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Effects Of Aqueous Extracts Of Indian Rennet Flower In Reducing Blood Glucose Level Among Diabetic Adults In Selected Diabetic Clinics, Bangalore

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ABSTRACT

Introduction:

Throughout world various health systems have not been able to manage diabetes efficiently. In the management of diabetes, oral hypoglycemic medications (e.g. Metformin etc.), insulin and lifestyle management are followed. The main emphasis in diabetes management lies on the use of medications for keeping blood sugar levels as close to normal (euglycemia) as possible, without causing hypoglycemia. The most common side effect of these includes weight gain, nausea, rash, or gas. Examples of more serious side effects are heart issues, liver damage, or low blood sugar[1].

Methods:

A quasi-experimental design was employed in which 30 subjects visiting diabetic clinics were identified and randomized into experimental group (15) and the control group (15) by lot method. A structured interview schedule was used to collect data, followed by the assessment of the pre-test blood glucose level in both the groups. Aqueous extracts of Indian Rennet Flower was administered to the experimental group alone in the morning in an empty stomach AND blood glucose level is checked on 10^{th}, 20th, and 30^{th} days of administration .

Results:

Mean pre–intervention fasting blood glucose level in the experimental and control group was 293.73±131.61, 251.47±106.00 respectively. The mean post–intervention fasting blood glucose level on the 10^{th} , 20^{th} and 30^{th}days of the intervention in the experimental group was 222.33±74.77, 194.60±67.11 , 175.40±71.75 respectively and in the control group on 10^{th} , 20^{th} and 30^{th} days was 256.00±113.50, 251.00±118.52, 254.60±110.98 respectively.

Results showed great reduction in the mean blood glucose level among patients in the experimental group .

Discussion

Present study would help the diabetic clients to control their blood glucose level using naturally available herbs and help them to know how well these herbs help them in improving general wellbeing.

KEYWORDS: Blood glucose level; Indian Rennet flower; Complimentary medicines; herbal remedies for type II diabetes mellitus

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INTRODUCTION

Sedentary life style and stressful mental conditions now a days have called for many distressing diseases, foremost amongst them being Diabetes Mellitus – a perfect example for a lifestyle disorder. Diabetes is a group of metabolic disorders characterized by a chronic hyperglycemic condition resulting from insufficient action of insulin. The main pathophysiological features of type 2 diabetes, are impaired insulin secretion and increased insulin resistance[1].

Plant based medicines have created much awareness in the today's society due to their various well proven therapeutic effects and lack of side effects which has provoked the human to go back towards nature for safer herbal remedies[4] .Charkas Samhita and Sushrusha Samhita give extensive description on various medicinal plants. Presently about 25% of pharmaceutical prescriptions in the United States contain at least one plant-derived ingredient[7].The use of alternative and herbal treatment of Diabetes is increasing and new research has given promising results with many herbs. One such herb which has been studied is *Withania coagulans*[2].

Withania coagulans was a lesser known plant which has drawn attention in the recent times because of the presence of important phytoconstituents like Withanolides in it which have immense pharmacological activities. The plant has been used in Unani system of medicine since many years[3].

OBJECTIVE OF THE STUDY

Objectives of the study are:

a) To assess the pretest blood glucose level among diabetic adults of both experimental and control
b) To determine the effectiveness of administration of aqueous extracts Indian rennet flower in reducing blood glucose level among diabetic adults in experimental group.
c) To find the association between post-test blood glucose level with the selected demographic variables of both experimental and control group.

HYPOTHESES

H_1: There will be a significant difference between mean pre –test and post test scores of blood glucose levels among diabetic adults of selected diabetic clinics

MATERIAL AND METHODS:

Study design and setting : A quasi-experimental pre-test post-test control group design was adopted and the samples were chosen in urban family welfare centers .

Population : The population for the study included interested diabetic patients who visited on diabetic clinic days.

Sampling technique:

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Sample size for this study was 30 diabetic adults who visited diabetic clinic and were selected by purposive sampling technique, based on inclusion and exclusion criteria. The 15 each samples were allocated into the experimental and control groups via the lot method.

DATA COLLECTION TOOL AND TECHNIQUE

Structured interview schedule was developed to collect baseline information which consisted 12 items and Blood glucose levels were checked using standardized glucometer .

Reliability of the instrument

The reliability of the instrument was established by comparing the venous blood glucose values obtained from standardized laboratory procedures (Biochemistry laboratory, BMCRI) and capillary blood glucose level tested by Omni test 3 glucometer.

Data collection method: The purpose of the study was explained to the participants and a written informed consent was obtained. A structured interview was conducted to elicit baseline information about the participants. Pre-test fasting blood glucose level were assessed in both experimental and control groups.

