induced Type II DM (*Prameha*)

**Material & Methods-** In this study, 10 patients were examined to find the association of stress and hyperglycemia followed by administration of *Vasantkusumakar Rasa* in the dose of 125mg daily in the morning for 1 month and was advised dietary and lifestyle modification. The follow-up of patient was taken every 15 days.

**Result-** There was significant improvement in biochemical values. 11.87% and 14.6% relief were observed in FBS and PPBS respectively. Overall effect in major

domains of SAQ are 5.85% relief in symptoms, 4.76% improvement in stability, respectively.

**Keywords:** - Hyperglycemia, *Vasantkusumakar Rasa*, Stress, *Prameha*, Type II DM

### Introduction:

Diabetes is an epidemic which is spreading at an alarming rate worldwide. According to the International Diabetes Federation, approximately 420 million people suffer from this disorder currently, with figures projected to increase to 620 million by the year 2045. Stress is considered to be one of the major causative factors behind having Diabetes Mellitus. It not only acts as an etiological factor but also as a triggering factor.

“Stress” is defined as a situation which tends to disturb the balance between a human and its environment. Stress is a part of everyday life and is necessary for providing challenge to physiological and psychological development. However, too much stress over a period of time combined with poor coping habits may cause physical, chemical and hormonal imbalances in the body, thus leading to

various diseases. Causes of stress can be divided into two categories, external and internal causes. Family and relationship stressors, work stressors, etc., come under external causes and factors such as uncertainty or worries, low self-esteem, self-criticism, excessive anger and unrealistic expectations come under internal causes. Stress is a potential contributor to chronic hyperglycemia in Prameha (type 2 diabetes). Exposure to stress stimulates the hypothalamic-pituitary-adrenocortical (HPA) axis causing release of various hormones, resulting in elevated blood glucose level<sup>1</sup>. It has major effects on metabolic activity as well. Signs of stress can be defined at cognitive, emotional, physical or behavioral level.

Ayurveda has long recognized the impact of stress on human health and wellbeing, regarding it as a major risk factor in the development of various diseases<sup>2</sup>. Described in the classical texts as *sahasa*, stress is said to first affect the body by causing *ojahksaya* (weakened immunity), making you vulnerable to infections as well as chronic diseases<sup>3</sup>. Those who are at risk for or suffer from diabetes need to be particularly careful to limit their exposure to stress, and to take measures to make themselves more equipped to deal with stress when it's unavoidable.

Vasantkusumakar Rasa is a *Suvarna yukta Rasaaushadi* described in *Prameha chikitsa* of Bhaishjya Ratnavali<sup>4</sup>. According to the verse, it can be used in *Prameha* as well as in *Manas vikruti* such as *unmaad*. In routine clinical practice also, this formulation is found to be effective in *Prameha*, especially when associated with stress. It has significant anti-hyperglycemic effects. It may also increase insulin levels in the plasma<sup>5</sup>.

Vasantkusumakar Rasa is a *saptadhatu poshak yog*. Its contents provide nourishment to all dhatu from Rasa to Shukra dhatu.

*Kledadhikya* in *Prameha Vyadhi* causes *Dhatvagnimanya* and *dhatu shaithilya*. Vasantkusumakar increases *dhatvagni* and improves *Dhatupariposhan Krama* and acts as a *Rasayan* in *Prameha Vyadhi*. *Prameha* affects important organs like *Netra*, *Vrukka*, *Vatanadi* etc. *Vasantkusumakar* acts as *rasayan* and improves its functions. Thus, also being beneficial in *Pramehajanya Updrava*.

As stress has a significant impact on hyperglycemia, it needs to be addresses. Hence a clinical study was conducted to find the association of stress with Type II DM and the effectiveness of Vasantkusumakar Rasa on it.

