ORIGINAL ARTICLE

ASSESSMENT OF RISK FACTORS ASSOCIATED WITH DIABETES MELLITUS AMONG POPULATION OF BARABANKI DISTRICT OF UTTAR PRADESH, INDIA: A CLINICAL STUDY

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ABSTRACT:

Background: Diabetes is a chronic disease characterized by higher level of blood glucose level that can be due to defects in insulin protection, insulin action or both. The present study was conducted to estimate risk of study population to develop diabetes mellitus. **Materials & methods:** This study was conducted in department of community medicine in year 2014. We examined 5200 subjects in rural population. It included 2500 males and 2700 females. Subjects blood sample was taken for evaluation of both fasting and random blood sugar estimation. **Results:** Out of 5200 examined subjects, 2500 were males and 2700 were females. The difference was statistical non significant (P-0.6). Table II shows that out of 5200 examined subjects, 535 were found positive for type II DM. The prevalence rate was 10.2%. 260 patients were in range of 20-45 years and 275 patients were above 45 years of age. 82% of patients were vegetarian. 94.4% patients were non smokers, 5.6% were smokers, 22.4% were alcoholic and 78% were non alcoholic. 75% were obese. Regarding marital status, 435 were married, 70 were unmarried and 30 were separated. Regarding distribution of patients, based on socio economic status. 340 comprised of low status, middle 135 (25%) and high status 60. The difference in socioeconomic status was significant (P - 0.04). 12% (40) were illiterate and 88% (495) were literate. The difference was statistical significant (P - 0.05). **Conclusion:** Diabetes mellitus is a disease which affects majority of population. The increased prevalence day by day is a serious matter. It can be preventing by following stress free working environment, normal exercise, maintaining body weight and healthy life style.

Key words: Diabetes mellitus, diet, smoking, literate

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INTRODUCTION

Diabetes is a chronic disease characterized by higher level of blood glucose level that can be due to defects in insulin protection, insulin action or both. Diabetes Mellitus (DM) is a syndrome characterized by a state of chronic hyperglycemia causing disturbance of carbohydrate, fat and protein metabolism, associated with absolute or relative deficiency in insulin secretion or insulin action. Diabetes mellitus has type I and type II variety.[1]

The prevalence of diabetes is rapidly rising all over the world. It has now become the disease of morbidity and mortality affecting the youth and middle aged people. Type 2 diabetes mellitus has higher prevalence rate all over the world which accounts for more than 90 percent of all diabetes cases., but number of type I diabetes mellitus cases is increasing excessively nowadays. Impaired Glucose Tolerance (IGT) is also high indicating the potential for a further increase in the number of diabetic patients. The ratio between Diabetes and IGT is considered to be an index of epidemic state in the population.[2]

The number of diagnosed diabetic patients is 61.3 million so far and hence also known as the diabetic capital of the world. International Diabetes Federation (IDF) report suggested that at the end of 2030, the number of people with type 2 diabetes mellitus will increase to 552 million. India will contribute 21% of cases, which is very high for a single country.[3]

Modern life style and changed diets with use of refined foods especially sugar and fat had led the increasing

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incidence of diabetes mellitus. There are various factors such as obesity, genetic factor, excessive intake of food especially sugar and lack of exercise play important role in diabetes mellitus.[4]

The early identification is required in persons who are at risk and appropriate intervention should be implemented such as increase physical activity & changes in dietary habits. This can be useful in preventing development of new cases of diabetes and hence associated complication can be avoided.[5]

The present study was conducted to estimate risk of study population to develop diabetes mellitus.

MATERIAL & METHODS

This study was conducted in department of community medicine in year 2014. We examined 5200 subjects in rural population. It included 2500 males and 2700 females. All subjects were informed regarding the study and written consent was taken. Subject information regarding name, age, sex, education, occupation, diet, smoking, alcoholism, and family history of the disease was taken. Subjects blood sample was taken for evaluation of both fasting and random blood sugar estimation.

The following factors were considered positive for diabetes.

1. Plasma glucose concentration >126/dl in case of fasting and >200mg/dl in case of random blood glucose level.
2. Polyuria, polydipsia and unexplained weight loss. Results were tabulated and subjected for correct inferences. P value < 0.05 was considered significant.