250 ml of aqueous extracts of Indian rennet flower was administered to the experimental group in the morning in an empty stomach before 40 minutes of food and oral medication. The intervention was administered for 30 days along with antidiabetic medications in the experimental group and the control group received only antidiabetic medications.

Reassessment of fasting blood glucose level was done on 10^{th}, 20^{th} and 30^{th} days (counting from the day of starting intervention).

Statistical analysis :

The collected data were analyzed by using descriptive statistics and inferential statistics. Data was analyzed in terms of frequency , percentage , mean median ,mean percentage and standard deviation and presented through tables and diagrams .the significant difference between pretest and post test blood glucose levels were found by unpaired t test .association of blood glucose level with selected demographic variables were tested using Chi-square test .

RESULTS :

SECTION 1 and Table 1: Frequency and percentage distribution of diabetic adults according to baseline variables.

N=30

	Experimental group (n=15)		Control group(n=15)	
	Frequency	%	Frequency	%

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Age in years 41-50 51 -60 61-70	 8 1 6	 53.33 6.66 40	 6 4 5	 40 26.66 33.33
Gender Male Female	 9 6	 60 40	 8 7	 53.33 46.67
Family history of diabetes Present Absent Do not know	 12 03 0	 80 20 00	 9 5 1	 60 33.33 6.66
Occupation Govt Employee Private Employee Self-business	 2 7 6	 13.30 46.70 40.00	 3 5 7	 20 33.33 46.67
Lifestyle Sedentary Moderate Worker Heavy worker	 1 14 0	 6.66 93.33 00	 4 10 1	 26.66 66.66 06.66
Duration of the illness less than 5 years 5-10 years 11 years &above	 7 4 4	 46.66 26.66 26.66	 9 3 3	 60 20 20
Name of the drug under treatment Metformin 500mg Metformin 500mg + Glimepiride 2mg Metformin 500mg + Glipizide 5mg	5 6 4	33.33 40 26.66	7 5 3	46.66 33.33 20.01

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Table 1 depicts –

1. Majority of participants are belonged to the age group of 40-50 years in both experimental group and control group, i.e., 53.33% and 40% of respectively
2. Gender 60% of the participants in experimental and 53.33% .of the participants in the control group were male and 40%in the experimental group and 46.33% in the control group were female.
3. Most (80%) of the participants in the experimental group and 60% in the control group had a family history of diabetes mellitus.
4. 46.70% were employed in the private sectors private in the experimental and 46.67% were running self-business in the control group.
5. Majority 93% of participants in the experimental and 66% in the control group were moderate worker.
6. Most 46.66% participants in the experimental group and 60% of them in the control group had duration of illness less than 5 years
7. Most of 46.66% participants in the experimental group and 60% of them in the control group were under treatment less than 5 years. Majority (40%) of the participants in the experimental group were under the treatment of drug named Tablet metformin 500mg + glimepiride 2 mg and most (46.66%) of the participants in the control group were under the treatment of drug named Tablet metformin 500mg.

Section 2: Findings related to blood glucose level of diabetic adults in experimental and control group before and after the intervention

Table 2a: Frequency and percentage distribution of pretest glucose level of diabetic Adults in the experimental group and control group

n=30

Diabetic status	**Blood glucose level (mg/dl)**	**Experimental group**		**Control group**	
		Number (f)	**Percentage (%)**	**Number (f)**	**Percentage (%)**
Extremely high	311+	5	33.33	3	20
High	216-310	5	33.33	5	33.33
Borderline	140-215	5	33.33	7	46.66