**TABLE NO. 1: INGREDIENTS OF VASANTKUSUMAKAR RASA**

Ingredients	Quantity
SWARNA BHASMA	2 Parts
RAJATA BHASMA	2 Parts
VANGA BHASMA	3 Parts
NAGA BHASMA	3 Parts
LOHA BHASMA	3 Parts
ABHRAKA BHASMA	4 Parts
PRAVALA BHASMA	4 Parts
MUKTA BHASMA	4 Parts

#### **Bhavna Dravya**

*Godugdha*, *Ikshurasa*, *Vasa Kwath*, *Laksha Swaras*, *Sugandhavalala Kwath*, *Kadalikanda Swaras*, *Kamal pushpa* and *Malti Pushpa Swaras*- Each 1 *bhavna*.

#### **Aims and Objectives:**

To evaluate the effectiveness of Vasantkusumakar Rasa in stress induced Type II Diabetes Mellitus (*Prameha*).

### Material and Methods:

An open clinical trial was conducted in patients visiting the outpatient department of Special Diabetes OPD of Kayachikitsa Department, Ayurveda Hospital, Sion, Mumbai.

**Sample Size-** Ten patients (25-60 age group)

**Survey Tools-**International Stress Management Association (ISMA) questionnaire to calculate the stress score, ISMA questionnaire containing 25 questions was used. According to the symptoms present in the individuals, the score is given. The score above 14 is suggestive of stress and stress-related diseases<sup>6</sup>.

**Study design** – Open labelled randomized clinical trial.

**Age group** – 25–60 years.

**Dose** – 125 mg OD for 1 month

**Administration** – With lukewarm water daily empty stomach in the morning.

**Investigations-** Fasting Blood Sugar (FBS) Postprandial blood sugar (PPBS)

### Inclusion criteria

- Patients having blood sugar level (FBS 140–200 mg/dl) after getting informed consent
- ISMA stress score >14
- Age between 30 and 60 years.

### Exclusion criteria

- Patients having psychiatric illness and under antipsychiatry medications
- Gestational diabetes
- Juvenile diabetes
- FBS >200 mg/dl
- Pregnant and lactating women.

### Assessment-

1. Evaluation of stress through Stress Assessment Questionnaire (SAQ) before and after the treatment

2. Assessment of biochemical parameters like FBS and PPBS before and after the treatment.

### Interpretation of Data-

The outcome was measured, and data were statistically analyzed using student “t” -test with two-tailed paired sampling.

### Observation:

Ten individuals were selected for the study. Of the 10 individuals 3 had FBS between 140-160mg/dl, 3 within the range 160-180mg/dl and 4 within the range 180-200. Majority of individual were having FBS between 180-200. 5 had PPBS within the range of 200-225mg/dl, 2 within the range 250-275mg/dl and 3 within the range of 275-300mg/dl of 10 individuals. All patients had ISMD stress score >14.

### Result:

Open labelled clinical trial Effect of therapy showed significant result in biochemical values. 11.87% and 14.6% relief were observed in FBS and PPBS respectively. Overall effect in major domains of SAQ are 5.85% relief in symptoms and 4.76% improvement in stability.

Mean BT score was reduced from 21.21 to 19.96 with 5.85% relief. The improvement found in this domain is mainly due to the psychological counselling (psycho-education) given to the patient during the period of intervention.

### Discussion:

Stress and hyperglycemia, Role of stress in the onset of type 2 diabetes in individuals predisposed to diabetes and in blood glucose control in people with established diabetes is already proved.

Activation of HPA axis causes release of increased amounts of glucocorticoids, in particular cortisol, enhances gluconeogenesis in the liver and diminishes cellular glucose uptake. It also leads to immunosuppression. Stress-induced release of growth hormone can also decrease glucose uptake and endorphin will suppress insulin secretion and elevate glucose levels. Therefore, stressful stimuli

have impact on glucose levels through numerous pathways. Eventually, elevated blood glucose levels by themselves impair the ability of pancreas to respond to glucose stimulus. Stress management and progressive muscle relaxation have been shown to be very effective in the treatment of disorders with a psychophysiological component<sup>7</sup>.

