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Assess the Effect of Fenugreek on Blood Sugar among Type-II Diabetes Patients

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Abstract: ***The present study was conducted to assess the effectiveness of Fenugreek on Blood Sugar among Diabetes patients at Sree Mookambika Medical College Hospital, Kulasekharam, Kanyakumari District. The study design adopted was an Experimental design. The samples were selected purposively and randomly assigned. The effective sample size was 60. There was a steady reduction in FBS level from pre-test 140.90 and (SD 11.934) to post-test 139.48, (SD 12.156). The obtained ANOVA F= 11.653 (p<0.001) was significant. Therefore, Fenugreek was found to be effective in reducing Blood Sugar level (FBS). There was a steady reduction in PPBS level from pre-test to post-test, 197.70 (SD 27.318), 162.63 (SD 19.182). The obtained ANNOVA F= 37.135 (p <0.001) was significant. Therefore, Fenugreek was found to be effective in reducing Blood Sugar level (PPBS). The Mean value of HBA1C- I was 12.34, (SD 1.249) the Mean value of HBA1C-II was 10.47, (SD 1.083). The obtained t = 15.69(p< 0.001) was significant. Therefore, Fenugreek was found to be effective in reducing Blood Sugar level (HBA1C).***

Keywords: Fenugreek, Type-II Diabetes

1. Introduction

According to West K M(1999), In India, the type-II diabetes mellitus is a silent, chronic un-identified killer among adult population. India leads the world with largest number of diabetic subjects earning the dubious distinction of being termed the "diabetes capital of the world". According to the Diabetes Atlas 2016 published by the International Diabetes Federation, the number of people with diabetes in India currently around 60.9 million is expected to rise to 77.9 million by 2025 unless urgent preventive steps are taken. The so called "Asian Indian Phenotype" refers to certain unique clinical and biochemical abnormalities in Indians which include increased insulin resistance, greater abdominal adiposity *i.e.*, higher waist circumference despite lower body mass index, lower adiponectin and higher high sensitive C-reactive protein levels.

According to Assad S (2013), In ancient periods spices were used as adding flavour and improve the taste of food recipes. Beside this they were used in cosmetics and medicinal preparations of Indian systems such as Ayurveda and Umami. Fenugreek has scientific name as Trigonellafoenum-graecum, which has been cultivated and used medicinally and ceremonially for thousands of years ago in Asian and Mediterranean cultures.They have great medicinal value in Indian homes and serve as good hypoglycaemic, hypocholestrolemic, galactogouge, laxative, stimulant, carminative, anti-acidic, antibacterial, antihypertensive, antithrombotic, anticarcino genic, antioxidant and diuretic[10].

Statement of the Problem:

A Study to assess the effect of Fenugreek on Blood Sugar among Type-II diabetic patients.

Objectives:

To evaluate the blood sugar level before and after taking fenugreek among patients with Type-II diabetes.
To test the association between the mean difference in blood sugar and selected factors among patients Type-II diabetes.

Operational Definitions:

Effect

Refers to judgement, in this study it refers to the outcome after the consumption of the fenugreek among Type-II diabetic patients. It is measured in terms of the mean difference in Fasting blood sugar, Post Prandial Blood Sugar and Glycosylated Haemoglobin.

Fenugreek

Fenugreek killer enriched diets cause a delay in the absorption of carbohydrates from the diet, thereby reducing insulin requirements. It refers to the consumption of raw seeds of fenugreek (2 tsp) soaked in 1 glass of H2O overnight and consuming the water and seeds in empty stomach in morning for 3 months.

Blood Glucose Level

Refers to the level of FBS assessed by empty stomach, PPBS assessed after two hours of FBS three times totally by Glucometer and Glycosylated Haemoglobin assessed from Clinical Laboratory after three month interval.

Type-II Diabetes

Refers to those patients who were diagnosed to have Type-II diabetes mellitus whose fasting blood Sugar level will be more than 110 mg/dl. Post-Prandial more than 140 mg/dl and HBA_1C more than 6.5 mg/ dl.

Section I: Data on Frequency and Percentage Distribution of Sample based on Base line Information, Personal habits and Physical activities.

