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Research Paper Nursing

Effect of Oral Herbal Extract on Diabetes Mellitus

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ABSTRACT

Diabetes mellitus is most leading illness to develop many problems and adaptation to the illness requires care from the part of the patient to reduce the risk of complication and mortality. Arugampul grass grows abundantly in India. It has medicinal properties contains more than 65% of Chlorophyll which helps in increasing the number of red blood cells in our body and also contains protein, calcium, fibre, phosphorus and potassium. This is an ideal diabetic diet. So, this study was conducted to determine effectiveness of oral herbal extract on glycemic index among patients with Diabetes mellitus. Quasi experimental research design, two group pre test and post test was adapted. Men and women with Diabetes mellitus were selected by using purposive sampling. The mean score of this study was 110.13 and paired't' test value during fasting was 8.166 which was statistically significant at the level of p<0.001. There is a significant difference on glycemic index of patients with Diabetes mellitus.

KEYWORDS : Oral herbal extract, Arugampul juice, Glycemic index, Fasting, Postprandial

INTRODUCTION

Diabetes Mellitus is the most common non communicable disease globally which affect the population in general, irrespective of age, sex, caste, creed or socio economic status. It is a problem with devastating human, social and economic impact. Today, around 250 million people worldwide are living with Diabetes and by the year 2025, this prevalence is expected to increase to over 380 million.

The rising prevalence of diabetes in developing countries was closely associated with industrialization and socio economic development. The major determinants for projected increase in the number of diabetic patients in these countries were population growth, age structure and urbanization. With the rise in the urban / rural population ratio in all regions, and growing prevalence of obesity among urban dwellers, diabetes was increasingly concentrated in the urban areas.

According to World Health Organization (2009) 180 million people worldwide have diabetes. This number is likely to more than double by 2030. In 2005, an estimated 1.1 million people died from diabetes.

Oral herbal extract (Arugampul) has many medicinal properties mainly it involves its glycemic potential in the treatment of diabetes. It has wonderful medicinal properties contains more than 65% of Chlorophyll which helps in increasing the number of Red blood cell in our body and also contains protein, calcium, fibre, phosphorus and potassium. It helps in maintaining the alkalinity of blood as it reduces acidity, improves digestion cures stomach ailments.

Rai P.K, Rai N.K and Pandhya.S (2009) had conducted the study on role of Glycemic elements of Oral herbal extract in Diabetes Management.

Based on the researchers experience and review of literature it was felt that consuming Oral herbal extract among Diabetic patients will control blood sugar level. So, this study was conducted to determine effectiveness of oral herbal extract on glycemic index among patients with Diabetes mellitus.

The objectives of the study were to assess the glycemic index of patients with diabetes on experimental and control group, to determine the effectiveness of oral herbal extract on glycemic index of patients with diabetes mellitus and to associate the selected demographic variables with glycemic index in both of during pre and post test.

Methods

Research Design: Quasi experimental research design was adapted to assess the effectiveness of oral Herbal extract in blood sugar level among patients with diabetes mellitus at Adukambari and Katupadi village in Vellore district.

Sample: Patients with known diabetes mellitus for 2 to 8 years for all men and women who was taking regular treatment of oral hypoglycemic drugs such as Metformin 500mg, Glycepage 5mg and Tolbutamide 500mg in Adukambari and Katupadi Village. The sample size consisted of 60 patients in which 30 samples were experimental group and 30 samples were control group selected by purposive Sampling technique.

Inclusion criteria: All men and women with known Diabetes mellitus (Type 2), aged between 30 to 60 years, who had blood sugar level ranges during fasting 101–140mg/dl and post prandial 141 – 180mg/dl, who were willing to participate in the study and who were under regular oral hypoglycemic drugs such as Metformin 500mg and Glycepage 5mg.

Description of the tool: The instrument used for this study consisted of two parts.

Part I: Demographic variables of diabetes mellitus patients includes age, sex, education, religion, occupational status, income, family history of diabetes mellitus food practices, availability of health services and sources of health information.

Part II: Checking blood sugar level by using gluco-meter ranges from fasting 101 – 140 mg/dl and post prandial 141 – 160 mg/dl.

Oral Herbal extract

Oral herbal extract is a grass juice which is consumed orally, the grass is gray green colour, available in the form of erect stem with rough edges, grows in open areas and in poor soils, does best in warm, tropical and subtropical climates.

The standard amount of Arugampul juice is 30 ml which is given to Diabetic patients in fasting. To prepare 900 ml of Arugampul juice, take Arugampul grass, wash with water cut into small pieces by scissor and take 6,900 ml of water and add 2,300 gms of Arugampul grass boil it for 100 Degree with lid closed until it comes to 900 ml for 3 hours. The prepared 30 ml of Arugampul juice had been given to each client for 30 days.

