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AN OBSERVATIONAL STUDY OF KARANJA BEEJA POWDER ON DIABETES MELLITUS

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ABSTRACT
Now a days hypoglycemic agents are used in diabetes mellitus but without curative effect and also with many adverse effect. Certain life style & stressful condition now a day called for many distressing disease foremost amongst them Diabetes Mellitus is perfect example for life style disease. India is capital of Diabetes mellitus in the world According to International Diabetes Foundation. Currently The disease affects more than 62 million Indians, Which is more than 7.1% of India's adult Population. An Estimate shows that Approximately 1 million Indians die due to diabetes every year. The average age of onset is 42.5 year. In this scenario Ayurvedic herbs may be useful. karanja i.e. *Pongamia pinnata Linn.* Linn. is one of them.

KEYWORDS: DM, Karanja Beeja powder, Metformin.

INTRODUCTION[1]
Diabetes has reached epidemic proportions and threatens to pose a growing worldwide public health care burden The number of cases of diabetes is estimated to increase from 171 million worldwide in 2002 to 366 million in 2030. The greatest absolute increase in the number of people with diabetes will be in India.

Type 2 diabetes, a multifaceted disease, is manifested by hyperglycaemia that results from several deregulated biological mechanisms. It significantly reduces longevity and diminishes quality of life. The busy and worried life of modern era has open the door for the predisposition of Madhumeha. The excessive heavy diet, excessive use of sugar and jiggery and their products, lack of physical exercises are considered to be predisposing factors of the disease.[2]

Despite many advances in modern medicine, diabetes mellitus continue to be associated with increased morbidity and mortality. Thus the successful treatment of the disease has became a challenge to physicians world over.

AIM AND OBJECTIVE
To observe the effects of Karanja Beeja Churna in Hyperglycemic condition on diabetes mellitus.

MATERIAL AND METHODS
Criteria for Selection of Patients
The patients having classical signs and symptoms of Madhumeha (Diabetes Mellitus type-2) have been selected randomly from O.P.D. of I.P.D. of parul Sevashram Hospital irrespective of age, sex, caste, religion, occupation etc.

Diagnostic Criteria[3]
Increase in Blood Sugar level either fasting or postprandial or both was the essential criteria for the selection.

Exclusion Criteria
1) Patients of Sahaja Madhumeha (IDDM)
2) Patients below 20 yrs. Of age.
3) Patients with severe diabetic complications.
4) Patients complicated with cardiac problems.
5) Diabetes mellitus due to other hormonal disturbances like Phaeochromocytoma, Acromegaly, Thyrotoxicoses etc.
6) Diabetes due to side effect of drugs :

Diuretics (Thiazide groups) Steroids.

Investigations[4]

1) Biochemical Examination

Blood Sugar fasting and Blood Sugar post prandial before and after treatment and after completion of 2 month of treatment.

Grouping Design

All the O.P.D. patients were asked to report on every 7th day. This study was conducted on O.P.D. patients only. The selected patients were categorized randomly in the following two groups –

(1) Group A-Karanja Beeja Churna: 15 patients of Madhumeha were included in this group and given Karanja Beeja Churna in the dose of 2gm twice/day, with lukewarm water, before taking meals for the duration of 60 days.

(2) (Group B- Metformin (Modern anti diabetic medicine): 15 patients of Madhumeha were registered in this group and given METFORMIN in the dose of 500mg twice/day, with lukewarm water, before taking meals for the duration of 60 days.

Criteria for Assessment[5]

After the completion of the treatment, the results were assessed by adopting the following criteria:

Improvement in signs and symptoms of disease on the basis of the symptoms score.

F.B.S. and P.P.B.S. levels[6]

The patients were examined weekly and the changes observed in the signs and symptoms were assessed by adopting suitable scoring method and the objective signs by using appropriate clinical tools.

