

A STUDY TO ASSESS THE EFFECTIVENESS OF FENUGREEK SEED POWDER AND LEVEL OF SATISFACTION IN MAINTAINING FASTING BLOOD GLUCOSE LEVEL AMONG NIDDM PATIENTS

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INTRODUCTION

Diabetes mellitus is one of the leading causes of disability and mortality in the world, especially in India. India leads the world with the largest number of diabetic subjects which is responsible for the premature disability[1]. The diabetes mellitus is a chronic metabolic disorder that prevents the body from utilizing glucose completely or partially. NIDDM is characterized by insulin resistant or inadequate insulin secretion. Nearly 90 – 95 percentage of all the patients with diabetes belong to this category and it usually develops after the age of 40 years[2].

The International Diabetic Federation (IDF) has estimated that the total number of diabetic subjects was 50 million in India in the year 2010 and this was further set to rise to 87 million by the year 2030[3]. According to the WHO non communicable diseases accounted for 70 percentage of the global mortality and 85 percentage of the global burden was from the low and middle income countries[4].

The need of hypoglycemic foods gained importance in India with the increased incidents of diabetes among Indian population. The Multiple Risk Factor Intervention Trial (MRFIT) has reported a women with a BMI greater than 30 kg/m² carries a higher risk of developing diabetes[5].

The present study is focused on claims that fenugreek is effective in treating NIDDM. 4 – hydroxyl isoleucine which is a type of amino acid derived from fenugreek is found to increase the secretion of insulin from islets of langerhans cells it also reduces resistance to insulin and maintained glucose level in the body[6]. There is a urgent need to implement preventive measures to reduce the high morbidity and mortality to reduce the cost burden to the patients and society.

Statement Of The Problem

A study to assess the effectiveness of fenugreek seed powder and level of satisfaction in maintaining fasting blood glucose level among NIDDM patients in selected hospital at Kanyakumari district.

OBJECTIVES

1. To assess the pre and post test scores of fasting blood glucose level in experimental group and control group among NIDDM patients.
2. To determine the effectiveness of fenugreek seed powder in maintain fasting blood glucose level among NIDDM patients.
3. To assess the level of satisfaction regarding fenugreek seed powder administration among NIDDM patients.
4. To find out the association between pretest fasting blood glucose level and selected demographic variables and clinical parameters.

HYPOTHESES

H₁ : The mean post test scores of fasting blood glucose level of patients with NIDDM who had administered fenugreek seed powder will be significantly lower than their mean pretest fasting blood glucose level.

H₂ : The mean post test scores of fasting blood glucose level of patients with NIDDM who had administered fenugreek seed powder will be significantly lower than their mean pre scores with control group.

H₃ : There will be high level of satisfaction regarding fenugreek seed powder administration among NIDDM patients.

H₄ : There will be significant association between pretest fasting blood glucose level and selected demographic and clinical parameter of patients with NIDDM.

METHODOLOGY

Research Approach: Quantitative Approach

Research Design: Quasi experimental design

E O₁ × O₂ O₃

C O₄ - O₅ O₆

RESEARCH VARIABLE

Dependent variable: Level of fasting blood sugar

Independent variable: fenugreek seed powder

Demographic variable: Age, gender, education, type of work, income per month, marital status, type of family, family history of illness, types of exercise, exercise pattern, sleep pattern, dietary pattern, habit and body built in terms of body mass index.

Clinical variable

Clinical parameters such as duration of diabetes mellitus, illness, duration of treatment, associated illness, previous hospitalization and medical treatment pattern for diabetes mellitus.

Setting of the study: The study was conducted in Dennis Hospital, Kannya Kumari District

Target population:

Target population comprised of all NIDDM patients

Accessible population:

The NIDDM patients in selected Hospital.

Sample:

20 NIDDM patients in experimental groups

20 NIDDM patients in control group

Sampling Techniques

Purposive sampling Technique was used.

CRITERIA OF SAMPLE SELECTION

Inclusion criteria

NIDDM Patients who are

1. In the age group of 35 – 65 years
2. Fasting blood glucose level between 120 – 300 mg/dl
3. On sulfonyl urea group of drugs.
4. Willing to participate in the study.

EXCLUSION CRITERIA

Common

1. Complications of diabetes

Micro vascular complications such as retinopathy, nephropathy and neuropathy and diabetic foot disorders and macro vascular complication such as heart attack, stroke and insufficiency in blood flow to legs.

2. Allergy to fenugreek seed powder.
3. Already taking fenugreek seed powder.
4. Gestational diabetes mellitus.

Specific

Fenugreek seed powder

Patients who are

1. Receiving anti-coagulants.
2. Receiving thyroid medication.
3. Lactating mothers.

Development and description of tool:

The tool consisted of 4 sections.

Section 1: Demographic variables, Clinical variables were obtained by Interview schedule

Section 2: Selected physical parameters (Height and Weight) to measure BMI

Section 3: Fasting blood glucose done by standardized glucometer

Section 4: Rating scale on level of satisfaction of patients on fenugreek seed powder consumption.