RESULTS

Out of 5200 examined subjects, 2500 were males and 2700 were females. The difference was statistical non significant (P-0.6) (Table I). Table II shows that out of 5200 examined subjects, 535 were found positive for type II DM. The prevalence rate was 10.2%. Table III shows that 260 patients were in range of 20-45 years and 275 patients were above 45 years of age. Table III shows risk factor for the development of diabetes. 82% of patients were vegetarian. 94.4% patients were non smokers, 5.6% were smokers, 22.4% were alcoholic and 78% were non alcoholic. 75% were obese. Regarding marital status, 435 were married, 70 were unmarried and 30 were separated (Graph- I). Regarding distribution of patients, based on socio economic status. 340 comprised of low status, middle 135 (25%) and high status 60. The difference in socioeconomic status was significant (P-0.04) (Graph- II). Graph III shows that 12% (40) were illiterate and 88% (495) were literate. The difference was statistical significant (P-0.05).

Table I Distribution of patients

TOTAL EXAMINED - 5200			
GENDER	**MALE**	**FEMALE**	**P VALUE**
NUMBER	2500	2700	0.6

Table II Prevalence of diabetes mellitus

TOTAL	**PREVALENCE**	**PERCENTAGE**
5200	535	10.2

Table III Distribution of subjects based on age group

TOTAL- 535		
AGE RANGE	**20-45 YEARS**	**>45 YEARS**
NUMBER	260	275

Table III Risk factors in subjects

| **RISK FACTORS**	**CATEGORY**	**TOTAL**	**P VALUE**
DIET	**VEG**	435 (82%)	0.02
	NON VEG	100 (18%)	
SMOKING	**USER**	30 (5.6%)	0.01
	NON USER	505 (94.4%)	
ALCOHOL	**USER**	120 (22.4%)	0.03
	NON USER	415 (77.5%)	
OBESITY	**NON OBESE**	140 (25%)	0.02
	OBESE	395 (75%)	

Graph I Distribution of subjects based on marital status
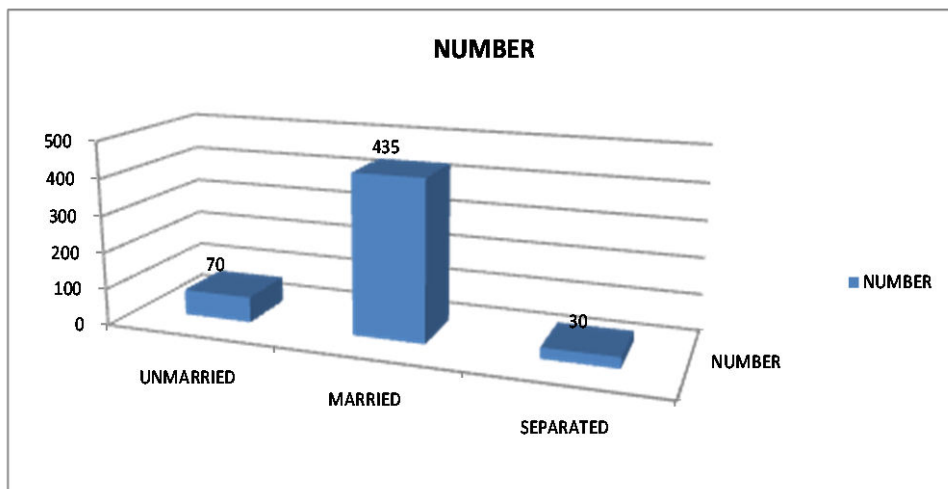
Graph II Distribution of subjects based on socio economic status
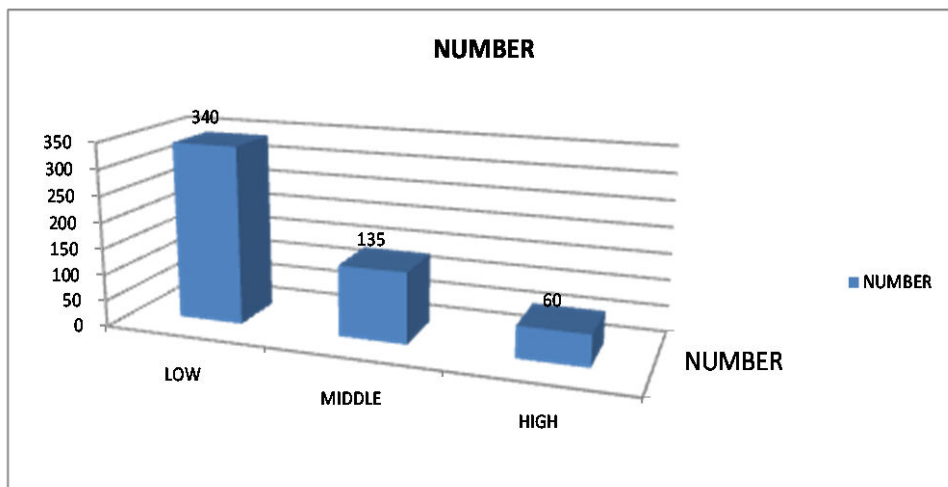
Graph III Distribution of patients based on education level
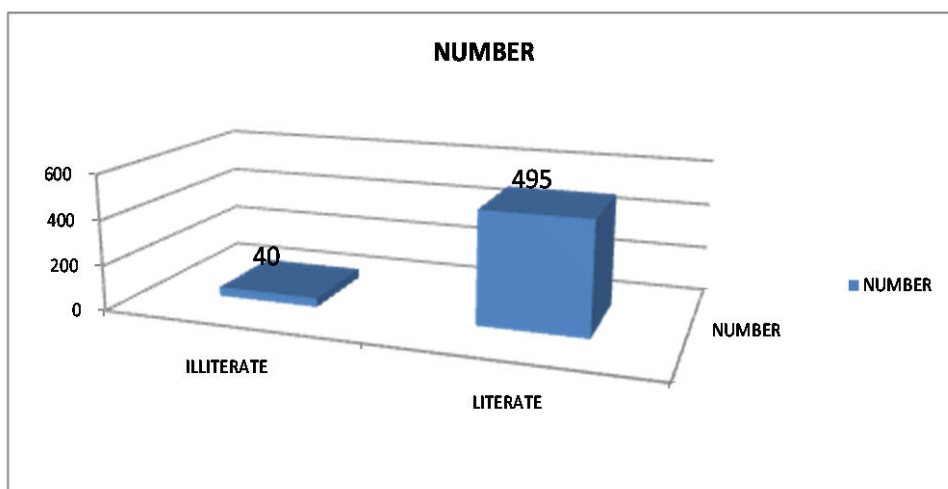
DISCUSSION