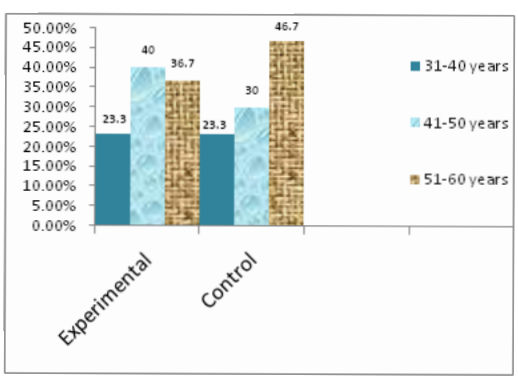
To Prepare 30 ml of Arugampul Juice, take 70 gms of Arugampul grass cut into small pieces by scissor. Wash it with water. Add 230 ml of water to 70 grams of Arugampul grass. Boil it for 50 minutes until it comes to 30 ml, cool the Arugampul juice and serve that 30 ml to the client.

Data collection procedure: The study was conducted in Adukambarai and Katupadi village. Experimental group was in Adukambarai village and control group was in Katupadi village. The investigator obtained formal permission from Ethical clearance committee, Saveetha University. The period of data collection was 4 weeks. The purpose of the study was explained to the subjects with explanation of the procedure and its rational has been given to the subjects. The informed consent was obtained from the clients. On the first day house to house survey method was adapted by the investigator to screen the patients with diabetes mellitus. Totally 60 samples were selected by using purposive sampling technique in which 30 samples for experimental and another 30 samples for control group. On the next day of the study the blood sugar level was checked for all the 60 samples of experimental and control group during fasting and post prandial by using glucometer. For the period of 4 weeks Arugampul juice of 30 ml was given to the 30 samples of experimental group during fasting and provision of pamphlet regarding management of diabetes as an interventional strategy for both groups. At the end of fourth week of the study the blood sugar level was checked for both experimental and control group during fasting and post prandial.

Results and discussion

The results were discussed under the following headings.

Figure-1 shows the age and sex of the experimental and control group



Regarding the education in the experimental group, (20.0%) of them were in primary school, nine (30.0%) were finished secondary school, seven (23.3%) of them were in graduate/post graduate and only eight (26.7%) of them were not educated. In control group nine (30.0%) were belong to primary school, three (10.0%) of them were belong to secondary school, three (10.0%) of them were belong to graduate/post graduate and only 15 (50.0%) of them were not educated.

During pre test 22(73.3%) of them had ranges between 101 – 120 mg/dl and eight (26.7%) of them had ranges between 121 – 140 mg/dl in experimental group and in control group 27(90.0%) of them had ranges between 101 – 120 mg/dl and three (10.0%) of them had ranges between 121 – 140 mg/dl. During post test level of fasting blood glucose level 28(93.3%) of them had ranges between 101 – 120 mg/dl, two (6.7%) of them had ranges between 121 – 140 mg/dl in experimental group and in control group post test level of fasting blood glucose is 28(93.3%) of them had ranges between 101 – 120 mg/dl, two (6.7%) of them had ranges between 121 – 140 mg/dl. Postprandial glucose level in experimental group during pre test 27 (90.0%) of them had ranges between 141 – 160 mg/dl, three (10.0%) of them had ranges between 161 – 180 mg/dl, in control group pre test blood glucose level 28 (93.3%) of them had ranges between 141 –160 mg/dl, two (6.7%) of them had ranges between 161 – 180 mg/dl. Independent 't' test between the post test value of experimental and control group was statistically significant at p<0.001.

During Fasting blood glucose level the Independent t-test between the pre test value of experimental and control group was statistically not significant at p<0.001. Independent t-test between the post test value of experimental and control group was statistically significant at p<0.001. During postprandial blood glucose level the Independent t-test between the pre test value of experimental and control group was statistically not significant at p<0.001. Independent t-test between the post test value of experimental and control group was statistically significant at p<0.001.

Table- 1 : Paired 't' test value of fasting and postprandial blood glucose level among control group during pre and post test

Blood glucose level		Pre test	Post test	Paired 't' test
Fasting	Mean	118.3	110.1	t=8.2, df=29 P<0.001
	S.D	4.2	5.8	
PP	Mean	147.8	131.5	t=9.7, df=29 P<0.001
	S.D	5.6	8.9	

Table- 2 : Paired 't' test value of fasting and postprandial blood glucose level among experimental group during pre and post test

Blood glucose level		Pre test	Post test	Paired 't' test
Fasting	Mean	117	115	t=3.7, df=29 P=0.001 (N.S)
	S.D	2.2	4	
PP	Mean	147.1	147	t=1.7, df=29 P=0.096 (N.S)
	S.D	6.9	6.9	

The chi–square test revealed that there was a significant association between the religion, and during post test among control group in fasting and postprandial blood glucose level at p<0.001.

There was no significant association between selected demographic variables

except religion during pre and post test of experimental group during fasting and postprandial at p<0.001. The hypothesis was accepted that oral herbal extract is effective in controlling glycemic index of patients with diabetes mellitus.

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