Research Article

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UPASHAYATMAKA EFFECT OF RASON (*ALLIUM SATIVAM* LINN.) IN MADHUMEHA WITH SPECIAL REFERENCE TO BLOOD SUGAR LEVEL

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ABSTRACT

In the present study, Upshayatmaka effect of Rason on Madhumeha was seen by taking two groups; Study group (Group A) and Control group (Group B) each having 20 patients. Group A patients were given Rason Capsule (500 mg BD) along with previously prescribed Antidiabetic drug (Metformin 500 mg BD) whereas Group B patients were given only Antidiabetic drug till one month orally and follow up were taken after every 10th day. The result has been drawn by statistical analysis and it has been found that in study group the fasting Blood Sugar Level (BSL) was lowered by 32.35% as compared to control group 17.64% and Post Prandial BSL was lowered by 26.41% as compared to control group 12.50% and out of Six, 3 symptoms Bahumutrata, Trushna and Hasta-pada-tala Daha shows Uttam Upashay whereas 3 symptoms Alasya, Atinidra and Mukha madhurya shows Madhyam Upashay. No Adverse effect of Rason was noted in this study.

Keywords: Rason (*Allium sativum* Linn.), Madhumeha, Blood sugar level.

INTRODUCTION

Currently, India is the diabetes capital of the world. The prevalence of diabetes is closely associated with industrialization and socio-economic development. It is estimated that over 40 million of diabetics are currently in India and by 2025 that number will grow to 70 million. In other words, 1 in every 5 diabetics in the world will live in India. Diabetes is the number one cause of kidney failure, is responsible for 5% of blindness in adults and one million limb amputations every year.

It will soon become the first non communicable disease whose severity will be endorsed by the United Nation. According to data released by the International Diabetes Federation, 41 million of the 659 million people in the age group of 20-79 years in India have diabetes. Currently the number of cases of Diabetes worldwide is estimated to be around 366 million. This number is predicted to 552 million by 2030 with over 20% being from urban set-ups. Although the prevalence of Type I and Type II Diabetes Mellitus (DM) is increasing worldwide, the prevalence of Type II D.M. is expected to rise more rapidly in future because of increasing obesity and reduced physical activity¹.

In spite of tremendous advancement of modern medicine i.e. oral hypoglycaemic agent and insulin till date, an ideal drug which can cure diabetes is not yet available and still scientists are struggling to search an effective and harmless therapy. So effort has been made here, to search the safe and effective medicine in Ayurved.

In Ayurved Prameha is described under one of the eight major illnesses (Mahagad). Acharya Charak has given 20 types of Prameha according to vitiation of various Doshas. Madhumeha (D.M) is one of the subtypes of Vataja Prameha. It can be co-relate with Diabetes mellitus characterized by hyperglycaemia. The pathogenesis of Madhumeha indicates that Ojas the supreme Dhatu of the

body has sweet property, but due to excessive Ruksha property, Vata Dosha vitiates Ojas and generates sourness and clinches it towards basti. So the drug having properties like ushna, tikshna and snigdha will break this pathogenesis and may be helpful to cure Madhumeha².

In Ayurvedic texts Rason (*Allium sativum* Linn.) has 'Mehaghna' property as described in Astang Hridhay sutrasthan³ having Tikshna (highly penetrating deep in to the tissues), Ushna (hot in potency), and Snigdha property. It is a rejuvenator of the body⁴. Rason is easily available in market, less expensive and internally administered as a single drug or as a major ingredient of several formulations useful in a number of diseases. Rason is a major Rasayana drug used in geriatrics. In Madhumeha blood sugar level value can be estimated. The increased value of blood sugar level may lead to complications like Diabetic ketoacidosis, Retinopathy, Neuropathy, Nephropathy, Coronary artery diseases and peripheral arterial disease⁵⁻⁶. No any previous work done on this topic.

Aim and objectives

- To study the Upashayatmaka effect of Rason on Madhumeha.
- To observe the adverse effect if any.

Hypothesis – Does Rason have uttam upashaya in Madhumeha?

MATERIAL AND METHODS

Study Design

A single blind, randomized, drug controlled, comparative, clinical study.

Selection of patients

Patients of Madhumeha (Known Diabetic) were selected randomly in 2 groups i.e. study group (Group A) and control group (Group B).

Group A - 20 patients were given Rason capsule along with previously prescribed antidiabetic drug (Metformin 500 mg BD.)

Group B - 20 patients were given only previously prescribed antidiabetic drug (Metformin 500 mg BD).

Criteria for inclusion

- Age: 30 to 60 yrs.
- Sex: male/female.
- Patient will be known case of Diabetes i.e. NIDDM.

Criteria for exclusion

- Hyperacidity or any Gastro-intestinal disorders.