TABLE NO. 2: PERCENTAGE OF IMPROVEMENT IN BLOOD SUGAR LEVEL

Parameters`	Mean score		SD	% relief	t	P
Symptoms	BT	AT				
FBS	166.03	146.33	13.56	11.87	7.9	<0.001
PPBS	232.43	199.17	25.73	14.3	7.0	<0.001

BT: Before trial, AT: After trial, SD: Standard deviation,

FBS: Fasting blood sugar, PPBS: Postprandial blood sugar

TABLE NO.3: effects of *vasantkusumakar rasa* major domains of stress assessment questionnaire

Parameters	Mean score		SD	Percentage of relief	t	P
	BT	AT				
Emotion	6.83	5.4	1.22	20.94	6.42	<0.001
Behavior	7.16	5.20	0.99	27.45	10.78	<0.001
Physical	7.33	5.57	0.89	24.11	10.78	<0.001
Stability						
Procrasti nation	7.06	5.73	1.09	17.5	6.68	<0.001
Perfectionism	6.73	5.53	1.09	17.83	6.0	<0.001
Self-esteem	7.27	5.8	5.8	7.27	7.07	<0.001
Depression	7.43	5.46	0.85	26.47	12.69	<0.001
Anxiety	7.43	5.57	1.07	25.12	9.52	<0.001
Social support	4.06	6	1.46	47.89	7.25	<0.001
Self-regulation	4.28	5.93	1.24	39.06	7.36	<0.001
Problem-solving	4.57	6.53	1.33	43.07	8.12	<0.001
Distracti on	4.27	6.27	1.44	46.87	7.61	<0.001
Health	4.7	7.7	1.8	63.83	9.12	<0.001

BT: Before trial, AT: After trial, SD: Standard deviation

TABLE NO. 4: overall effect of *vasantkusumakar rasa* on symptoms and stability

Features	BT	AT	SD	Percentage of t Relief	t	p
Symptoms	21.21	19.96	0.58	5.85	11.6	<0.001
Stability	35.52	33.82	1.01	4.76	9.06	<0.001

#### Clinical Trial -

Maximum number of patients were in 40–50 years age group. 100% of participants reported fluctuating FBS level and 80% were free from family history of diabetes. 70% had unhealthy food habits and low exercise levels. Vasantkusumakar Rasa is found to be highly significant in Stress-associated hyperglycemia. According to the Samhita Verses it is effective in various conditions such as *Valit Palit, Medha Shakti, Kama Shakti Vardhak, Prameha Nashak, Sharir pushti, Putra utpatti, Kshay, Kasa, Shwas, Unmaad, Raktavikaar, Vishdosh, Amlapitta nashak*<sup>8</sup>. This is widely practiced for psychological conditions as well. It is used in Unmaad (Psychosis), Anxiety and poor mental state as it increases mental activity and brain tone. In *Prameha* where the patient is not suitable for *Shodhana* (purification), *Shamana chikitsa* (pacification)<sup>9</sup>, in the form of *Rasaaushadi* can be administered. Hence, Vasantkusumakar Rasa formulation was administered. The formulation has several properties like it is *sheeta, rakta prasadhak, hriday, pitta prasadhak, dhatu vardhak and balya*<sup>10</sup>. It acts as a hypoglycemic, insulin modulator, balances hormones, enhances nutritional status, strength enhancer, immunity promoter and rejuvenator.

#### Conclusion:

In this current era, stress has a key role in the etiopathogenesis of diabetes. The present study proves that hyperglycemia which occurs in individuals is primarily stress induced. Furthermore, the effectiveness of the trial drug “Vasantkusumakar Rasa” which is indicated in Diabetes as well as mental disorders is highly significant in stress-associated hyperglycemia. This shows the importance of stress evaluation while treating a diabetic patient. The treatment varies depending on the factors such as nature of the stress and *Prakriti* of the individuals.

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