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Relationship between Type 2 Diabetes Mellitus and Alcohol Consumption among Young Adults in Mangalore: A Cross Sectional Study

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ABSTRACT

Diabetes mellitus is one of the most common comorbid illnesses seen in adults and elderly individual. Its prevalence rate is increasing globally and in India. 7.1% of the total population is affected with diabetes. The present study is a community based cross sectional study to investigate the relationship between alcohol consumption and diabetes incidence among young adults. 120 participants were recruited through purposive sampling. Fasting blood sugar and post prandial blood sugar level were taken to identify the diabetic profile. The data were collected and analyzed by using descriptive statistics and results showed that there is a strong association exit between these parameters.

Keywords: Type 2 Diabetes Mellitus, Alcohol Consumption, Young Adult, Mangalore

INTRODUCTION

Diabetes has become a fast growing serious chronic health issue in the world, with the number of people living with diabetes rising significantly over the last few years. It is one of the most common chronic disease in India so far and India also called as diabetes capital due to highest cases found in the country.[1,2] There are now reported to be 422 million adult diabetics (1 in 11) internationally, the majority having type 2. According to the World Health Organization (WHO), the biggest increase is among low and middle income countries. There are many short-term and long-term complications that arise from poorly managed/controlled diabetes. Short-term Complications includes Hypoglycemia, Diabetic ketoacidosis (DKA), Hyperosmolar hyperglycemic state and Long-term Complications includes eyes (retinopathy), Kidneys (nephropathy), Nerves and feet (neuropathy) and Heart (cardiovascular disease). Such complications have dire consequences for a person's health and well-being, as well as a negative effect upon the economies of nations.[3,4,5] Poorly controlled diabetes can lead to serious health complications, which results in other specialist areas needing to become involved. This means more pressure upon resources and a greater financial burden being placed upon the health system.[6,7] There are various modifiable and non modifiable risk factors for diabetes. Life style is one of the commonly involved risk factors for diabetes among the young adults. Furthermore there are also evidence on the strong relationship between alcohol consumption and diabetes.[8] Most of the review article suggests that there is a strong correlation exit between diabetes and alcohol consumption. However clinical and experimental studies are less. This particular study intended to collect the relationship between alcohol consumption and incidence of diabetes mellitus among the young adults.

METHODOLOGY

Objectives

- To estimate the prevalence of pre-diabetic and diabetic Mellitus among the young adults in the rural and urban areas of Mangaluru
- To identify the correlation of diabetes and alcohol consumption among the young adults

Study design: cross sectional study

Study duration: 2019 February - 2019 may (4 months)

Sampling method: Selected companies in Mangaluru were chosen by simple random sampling and from each company through purposive sampling participants were selected.

Inclusion criteria

- Age - 18 to 35
- Gender - male and female
- Subjects who are willing to participate in the study.

Exclusion criteria: Subjects who are not willing to participate in the study.

DATA ANALYSIS AND RESULTS

- The obtained data was evaluated using SPSS software version 16.0.
- The demographic details age and gender were analyzed by using Descriptive statistics.
- The data was normally distributed so mean and standard deviation was used for demographic data.

Participants: young adults who are willing to participate in the study in the age group 18- 35 years

Procedure: An informed consent was taken from the participants before preceding the study.

Procedure: The required components of assessment including age gender FBS, PPBS were documented in the data collection sheet. The purpose of the study and the procedure was explained to the participants and an informed consent form was obtained before the commencement of the study from each participant. The participants were asked to remain fasting for at least eight hours or the next day morning for assessing the fasting blood sugar, and postprandial blood sugar estimation was carried out two hours after the meal. Glucometer (Accu-Chek Instant) was used to test the blood sugar level. A questionnaire has been prepared for taking the demographic details and alcohol consumption. After the report, the diabetic people were advised to consult a doctor for treatment and pre-diabetic people were given instructions to maintain adequate physical activity and modify dietary habits and also advised to repeat the test once every three months

Table 1

		Frequency	%
Gender	Male	78	65
	Female	42	35
Alcohol consumption	Yes	76	63.3
	No	44	36.7

Table 2

	Mean	S.D.
Age	27.38	5.27
FBS	96.78	17.07
PPBS	116.44	17.01

Table 3: Incidence of diabetes

		Frequency	%
FBS	70-100 (Normal)	87	72.5
	100-125 (Pre diabetes)	26	21.7
	> 126 (Diabetes)	7	5.8
PPBS	< 120 (Normal)	89	74.2
	120-140 (Pre diabetes)	22	18.3
	> 140 (Diabetes)	9	7.5