- Diabetic complications like - Retinopathy, peripheral neuropathy, diabetic foot, ketoacidosis.
- Acute attack of hypo or hyper-glycaemia or history of such complications.
- Random BSL is more than 300 mg% and doesn't respond to Oral Hypoglycemic Agents.
- Any major illness like, malignancy hypertension, IHD, MI (Myocardial Infarction).

The study was carried out as per the Institutional Ethical Clearance Number – 3726/11-12/Date 7.12.2011

Action of Rason (*Allium sativum* Linn.)

In Madhumeha Bahumutrata, Alasya, Hast-pad-tal daha, Mukha madhurya, Ati nidra symptoms are seen due to Kled formation and dravguna of Kapha increases. Rason with its Ushana, tikshna guna and Kapha-vata shamak property, act as Kleadnashak and Kaphavata shamak. Agnidipana and pachan properties causes aampachan and stops further aam nirmitti.

Table 1: Method of Drug Administration

	Group – A	Group – B
Drug	Rason capsule along with antidiabetic drug	Only antidiabetic drug
Route of Administration	Oral	Oral
Dose	500 mg BD	As per prescribed dose
Kala	Vyan – Udan (BD)	As per prescribed kala
Anupana	Luke warm water	Water
Duration	1 Month	1 Month
Follow Up	Every 10 th day	Every 10 th day

Table 2: Effect on Symptoms - Comparison in Two Groups

Symptoms	Day	Group	Mean	S.D	t	P Value
Bahumutrata	After Treatment	A	1.000	0.725	2.60	P<0.05
		B	1.550	0.605		
Trushna	After Treatment	A	1.000	0.725	2.60	P<0.05
		B	1.550	0.605		
Alasya	After Treatment	A	1.450	0.605	2.60	P<0.05
		B	2.000	0.725		
Ati Nidra	After Treatment	A	1.350	0.671	1.67	P<0.05
		B	1.700	0.657		
Mukh madhurya	After Treatment	A	1.250	0.786	1.13	P<0.05
		B	1.500	0.607		
Hasta-Pad-Tal Daha	After Treatment	A	1.150	0.587	2.30	P<0.05
		B	1.550	0.510		

Table 3: Effect on BSL/Urine sugar level in Fasting and Post Prandial - Comparison of 2 groups

	Day	Group	Mean	S.D	t	P Value
BSL level in Fasting	After Treatment	A	1.150	0.366	1.45	P<0.05
		B	1.400	0.681		
BSL level in Post prandial	After Treatment	A	1.950	0.605	0.82	P<0.05
		B	2.100	0.553		
Urine sugar level in Fasting	After Treatment	A	0.100	0.308	0.47	P<0.05
		B	0.150	0.366		
Urine sugar level in Post Prandial	After Treatment	A	3.150	0.366	0.71	P<0.05
		B	3.050	0.510		

Table 4: Blood Sugar Level - Group- A Fasting and Post Prandial

	Fasting		Post Prandial	
BSL Level	No. of patients	Percentage %	No. of patients	Percentage %
0 – 20 mg%	11	55%	7	35%
21- 40 mg%	7	35%	10	50%
41-60 mg%	2	10%	3	15%

Table 5: Blood Sugar Level - Group- B Fasting and Post Prandial

	Fasting		Post Prandial	
BSL Level	No. of patients	Percentage %	No. of patients	Percentage %
0 – 20 mg%	17	85%	16	80%
21- 40 mg%	03	15%	04	20%
41-60 mg%	00	00%	00	00%

OBSERVATIONS AND RESULTS

The patients of Madhumeha who were included in the trial had to undergo clinical examinations at every follow up of 10 days up to one month for clinical assessment of signs and symptoms. For assessment of patients the following criteria were used which have already been described in design of study.

The upashayatmaka effect of Rason capsule on the Group A and anti-diabetic drug on Group B was assessed on basis of criteria designed for assessment. The observations were recorded in case record form on day 1 and every 10th day for one month. The results were drawn with **paired and unpaired t test**. The data generated during the study was subjected to student's 't' test for unpaired data to assess the statistical significance. 'P' value less than 0.05 are considered as statistically significant. (Table 2)

From Table 2 it is evident that the difference in results of both the groups is statistically significant. The comparative value of $t = 2.60$ ($P < 0.005$) on day 30

indicates that the results obtained in these two groups in Bahumutrata, Hasta-Pad-Tal Daha and Trishna scores are statistically highly significant. Rason capsule shows good results in relieving the symptoms Bahumutrata, Hasta-Pad-Tal Daha and Trishna score in study group (Group A).

