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Effectiveness of coriander seed powder to reduce blood sugar level among pre-diabetic clients

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Abstract

Diabetic mellitus is characterized by increased blood glucose level due to insufficient or inefficient insulin. Pre-diabetes is a condition that comes before diabetes. Blood glucose levels gets higher than the normal but are not to be termed as diabetes. The main objective of the study was to assess the effectiveness of coriander seed powder to reduce blood sugar level among pre diabetic clients. The research design for the study was experimental research design. Convenience sampling technique was used to select samples. Structured interview was used to collect background variable and pre and posttest fasting glucose level was classified by using the International Diabetes Association (IDA) classification of diabetes (2012). Data were collected by 60 from Edapalayam Village, Vellore. The pretest mean score of fasting blood glucose was 119.6524 ± 6.18 and the posttest mean score was 111.92 ± 7.50 . The calculated paired 't' test value of $t = 10.950$ that there was a highly significant difference at $p < 0.001$. the demographic variables sex and family income had shown statistically significant association with posttest level of fasting blood sugar among pre diabetic clients at $p < 0.05$ level and the other demographic variables had not shown statistically significant association with the posttest level of fasting blood sugar level among pre diabetic clients.

Keywords: Pre diabetic, coriander seed powder, blood sugar level, international diabetes association (IDA) classification of diabetes (2012)

Introduction

Pre-diabetes is a condition that comes before diabetes. Blood glucose levels gets higher than the normal but are not to be termed as diabetes. It is often described as the "grey area" between normal blood sugar and diabetic levels. According to Indian Council of Medical Research (ICMR), this sets the national guideline in India to ensure the uniformity in the management of diabetes [1, 2].

Diabetics usually require regular monitoring to ensure that the blood glucose level remains within the normal limits so the occurrence of complications can be minimized. Diet and physical activity are imperative factors in managing diabetes, especially in the type II diabetes case. In addition to healthy lifestyle, the antidiabetic drugs like the alpha-glucosidase inhibitors, biguanides, meglitinides, sulfonylureas, thiazolidinediones, and a new group called DPP-4 inhibitors is usually taken [3, 4].

According to a study published in The British Journal of Nutrition (2018), coriander seeds extract possess certain compounds that when are discharged into the blood resulted into insulin discharging and insulin-like movement which managed glucose levels. Coriander seeds can manage blood sugar levels. Coriander seeds have an insane amount of health benefits. They are jam-packed with potassium, iron, vitamins A, K, and C, folic acid and magnesium

Diabetes is a metabolic disease characterized by elevated concentration of blood glucose for prolonged periods of time [5, 6].

Nearly 183 million people (50%) with diabetes were undiagnosed. The incidence rate of people with diabetes high between the age group of 40 – 50 years; reason for this increasing incidence is due to adoption of a more western lifestyle, involving fatty food and too little exercise. India has the world's largest diabetes population of 62.4 million and has the 2nd rank in top ten countries, followed by china with 43.2 million and it was estimated that around 101.2 million will get type 2 diabetes by 2030 [7, 8].

Subhashini Yaturu, (2011) says that, obesity and type 2 diabetes are public health problems. The increase in the prevalence of diabetes was parallels to the obesity.

Some experts call this dual epidemic as ‘diabesity’. Elevated Body Mass Index (BMI) and waist circumference were significantly associated with type 2 diabetes. Type 2 diabetes represents more than 90% of whole diabetes in the world. Its prevalence reached about 4.0% in 1995 and was expected to 5.4% in 2025. The increase in diabetes patient’s number in developing countries like India and China will be more than 75% in 2025, compared to 62% in 1995 [9]. The purpose of this study (1) assess the pretest level of blood sugar among pre diabetic clients (2) assess the posttest level of blood sugar among pre diabetic clients (3) assess the effectiveness of coriander seed powder among the pre diabetic clients (4) associate the posttest level of blood sugar with the selected demographic variables among pre diabetic clients.

