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CROSS SECTIONAL STUDY ON PREVALENCE OF DIABETES AND ASSOCIATED RISK FACTORS IN URBAN POPULATION OF JABALPUR MADHYA PRADESH.

Parnavi Arya^{1*}, Varsha Aglawe²

¹Research Scholar and ² Professor. Department of Zoology and Biotechnology. Government Science College (Autonomous) Jabalpur M.P 482001 India

ABSTRACT

Diabetes is one of the most prevalent chronic diseases and its effect is increasing worldwide. This increase cannot be attributed to a single cause, but rather, to a combination of demographic, lifestyle and clinical factors. Reductions in behavioral patterns like smoking, alcohol consumption and tobacco may help in reducing the prevalence for diabetes. Changes in diagnosis criteria could also influence the number of cases that are identified. Finally, growing public and physician awareness could increase testing, and result in detection of more cases. The main objective of this study was to examine the prevalence of diabetes and risk factors associated in urban population of Jabalpur.

Keywords- Diabetes, prevalence, lifestyle and awareness.

INTRODUCTION

Type 2 diabetes mellitus begins with insulin resistance, a condition in which cells fail to respond to insulin properly. Diabetes is characterized by high blood glucose with disorder in metabolism of fat, protein and carbohydrate. It is one of the non-communicable diseases which have become a major public health problem with prevalence increasing all over the globe in both urban and rural areas, irrespective of socio-economic status [1]. The primary cause is excessive body weight and not enough exercise which results in insulin resistance [2]. According to the IDF estimation, India have risen in people living with diabetes up to 87.0 million by 2030 from 50.8 million (2010), making it the 'Diabetes Capital' of the world [3]. Diabetes has been linked with behavioral, environmental, and societal factors such as: ageing populations, increasing urbanization, reduced physical activity, high alcohol, smoking and tobacco intake. People with diabetes are more prone to have high cholesterol levels, hypertension, and obesity leading to cardiovascular diseases [4].

Objectives

1. To determine the prevalence of diabetes in urban population of Jabalpur.
2. To identify the associated risk factors.

METHODOLOGY

A cross sectional study was carried out in different pathologies present at Jabalpur urban area in Madhya Pradesh region. The study was conducted among the patients who visited the respective pathologies for blood sugar level diagnosis as prescribed by their physicians.

Preparation of Case Report-A pre prepared Questionnaire was filled exactly as told by the patients, which helped to assess data. A brief case report was made of diabetic people as per their test reports issued by pathologies.

Diagnosis- diabetes was defined according to IDF criteria [5].

Inclusion Criteria -Respondents of either gender belonging to age between 20-70 years.

Exclusion Criteria -Pregnant females were not included in the study.

Statistical Analysis -Data collected was entered into Microsoft Excel and analyzed using SPSS. Chi Sq test and Regression analysis were used to study the association and to predict the risk factors. P value less than 0.05 was considered significant.

Variables in the study- Age, Sex, alcohol consumption, smoking, tobacco, sedentary nature and BMI were independent risk factors in the study. While diabetic and non diabetic groups according to fasting blood glucose level ($\geq 126\text{mg/dL}$) was dependent variable.

Ethical consideration

Study was ethically approved by institutional ethical committee.

RESULTS

Present study comprises of total 300 samples 135 were females and 155 were males, 45.0% and 55.0% respectively. In the sampled population 10.33% population was diabetic and 89.67% were non diabetic. Table 1 shows the frequency distribution of sampled population according to age group and sex. Maximum respondents was of group 4 (40.33%) followed by group 5 (22.67%), group 2 (15.67%), group 3 (14.00%) and group 1 (7.33%).

Table 1 shows the frequency distribution of sampled population according to age group and sex.

Age group	Female	Male	Grand Total
Group 1 (21-30 years)	9	13	22
Group 2 (31-40 years)	20	27	47
Group 3 (41-50 years)	23	19	42
Group 4 (51-60 years)	49	72	121
Group 5 (61-70 years)	34	34	68
Total	135	165	300

Table 2 shows the association of diabetes with various variables in the study.

Variables		Diabetic (%)	Non Diabetic (%)	Chi Sq. value
Age	Group 1	3.3%	96.7%	$\chi^2 = 6.939$ $p = <0.05^*$
	Group 2	8.6%	91.4%	
	Group 3	3.4%	96.6%	
	Group 4	6.6%	93.4%	
	Group 5	13.6%	86.4%	
Sex	Female	6.6%	93.4%	$\chi^2 = 0.671$ $p = >0.05$
	Male	8.8%	91.2%	
Sedentary nature	No	4.3%	95.7%	$\chi^2 = 4.595$ $p = <0.05^*$
	Yes	10.1%	89.9%	
Alcohol consumption	No	3.6%	96.4%	$\chi^2 = 48.932$ $p = <0.05^*$
	Yes	28.8%	71.2%	
Tobacco	No	4.6%	95.4%	$\chi^2 = 26.394$ $p = >0.05$
	Yes	22.5%	77.5%	
Smoking	No	4.1%	95.9%	$\chi^2 = 45.306$ $p = <0.05^*$
	Yes	29.8%	70.2%	
BMI	Normal weight	2.80%	97.20%	$\chi^2 = 17.52$ $p = <0.05^*$
	Obese	62.50%	37.50%	
	Overweight	17.74%	82.26%	
	Underweight	0.00%	100.00%	

Table 2 shows the association of diabetes with various variables in the study. Chi Sq test shows that age, sedentary nature, alcohol consumption, smoking and BMI were associated with diabetes with p value <0.05. Table 3 shows the correlates of diabetes. The predicted risk factor for diabetes was age, sedentary nature, alcohol consumption, smoking and BMI.

Table 3 shows the correlates of diabetes.

Variables	Odds ratio	CI		P value
Age (years)	1.004	0.954	1.056	<0.05
Sex	27.307	2.689	37.295	>0.05
Sedentary nature	0.352	0.95	1.303	<0.05
Alcohol consumption	0.164	0.29	0.916	<0.05
Tobacco	0.188	0.39	0.899	>0.05
Smoking	0.042	0.006	0.285	<0.05
BMI	1.651	1.330	2.050	<0.05

DISCUSSION

The number of cases and the prevalence of diabetes have been steadily increasing over the past few decades. Present study shows that diabetes prevalence is 10.33% in urban area of Jabalpur. Age is known to be an important determinant of diabetes since blood glucose concentrations tend to rise with age [6]. Our study shows sedentary nature as a risk factor for diabetes. Diabetes was inversely associated with physical activity in the population based study in Turkey [7]. The risk factors for diabetes like physical inactivity, regular tobacco

use, regular alcohol use, overweight and coexistence of hypertension was higher among people suffering with diabetes [8]. Overweight and obesity is significant independent predictor for diabetes in various studies done in India [9-10]

CONCLUSION

The prevalence was 10.33% in urban population of Jabalpur. The associated factors predicted as risk factor in present study was age, sedentary nature, alcohol consumption, smoking and BMI.

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