Fasting blood sugar (mg/dl)[7]				
	75 – 110		-	0
	111	- 165	-	1
	166	– 210	-	2
	211	- 270	-	3
	271	– 320	-	4
	> 320		-	5

Postprandial blood sugar (mg/dl)			
	Up to 140	-	0
	141 – 210	-	1
	211 – 290	-	2
	291 – 360	-	3
	360 – 450	-	4
	> 450	-	5

The obtained results were interpreted as

Insignificant-p>**0.05**

Significant-p<**0.05**

Significant-p<**0.01**

Highly significant-p<**0.001**

Assessment of Overall Effect of the Therapy[8]

First percentage improvement of individual patient was calculated as shown below:

All the B.T. score of the above mentioned symptoms & biochemical parameters of the patient were added.

All the A.T. score of the above mentioned symptoms & biochemical parameters of the patient were added.

Overall percentage improvement of each patient was calculated by the following formula:

$$\frac{\text{Total BT-Total AT}}{\text{Total BT}} \times 100$$

The result thus obtained from individual patient was categorized according to the following grades:

1) Control of the disease: Complete relief in signs and symptoms and >30mg/dl reduction in Postprandial blood sugar level.
2) Markedly improved: Up to 75% relief in signs and symptoms and 20mg/dl reduction in Postprandial blood Sugar level.
3) Improved: Up to 50% relief in signs and symptoms and 10mg/dl reduction in Postprandial blood sugar level.
4) Unchanged: less than 25% relief in signs and symptoms and no reduction or increase in Postprandial blood Sugar level.

OBSERVATION AND RESULTS

Effect of Therapies

Group A(Karanja Beeja Poeder)

In this Group, 15 patients of Madhumeha were reduced. The patients were given Karanja Beeja Churna in the dose of 2 gm twice a day with lukewarm water, before meals, for the duration of 60 days.

Table 1: Effect of Karanja Beeja Churna on Biochemical values.

Biochemical Values	Mean Score		% Relief	S.D. (±)	S.E. (±)	't'	P
	B.T.	A.T.					
Blood Sugar							
Fasting (n=15)	218.18	195.10	10.55	52.67	15.88	1.45	>0.10
Postprandial(n=15)	293.90	266.80	9.25	66.79	20.13	1.35	>0.10

Karanja Beeja powder provided 10.54% relief in Fasting blood sugar which was statistically not significant (P>0.10) and 9.25% relief in postprandial Blood which was statistically not significant (P>0.10).

Table 2: Total effect of Karanja Beeja Churna on 15 patients of Madhumeha.

Results	No. of Patients	Percentage
Controlled	02	13.33
Markedly Improved	06	40.00
Improved	07	46.66
Unchanged	00	00.00

In this group, 13.33% patients were under the control of the disease, 40.00% patients showed markedly improvement, 46.66% patients showed improvement no patient of this series remarked unchanged.

Group B

Mtformine (Modern Antidiabetic Medicine)

In this group, 15 patients of Madhumeha were included. In this group METFORMIN was administered with the dose of 500MG twice a day with lukewarm water, before meals, for the duration of 60 days.

Table 3: Effect of modern Therapy on Biochemical values.

Biochemical Values	Mean Score		% Relief	S.D. (±)	S.E. (±)	't'	P
	B.T.	A.T.					
Blood Sugar							
Fasting (n=15)	209.8	188.7	10.0	46.2	11.9	1.7	0.10
			4	9	5	6	
Postprandial	298.7	252.4	15.4	74.2	19.4	2.3	<0.0
(n=15)			9	4	3	8	5

Modern therapy provided statistically significant reduction (P<0.05) in Postprandial blood sugar by 15.49% relief and statistically insignificant (P>0.10) in Fasting Blood sugar with 46.29% relief.

Table 4: Total effect of Modern Therapy on 15 patients of Madhumeha.

Results	No. of Patients	Percentage
Controlled	04	26.67
Markedly	07	46.66
Improved		
Improved	03	20.00
Unchanged	01	6.67

In this group, 26.67% patients were under the control of the disease, 46.66% patients showed markedly improvement. 20.00% patients showed improvement. The remaining 6.67% patients were unchanged after treatment.