Scoring procedure

Highly satisfied : 76-100%

Satisfied : 51-75

Dis satisfied : 26-50

Highly Dissatisfied : <25

DATA COLLECTION PROCEDURE:

The present study was conducted in Dennis Hospital, KK District. Prior permission was obtained from Medical Officer. Samples were selected by purposive sampling technique 20 samples in Experimental groups and 20 samples in control group. The study was explained and confidentiality was maintained. The purpose was explained and informed consent was obtained from the patients. Demographic and clinical variables were obtained by Interview schedule. Height and weight were checked to measure BMI.

Pre – test fasting blood glucose was checked in both groups by glucometer. In experimental group 5gm of fenugreek seed powder with water in the morning in empty stomach and 5gm with water in the night one hour before dinner and medicine. Control group with only conventional treatment.

Two post – test were obtained with 30 days of interval by making the participants fasting for 8 hours over night. The regularity of intake of fenugreek seed powder was obtained by checklist.

Level of satisfaction of participants on fenugreek seed powder was assessed by rating scale.

Plan for data analysis

Data analysis was done according to the objectives using descriptive and inferential statistics. Analysis was done using SPSS version 20.

Analysis of demographic data was done by frequency and percentage. Paired 't' test was used to determine the difference between pretest and post test scores of same group. Independent 't' test was used to determine the difference between post test scores of both group. Chi- square test was used to determine the association between pretest fasting blood glucose scores and selected demographic variables.

Ethical consideration

The study was approved by research and ethical committee of the institution. Assurance was gives to the study subjects that anonymity of each Individual would be maintained. No routine medications were altered or withheld.

Major findings:

To assess the pre and post test scores of fasting blood glucose level in Experimental group and control group among NIDDM patients.

Table -1. Assessment of BGL between experimental group and control groups (n=20).

Tests	BGL mg/dl	Fenugreek		Control	
		No	%	No	%
Pre test	<120	Nil	0.0	Nil	Nil
	120+	20	100.0	20	100
Post 1	<120	6	30.0	Nil	Nil
	120+	14	70.0	20	100
Post 2	<120	7	35.0	Nil	Nil
	120+	13	65.0	20	100

Experimental group and control group were assessed in table -1. Both groups were recorded above 120mg/dl of BGL in the pretests.

Table -2 To determine the effectiveness of fenugreek seed powder in maintain fasting blood glucose level among NIDDM patients (n=20).

Groups	Levels		I n=20		II n=20		Improvements		t	Sig
	I	II	Mean	SD	Mean	SD	Mean	SD		
Fenu greek	Pre	Po- 1	193.6	47.5	162.4	51.3	31.2	24.3	5.757	P<0.001
	Po-1	Po-2	162.4	51.3	155.0	49.3	7.4	8.9	3.704	P<0.001
	Pre	Po-2	193.6	47.5	155.0	49.3	38.6	24.7	6.980	P<0.001
control	Pre	Po- 1	201.4	43.2	197.4	40.4	3.9	14.4	1.207	P>0.05
	Po-1	Po-2	197.4	40.4	201.5	43.0	4.0	13.0	1.379	P>0.05
	Pre	Po-2	201.4	43.2	201.5	43.0	0.1	3.9	0.026	P>0.05

The effectiveness of fenugreek and control groups were compared within the groups from pre to post-1, post-1 to post-2 and pre to post -2 in the above table 6. The fenugreek pre test mean BGL was 193.6 ± 47.5 mg/dl and Post-1 was 162.4 ± 51.3 mg/dl. Similarly, the post-1 to post-2 was 162.4 ± 51.3 and 155.0 ± 49.3 mg/dl. The pre to post-2 reduction was 193.6 ± 47.5 and 155.0 ± 49.5 mg/dl. The reductions were statistically very highly significant ($P < 0.001$). At the same time the mean reductions of control groups were not statistically significant ($P > 0.05$).

Table -3 To assess the level of satisfaction regarding fenugreek seed administration among NIDDM patients.

Satisfaction category	Satisfaction score	% of satisfaction	fenugreek seed powder	
			F	%
Highly satisfied	37 – 48	75 – 100	20	100
Satisfied	25 – 36	50 – 75	0	0
Dis satisfied	13 – 24	25 – 50	0	0
Highly satisfied	1 – 12	1 – 25	0	0

Table -3 Elicited that 100% of participants were highly satisfied with fenugreek seed powder administration.

To find out the association between pretest fasting blood glucose level and selected demographic variables

There was no significant association between pre blood glucose level and demographic variables and clinical parameters among NIDDM patients.

Implication of the study

The nursing administrators can arrange in-service education program and continuing educational program for directing and motivating staff towards natural therapy. Fenugreek seed powder as an alternative therapy offer supportive care for patients with diabetes along with conventional treatment reflected the desire for a holistic approach to the patients. It focuses on evidenced based practice promotes critical thinking, clinical decision making,

quality care and patient safety. Nurse educators can encourage the students to conduct in-service education regarding alternative and complementary therapies. Health personnel should take initiative in conducting awareness programmes and mass media campaigns on prevention of complications of diabetes.

CONCLUSION

The study finding revealed that there was a significant reduction in fasting blood glucose level after administering jam seed powder along with conventional treatment. Fenugreek seed powder is cost effective, it reduces the need of increasing the dose of drugs and increase the general wellbeing among NIDDM patients. Thus fenugreek seed powder played a major role in maintaining fasting blood glucose level.

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