Methods and Material

An experimental study was conducted to assess the effectiveness of coriander seed powder to reduce blood sugar level among pre-diabetic clients at edapalayam village, Vellore. The main study was conducted on

10.04.2020 to 17.04.2020. The 60 samples who met the inclusion criteria were selected by convenience sampling technique. The investigator induced and explained the purpose of the study to samples and the written informed consent. A tool was divided into two sections which include, Section A -background variable, section B consists of tool to assess the pre and post test blood glucose level fasting of pre diabetic clients. The demographic data was collected using structured interview questionnaire. The pre and post test blood glucose level was assessed and classified by using the International Diabetes Association (IDA) classification of diabetes (2012). Data collection period was for 1 week in Edapalayam village, village.

Result and Discussion

Section A: Assessment of pretest and post-test fasting blood glucose level among pre diabetic clients

The present study shows that, in the pretest all 60(100%) were pre diabetic whereas after the administration of coriander seed powder on reduction of blood glucose level 54(90%) were pre diabetic and 6(10%) had normal FBS.

Table 1: Frequency and percentage distribution of FBS level among pre diabetic clients

Variables	Experimental group (n = 30)			
	Pre test		Post test	
	No	%	No	%
Fasting Blood Glucose Level (Mg / DL)				
A) Normal <100	0	0	6	10.0
B) Pre diabetic (100 – 125)	60	100.0	54	90.0
C) Diabetes (>126)	0	0	0	0

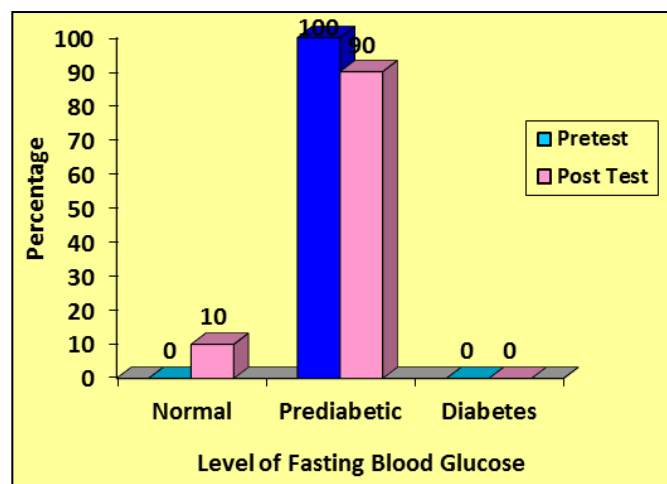


Fig 1: Percentage distribution of level of fasting blood glucose among diabetic clients

Similarly the study was conducted by UllagadiRajeshwari, *et al.*, (2011) aimed to investigate and to compare the antidiabetic, hypolipidemic and antioxidant activities of aniseed(Pimpinellaanisum) and coriander (Coriandrumsativum) seeds in type 2 diabetics as aniseeds and coriander seeds are rich in antioxidants and beneficial phyto chemicals. **METHODS:** The antidiabetic, hypolipidemic and antioxidant activities of aniseeds and coriander seeds were assessed in vivo by the administration of aniseed and coriander seed powder (5g/day) respectively to the selected two group’s of type 2 diabetes patients for 60 days followed by the estimation of a no. of biochemical parameters viz. fasting glucose, lipid profile, enzymatic and non-enzymatic antioxidants. **RESULTS:** Hyperglycemia, hyperlipidemia and oxidative stress as shown by activity of

catalyses (CAT) in erythrocytes, decreased serum β carotene, vitamin A, E and C observed in diabetics were countered by aniseeds and coriander seeds in the respective treated groups. In addition, decreased activities of erythrocyte antioxidant enzyme i.e. glutathione-S -transferase (GST) and reduced glutathione (GSH) content were significantly improved in the treated-diabetics.

Conclusion: Both the seeds significantly influenced almost all the parameters without any detrimental effects by virtue of a number of phytochemicals, vitamins and minerals present in the seeds having therapeutic effects. The antidiabetic, hypolipidemic and antioxidant activities exhibited by the seeds are a result of the synergistic action of the bioactive compounds present in the seeds [10].

Conclusion

The investigator analysed the data has come to a conclusion that, there was significant reduction in the level of FBS score in the post test. The present study showed that the consumption of coriander seed powder was found to be effective method to maintain the blood glucose level among pre diabetic clients.

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Author's contribution

All the authors actively participated in the work of the study. All authors read and approved the final, manuscript.

Conflicts of Interest

The authors declare no conflicts of interest

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