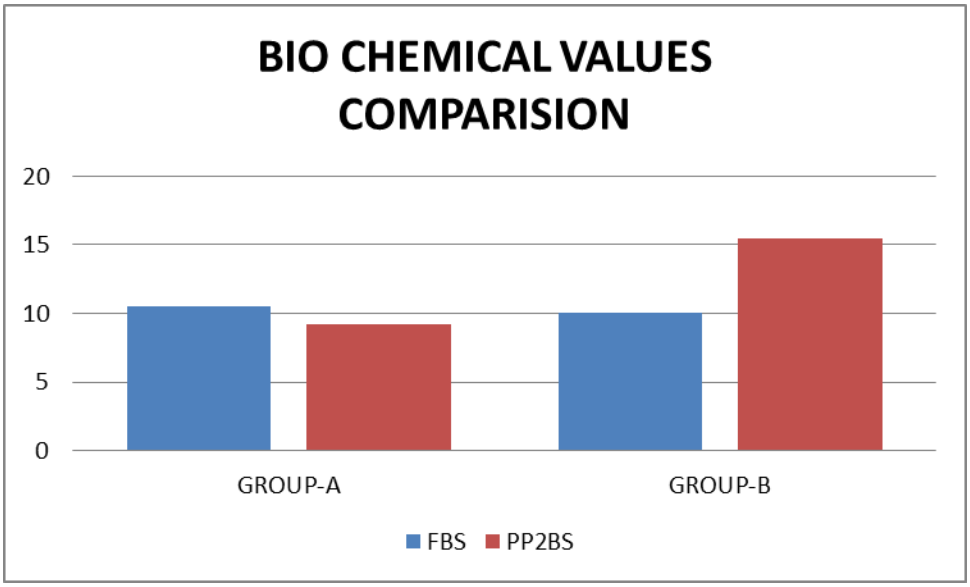

Chart 1 (Table No 1 & 3).

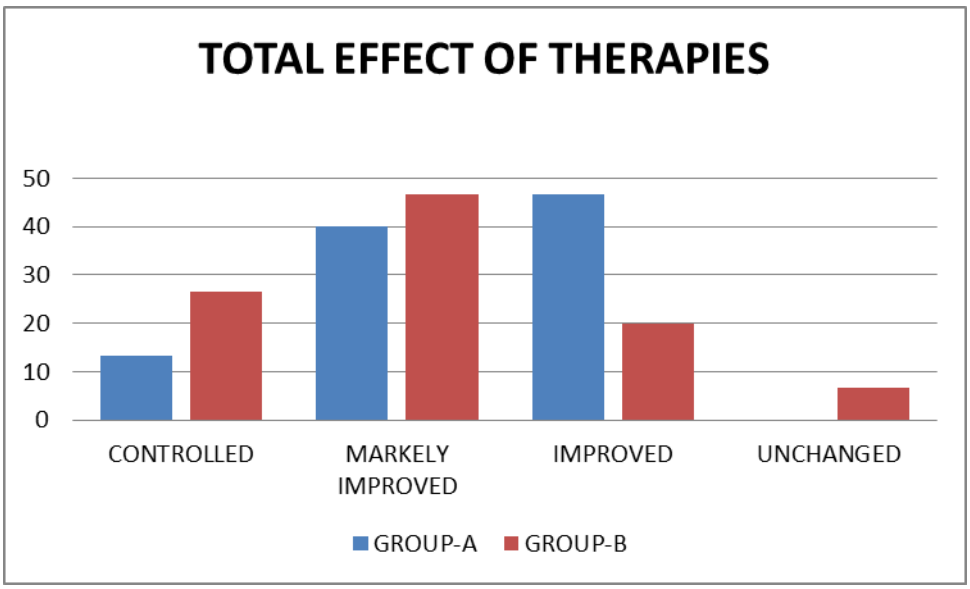

Chart 2 (Table No 2 & 4).