Table 4.1: Frequency and Percentage Distribution of Sample based on Base line Information

Base line information	Fenugreek Group n=60				χ^2(P)
	n	%			
Sex					
a. Male	35	58.3			0.5
b. Female	25	41.7			(p>0.05)
Marital status					
a. Single					
b. Married	54	90			0.295
c. Widowed	6	10			(p> 0.05)
d. Divorce					
Type of family					
a. Nuclear	16	26.6			
b. Joint	40	66.7			0.282
c. Extended	4	6.7			(p>0.05
Education					
a. Literate	42	70			0.012
b. Illiterate	18	30			(p<0.05)
Occupation					
a. Professional	5	8.3			
b. Technician	22	36.6			0.041
c. Agriculture	27	45			(p < 0.05)
d. Sales worker	6	10			
Working time					
a. 6hrs	5	8.3			
b. 8hrs	27	45			0.002
c. 10hrs	27	45			(p <0.05)
d. >10hrs	1	1.7			
Income(Rs)					
a. >32050	1	1.7			
b. 16020-32049	18	30			0.001
c. 12020-16019	28	46.7			(p <0.05)
d. 8010-12019	13	21.6			
e. 4810-8009					

Majority of clients were male 35 (58.3%); 54(90%) were married; 40(66.7%) were from joint family; 42(70%) were literate; 27(45%) were agricultural workers; 27 (45%) were equally working for 10 hours/day; 27 (45%) were working for 8 hours and 28(46.7%) had a range of income between Rs 12, 020-Rs 16, 019.

Table 4.2: Frequency and Percentage Distribution of Sample based on Disease Factors in Fenugreek Group and Cinnamon Group

Disease factors	Fenugreek Group n=60				χ^2(P)
	n	%			
Family history of diabetes					
a. Siblings	9	15			
b. Parents	30	50			0.25
c. Both	11	18.3			(p>0.05)
d. None	10	16.7			
Medical checkup					
a. Once a month	2	3.3			
b. Once in 3 month	18	30			0.012
c. Once in 6 months	23	38.3			(p<0.05)
d. Only when need arises	17	28.3			
Antidiabetic Treatment					
a. Very regular	20	33.3			

b. Sometimes irregular	34'	56.7			0.003
c. Irregular	6	10			(p<0.05)
Diet					
a. Vegetarian	12	20			0.407
b. Non-vegetarian	48	80			(p<0.05)
Food item					
a. CHO 250-350	5	8			
b. 351-400	36	60			0.047
c. 401-500	19	9.0			(p<0.05)

Table 4.9.1.2 reveals Frequency and percentage distribution of diabetic patients based on disease factors**.**

Majority of clients in had family history of father & mother 30 (50%);23 (38.3%) had medical check-up once in 6 months; 34(56.7%) clients taken treatment sometimes irregular; 48 (80%) clients were preferred non-vegetarian; 36 (60%) clients preferred CHO 351-400.

Table 4.3: Frequency and Percentage Distribution of Sample based on Personal Factors

Personal factors	**Fenugreek Group n=60**		**X^{2} (p)**	
	n	**%**		
Habits				
a. Smoking	28	47		
b. Alcohol	11	18		0.005
c. Chewing betel leaves	6	10		(P<0.05)
d. Any other	15	25		
Stress				
a. Mild	2	3		
b. Moderate	30	50		0.056
c. Higher	23	38		(p>0.05)
d. Very higher	5	8		
Physical activity				
a. Yes	32	53		0.000
b. No	28	47		(p<0.05)
Duration				
a. 4-6hrs	14	23.3		
b. 7-8hrs	41	68.3		0.008
c. >8hrs	5	8		(p<0.05)
Nap				
a. Always	8	13.3		0.449
b. Sometimes	44	73.3		(p<0.05)
c. Never	8	13.3		

Table 4.3 reveals Frequency and percentage distribution of diabetic patients based on personal habits.

Majority of clients 28 (47%) had habit of smoking; 30 (50%) of them had moderate stress; 32 (53%) of them were doing activities regularly; 41 (68.3%) were doing physical activities 7-8hrs/day (68.3%); 44 (73.3%) were taking nap sometimes.

Findings on Pre-test and Post-test mean of blood sugar (FBS, PPBS, HBA1C)

There was a steady and significant reduction in blood sugar(FBS) level from pre-test 140.90 and (SD 11.934) to post-test 139.48 and (SD 12.156), F= 11.653 (p<0.001).

There was a steady and significant reduction in (PPBS) level from pre-test to post-test, 197.70 (SD 27.318) and 162.63 (SD 19.182), F= 37.135 (p <0.001).

The Mean value of HBA1C -I was 12.34 and (SD 1.249) the Mean value of HBA1C -II 10.47 and (SD 1.083), t = 15.69($p < 0.001$) was significant.

Peggy Petcher (2017) conducted a study to find out the effect of effect of fenugreek in blood sugar among 100 diabetic patients. Pre-test FBS, PPBS was done.10 grams of fenugreek seeds soaked in hot water and given for 30 days. It was noticed that there was a prompt reduction in FBS, PPBS after consumption of fenugreek.

2. Conclusion

The result of the present study reveals that there was a prompt reduction in FBS, PPBS and HBA1C after consumption of Fenugreek among Type-II Diabetes patients.

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