From above chart it is clear that the difference in results of both the groups is statistically significant. The comparative value of $t = 2.60$ ($P < 0.005$) on day 30 indicates that the results obtained in these two groups in Alasya and Ati Nidra are statistically significant. Rason Capsule shows good results in relieving the symptom Alasya and Ati nidra in Study Group (Group A).

From Table 2 it is suggested that the difference in results of both the groups is statistically significant. The comparative value of $t = 1.13$ ($P < 0.005$) on day 30 indicates that the results obtained in these two groups in Mukha madhurya is statistically significant. Rason capsule shows good results in relieving the symptom Mukha madhurya in Study Group (Group A).

Figure 1: Comparison of Bahumutrata

Figure 2: Comparison of Trishna

Figure 3: Comparison of Alasya

Figure 4: Comparison of Atinidra

Figure 5: Comparison of Mukh madhurya

Figure 6: Comparison of Hasta Pada Tala Daha

From Table 3 it is clear that the difference in results of both the groups is statistically significant. The comparative value of $t = 1.45$ ($P < 0.005$) on day 30 indicates that the results obtained in these two groups in BSL level fasting and Post prandial is statistically significant. Rason capsule shows good results in reducing BSL level Group (Group A).

From above chart it is confirmed that the difference in results of both the groups is statistically significant. The comparative value of $t = 0.47$ ($P < 0.05$) on day 30 indicates that the results obtained in these two groups in BSL level is statistically significant. Rason capsule shows good results in reducing Urine sugar level fasting and Post prandial in Group (Group A). (Table 3)

For Fasting; Table 4 shows that, 11 patients out of 20 patients (55%) were of reduced BSL level by 0 to 20 mg%; 7 patients (35%) was reduced BSL level 21 to 40 mg% and 2 patients (10%) were of reduced BSL level 41 to 60 mg%.

For Post Prandial; Table 4 shows that, 7 patients out of 20 patients (35%) were of reduced BSL level by 0 to 20 mg%; 10 patients (50%) were reduced BSL level 21 to 40 mg% and 3 patients (15%) were of reduced BSL level 41 to 60 mg%.

Table 5 shows that, 17 patients out of 20 patients (85%) were of reduced BSL level by 0 to 20 mg%; 3 patients (15%) were reduced BSL level 21 to 40 mg%.

Table 5 shows that, 16 patients out of 20 patients (80%) were of reduced BSL level by 0 to 20 mg%; 4 patients (20%) were reduced BSL level 21 to 40 mg%.

DISCUSSION

In this research work 40 patients were observed in 2 groups i.e. study group (Group A) and control group (Group B) for effect of Rason in Madhumeha with special reference to Blood sugar level. Madhumeha is vataj type of Prameha; and Rason has good Vataśhaman property. Rason has Kledanashana property by its Guna, Rasa and Virya; due to these properties main symptom of Madhumeha i.e. Bahumutrata is reduced, as main function of mutra is kledvahana. Atinidra and Alasya symptoms were reduced due to Kaphashamak property. Snigdha and Pichhil guna of Rason has vatashamak property hence it showed good results in relieving the symptom Trishna, which is due to vataprakop in Udakavaha srotas.

According to the Observation of data

For the assessment of the patients subjective as well as objective criteria were taken.

- In subjective criteria, 6 symptoms were assessed. In these 6 symptoms; 3 symptoms were having highly significant value of p and showed good results to relieving the symptoms viz. Bahumutrata, Trushna and Hasta-Pad-Tal daha. Remaining 3 were having significant value of p and showed good results in relieving the symptoms viz. Alasya, Ati Nidra, Mukha madhurya and Trushna. (Table 2)

- In study group Bahumutrata was relieved by 68.25%, Trushna – 61.01% and Hasta-Pad-Tal daha – 61.01%, i.e. Uttam Upashaya. Whereas symptom as Alasya – 46.26%, Ati Nidra – 48.07%, Mukha madhurya – 46.80% showed Madhayam Upashaya. (Table 2)
- In objective criteria Blood sugar level was done before and after the treatment. (Table 3)
- In study group the Fasting BSL was lowered by 32.35% on an average and post prandial BSL was lowered by 26.41% on an average. (Table 4)
- In control group the Fasting BSL was lowered by 17.64% on an average and post prandial BSL was lowered by 12.5% on an average. (Table 5)
- In the study group out of 20 patients no adverse effects have been observed during and after the study.

CONCLUSION

Out of 6 cardinal symptoms, Rason capsule along with antidiabetic drug shows Uttam upashaya (Highly significant) in relieving the Bahumutrata as well as madhayam upashaya (significant) in both other 5 symptoms and reducing the Blood Sugar Level. No adverse effect of Rason was noted in this study. It was cost effective and easily available supplementary drug for Madhumeha.

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