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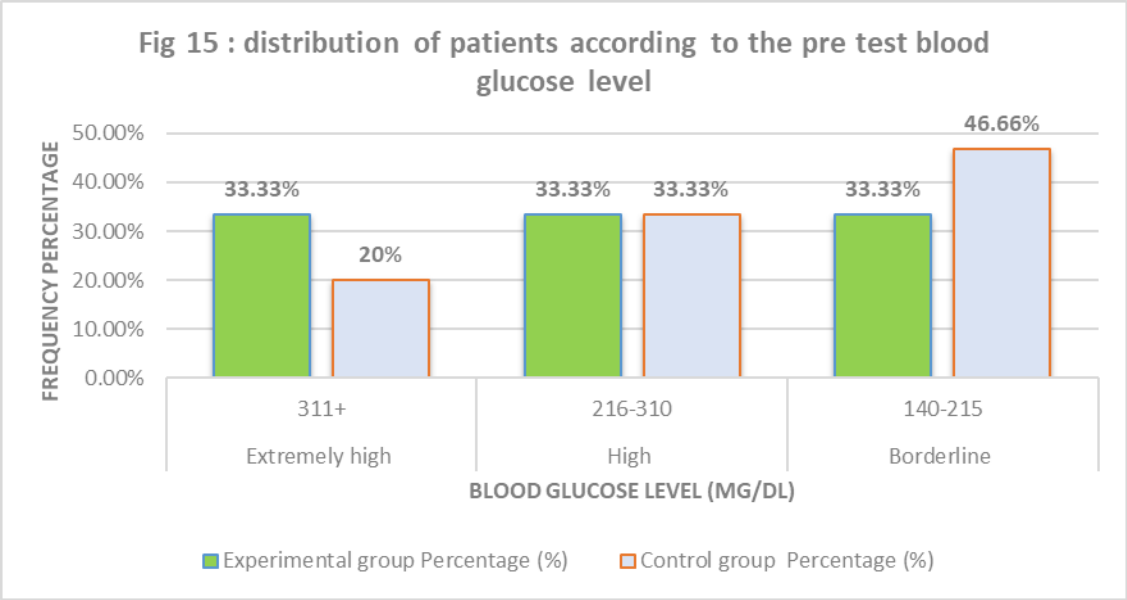

Table 2a and Fig 15 shows that:

1. 33.33% of the patients in the experimental and 20% in the control group were extremely high diabetic with fasting blood glucose level reading above 311mg/dl.
2. 33.33% of the patients were having high level of fasting blood glucose reading ranged 216-310 mg/dl both in the experimental and control group.
3. 33.33 % of patients in the experimental group and 46.66% of patients in the control group were having borderline fasting blood glucose level ranging between 140-210 mg/dl.

Section 3: Comparison of blood glucose level among diabetic adults in experimental and control group before and after the intervention

H1: There will be a significant difference between mean pre-test post-test scores of blood glucose level among diabetic adults of diabetic clinic

Table 3b: comparison of blood glucose level among diabetic adults in experimental and control group before and after the intervention.

n=30

	Experimental group	**Control Group**	**t value**	**P**
Day	**Mean± SD**	**Mean± SD**		
Pre Test	293.73±131.61	251.47±106.00	0.96	0.341**
Day 10	222.33±74.77	256.07±113.50	0.96	0.345**
Day 20	194.60±67.11	251.00±118.52	1.60	0.120**
Day 30	175.40±71.75	254.60±110.98	2.32	0.028*

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** No Significance * Significant

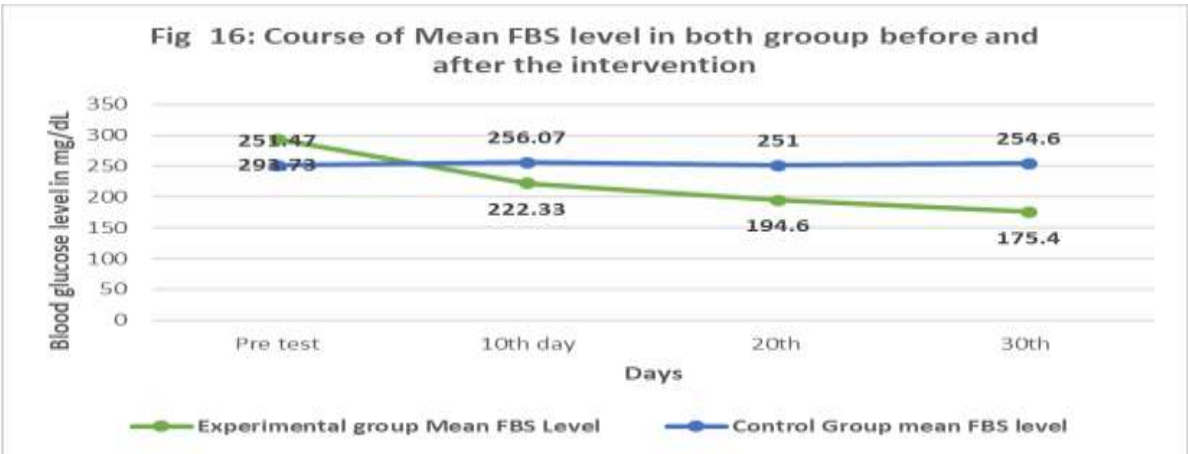

Table 3b depicts that -

1. The mean post –intervention blood glucose level on day 10th was 222.33+74.77 as compared to the pre-intervention score of 293+131.61(paired t= 2.92,p value =0.011)
2. The mean post –intervention blood glucose level on day 20th was 194.60+67.11as compared to the pre-intervention score of 293+131.61(paired t= 3.64, p value = 0.003)
3. The mean post –intervention blood glucose level on day 30th was 175.40+71.75as compared to the pre-intervention score of 293+131.61(paired t= 4.54, p value= 0.00)

The above results shows that there is a significant reduction in the blood glucose level among type II diabetic adults of experimental group.