Diabetes Mellitus (DM) is a global epidemic in this millennium. King H et al[6] reported that the prevalence of Diabetes Mellitus is amongst low and middle-income countries, predominantly within the 40-59 years age group, although tendency is seen for onset at a younger age. According to WHO, 80% of Diabetes deaths occur in low and middle income countries.

In this study, we screened 5200 patients (males- 2500, females-2700), we found 535 (10. 2%) positive for diabetes mellitus. A study done by Ramachandran et al[6] recorded prevalence rate of 14.7% in study population.

We found that maximum cases were seen in age group >45 years of age. Visvanathan M et al[7] reported that prevalence of Diabetes Mellitus increased with increase in age until 70years. Mohan V et al[8] which reported that the prevalence of Diabetes Mellitus was 21.49%, 66.7% and 12.25% among higher, middle and lower SES group respectively. We also found maximum number of cases in low socioeconomic status group.

Maximum number of diabetes patients was married. Our results are in agreement with Visvanathan M et al.[7] We found that our maximum number of patients were literate as come to illiterate. Results of our study are in agreement with the result of Misra A et al.[9]

We found that most of cases were seen in vegetarians as compared to non vegetarians. Liu et al[10] also found similar results. Smoking is commonly seen in patients with diabetes mellitus. In our study, most of our patients were non smokers. However, Solberg L et al[11] in his study had linked smoking with increasing insulin resistance which later on induces full blown Diabetes Mellitus. There is association of diabetes and alcohol. In our study we found that non alcohol users comprised on 78% as compared to alcohol users. However, Cassel PG et al[12] in his study found that there was association with diabetes mellitus and alcohol users.

In our study, 75% patients were obese. Our results are in agreement with Scott RA et al.[13]

CONCLUSION

Diabetes mellitus is a disease which affects majority of population. The increased prevalence day by day is a serious matter. It can be preventing by following stress free working environment, normal exercise, maintaining body weight and healthy life style.

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