Table 4: Association between gender, Alcohol consumption and FBS

		FBS						Likelihood Ratio	p value
		70-100 (Normal)		100-125 (Pre diabetes)		>126 (Diabetes)			
		n	%	n	%	n	%		
Gender	Male	58	66.67	16	61.54	4	57.14	0.427	0.808
	Female	29	33.33	10	38.46	3	42.86		
Alcohol consumption	Yes	51	58.62	19	73.08	6	85.71	3.678	0.159
	No	36	41.38	7	26.92	1	14.29		

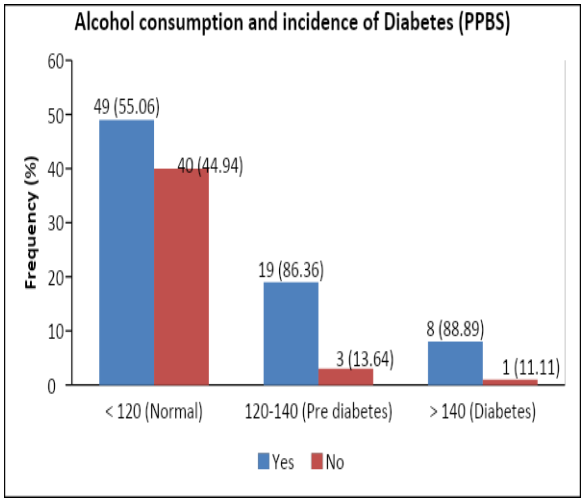
The Likelihood Ratio test was used to find the Association between gender, Alcohol consumption and FBS. There was no association ($p > 0.05$) between gender, Alcohol consumption and FBS.

Table 5: Association between gender, Alcohol consumption and PPBS

		PPBS						Chi square	p value
		< 120 (Normal)		120-140 (Pre diabetes)		> 140 (Diabetes)			
		n	%	n	%	n	%		
Gender	Male	58	65.17	13	59.09	7	77.78	0.985	0.611
	Female	31	34.83	9	40.91	2	22.22		
Alcohol consumption	Yes	49	55.06	19	86.36	8	88.89	10.182	0.006*
	No	40	44.94	3	13.64	1	11.11		

(* Significant)

The Chi square test was used to find the Association between gender, Alcohol consumption and PPBS. There was an association ($p<0.05$) between alcohol consumption and PPBS.



DISCUSSION

Nowadays diabetes mellitus is becoming a major health care challenge for the country. More than 7.1 percentage of the Indian population is affected by diabetes.[3] The findings of the present study revealed that there is a strong correlation exist between alcohol consumption and diabetes incidence. Approximately 88.8% percentage of the individual who are diagnosed diabetes consumes alcohol. The post prandial glucose sugar also high in alcoholics. The findings of the study can be used in clinical practice and decision making skill by reducing the intake of alcohol, the health carer professionals can instruct the patient to reduce the intake of alcohol. So that a homeostatic environment can be maintained as well as liver function can be optimized and it won't interfere the function of pancreas also. Alcohol consumption causes increased carbohydrate intake this causes rise in blood sugar. This excess energy also stores in the form of fat, so the person may get fatty liver. The liver is a major metabolic organ and it mediated many enzymatic reactions. Liver stores the excess glucose in the form of glycogen. When a person consume alcohol liver will try to eliminate the toxic product instead of regulating the glucose metabolism and thus the function gets impaired.[9, 10, 11]Prevention as well as delaying the diabetic-associated complications can be achieved by delivering adequate awareness programs and patient education on the importance of physical activity and modifying the dietary intake. Similar to diabetes prevalence estimation the prevalence of pre-diabetic is also important so that with adequate physical activity and lifestyle changes the chances of getting diabetic can be minimized. There have been many population-based epidemiological cross-sectional studies carried out in various parts of the country to find out the prevalence of diabetes. These studies reported that there is a higher prevalence among the male population compared to females.[12,13,14] Even though genetic predisposition and familial inheritance play an important role, the sedentary lifestyle and food habits are the major contributors.

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Conflict of Interest: None declared

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Ethical Approval: Approved

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