DISSCUSSION

Plan of Study

The study was conducted in two group of patients –

1. Karaanja beeeja Churna group
2. Metformin (modern antidiabetic medicine) group.

The study was carried out in two groups comprising a total of 30 patients. The criteria for diagnosis was based upon clinical signs and symptoms of the disease and confirmed by Fasting Blood Sugar, Postprandial Blood Sugar. The Dhatukshayajanya or IDDM patients and Sahaja Madhumeha patients, patients associated with Cardiac diseases were excluded from the study.

15 patients out of total 30 patients of Madhumeha studied in this series were administered the Karanja Beeja Churna only. 15 patients included in modern therapy group, were given Metformin. In A group, Karanja Beeja Churna was given in the dose of 2gm twice a day for the duration of 60 days. It was given half hour before meal with lukewarm water. The improvement in the signs and symptoms of the disease and the F.B.S., P.P.B.S., were the main criteria for assessment. The total effect of the therapies was also assessed in terms of Controlled, Markedly Improved, Improved and Unchanged.

Biochemical Values

Already diagnosed patients were subjected for the investigations with their modern drug management i.e Metformin

Blood Sugar Level

The mean fasting Blood Sugar level was 218.18mg/dl in Shamana group while in modern therapy group it was 209.80 mg/dl.

The mean Postprandial Blood sugar level was 293.90 mg/dl in Shamana group while in modern therapy group it was 298.70 mg/dl. It is obvious from these values that all the patients were well established cases of Diabetes mellitus.

Biochemical Values

Fasting Blood Sugar: The Karanja Beeja Churna (Shamana Therapy) group A showed 10.54% relief in Fasting Blood Sugar which was statistically insignificant (P>0.10), while Modern Therapy group showed 10.04% relief which was statistically insignificant (P<0.10).

Postprandial Blood Sugar: The Karanja Beeja Churna (Shamana Therapy) group showed 9.25% relief which was statistically insignificant (P>0.10). Whereas Modern Therapy group showed 15.49% relief which was statistically significant (P<0.05).

Total Effect of Therapies

No patient was assessed as cured in any of the two groups.

- **Under Control:** The 13.33% patients were assessed as under control in Karanja Beeja Churna (Shamana Therapy) group, while 26.67% patients were assessed under this grade in Modern Therapy group.
- **Markedly Improved:** In Karanja Beeja Churna (Shamana Therapy) group 40.00% patients were assessed as marked improved, whereas in Modern Therapy group 46.67% patients were observed under this grade.
- **Improved:** The 46.66% patients were assessed as Improved in Karanja Beeja Churna (Shamana Therapy) group, while 20.00% patients were assessed under this grade in Modern Therapy group.
- **Unchanged:** In Karanja Beeja Churna (Shamana Therapy) group 0.00% patients were assessed as marked improved, whereas in Modern Therapy group 6.67% patients were observed under this grade.

CONCLUSION

Avaranjanya Madhumeha can be correlated with diabetes mellitus type 2. Etiological factor mainly vitiates Kapha, Pitta and Meda causes obstruction to the path of Vata. Due to Avarana aggravated Vata causes depletion of vital Dhatu like Oja so the disease is hard to treat. Treatment modalities based upon the consideration of mainly vitiated Kapha, Meda and Vata.

Sedentary life, lack of exercise, faulty food habits and improper medication precipitates the disease. Urbanization also plays an important role in the enhancement of the disease. Classical symptomatology can be found in patients but many patients are symptomless for sometime and present with complications at the time of diagnosis.

Drugs having Medakaphahara and Rasayana properties like karaanja beeja Churna may be the ideal choice in the management of Madhumeha.

Karanja Beeja Churna and Metformin both provided better relief in signs and symptoms of the disease and percent relief in F.B.S., P.P.B.S. Relief in P.P.B.S. was found significant only in Modern medicine group. Thus we can say that karaanja beeja Churna can be a good complementary medicine to achieve better control in blood sugar levels. The present work had to take several limitations within a short trial term like work limited time and limited funds.

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