Section 4: Comparison of blood glucose level among diabetic adults in experimental and control group after the intervention.

n=30

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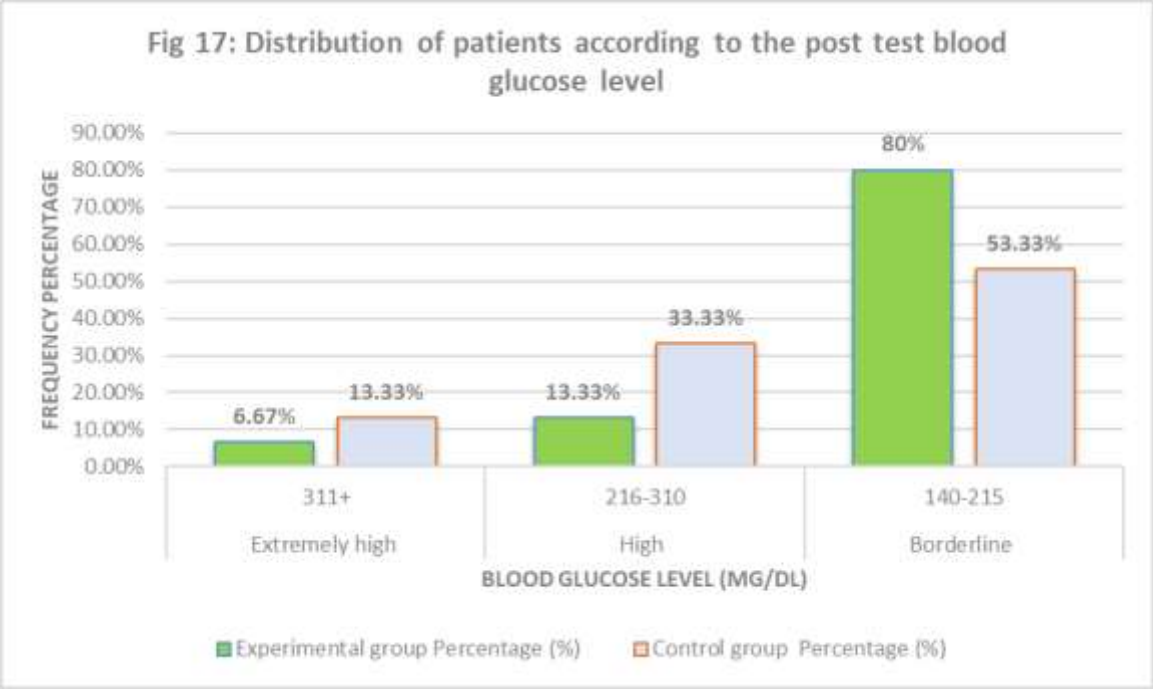

Table 2a and Fig 17 shows that:

1. 6.67% of the patients in the experimental and 13.33% in the control group were extremely high diabetic with fasting blood glucose level reading above 311 mg/dl.
2. 13.33% of the patients were having high level of fasting blood glucose reading ranged 216-310 mg/dl in the experimental and 33.33% in the control group.
3. 80% of patients in the experimental group and 53.33% of patients in the control group were having borderline fasting blood glucose level ranging between 140-210 mg/

References :

1. Karam, Verma Bhavna. Role of Ayurveda Herbs on Madhumeha (Diabetes Mellitus). International Journal of Ayurveda and Herbal Medicine vol.3, No. 2, 2013. Available from: URL:http://interscience.org.uk/index.php/ijahm.
2. Vandana Gupta, Bipin Bihari Keshari Withania Coagulans Dunal. (Paneer Doda): A Review .International journal of Ayurvedic& herbal medicine .Vol 3, No.5.Sep-Oct. 2013. Available from URL: http://www.interscience.org.uk.
3.Sridharan K, Mohan R, Ramaratnam S, Panneerselvam D. Ayurvedic treatments for diabetes mellitus. Cochrane Database of Systematic Reviews.2011. Issue 12. Art. No.: CD008288. DOI: 10.1002/14651858.CD008288.pub2
4. Dolly Jaiswal, Prashant Kumar Rai and Geeta Watal. Antidiabetic Effect ofWithania Coagulans in Experimental Rats. Indian Journal of Clinical Biochemistry. 2009 .Vol. 24, No.1.Pg. 88-93(https://pubmed.ncbi.nlm.nih.gov/23105813/)