SOCIO-DEMOGRAPHIC AND ANTHROPOMETRIC PROFILE OF DIABETIC PATIENTS ATTENDING DIABETES CLINIC IN TERTIARY CARE HOSPITAL OF CENTRAL GUJARAT

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ABSTRACT

Background: With a rise in non communicable diseases in India, diabetes has been a modern epidemic showing a rising trend in Gujarat also. A large number of diabetes patients come to the diabetes clinic of our tertiary care hospital in Central Gujarat. The large proportion of patients presenting with this condition prompted us to look at the profile of such patients.

Methods: This was a descriptive hospital-record based cross sectional study involving a total of 167 diabetic patients enrolled in the diabetes clinic from November 2014 to December 2014. The data was entered and then analyzed in Microsoft excel sheet.

Results: Among the 167 study participants, we found that 85 were males and 82 were females. It was more common among those above age of 60 years followed by 51-60 years. Almost 60% had uncontrolled diabetes. Nearly 60% of the diabetic patients were hypertensive. Almost 3/4th of the patients had high waist hip ratio and 21% patients were obese.

Conclusion: The diabetic patients presenting to this tertiary care hospital belong to both genders and are from lower socioeconomic strata and having limited education in their geriatric age group. There is high proportion of obesity and hypertension among them.

Key words: Type 2 diabetes mellitus, Socio-demographic profile, Anthropometric profile

INTRODUCTION

Diabetes Mellitus (DM) is a serious public health problem worldwide.[1] Magnitude of diabetes mellitus is increasing globally at an alarming rate. About 150- 170 million people were suffering from this disease worldwide in the year 2000 and the prevalence of diabetes is expected to be double by 2025 as per WHO reports.[2] Diabetes mellitus (DM) is a common non-communicable disease even in developing country like India. It affects life of nearly 40 million people in India and of equivalent magnitude in other developing countries. India has been considered as "diabetes capital" of the world. The prevalence of diabetes mellitus among Indian adults is estimated to be 2.4% in rural and 4-11.6% in urban area. But the prevalence of impaired glucose tolerance is to the tune of 3.6 - 9.1 which indi-

cate that the overall prevalence may go much high-er.[2]

Gujarat is also affected by the epidemic of diabetes mellitus. Although no exact statistics were available for diabetics in the state, Gujarat is estimated to have the second highest number of diabetics in the country after Tamil Nadu. Many studies on diabetes prevalence have been conducted in India, but few data has been available about the diabetic patients of Gujarat. Gujarat is one of the economically prosperous states with which comes a modern lifestyle placing the population at increased risk of many non-communicable diseases including diabetes mellitus. Based on few prevalence studies, nearly 6-10% of the total population of Gujarat is diabetic.[3-5] Considering diabetes being a chronic disease that lasts for a lifetime it has important financial implications for individual patients as well as a burden for the country. Therefore, prevention is important from financial view point. There is a need to increase awareness of risk factors and how to prevent them in the population.[6] Furthermore, for the prevention of diabetes, it is also vital to know the profile of diabetics. Study of the profile of patients coming to the tertiary care centre is important for their better management and including provision of preventive services. Hence the current research was carried out with an objective to study the socio-demographic and anthropometric profile of diabetes patients attending diabetes clinic in a tertiary care hospital in Vadodara district in central Gujarat.

MATERIALS AND METHODOLOGY

The design for the current study was a descriptive cross-sectional hospital based study. The study was conducted in a tertiary care teaching hospital. This hospital runs a Diabetes Clinic once a week to cater to the diabetic patients in Outpatient Department. The study population was all the patients attending Diabetes clinic. The study participants were recruited over a period of 1 month during end of November to end of December 2014.

A total of 167 patients visited the diabetes clinic during the 1 month data collection phase of the study. Thus, the final sample size was 167 patients. The details of the variables under study were retrieved from the case papers of the patients attending the diabetes clinic. The questionnaire included demographic and clinical details. Variables recorded in the study were Age, Gender, Religion, Economic status, Area of residence, Blood pressure, Body Mass Index, Waist Hip ratio.

Blood pressure was measured by standard technique using mercury sphygmomanometer. The blood pressure values of 120 through 139 systolic and 80 through 89 diastolic were considered in pre-hypertension category. The values of 140 and above systolic and 90 and above diastolic were considered in hypertensive category.

Weight and height were measured by standard techniques using adult weighing scale and stadiometer respectively. Body Mass Index (BMI) was calculated by formula weight (kg) / height (m²). Patients with BMI <=18.5 were classified as underweight, 18.6-22.9 were classified as normal, 23-24.9 were classified as pre-obese, and >=25 were classified as obese as per the new guidelines for obesity among asians.[7] Waist hip ratio was measured by using inch tapes ensuring privacy of the patient. Waist hip ratio of >0.95 in males and >0.85 in females was considered as high.

Statistical analysis: The data thus collected were entered and analyzed in Microsoft Office Excel. This study reports means and proportions of the variables under study. The proportions are expressed in percentages. This being a descriptive study no statistical significance tests were applied.

RESULTS

As shown in Table 1, on screening the patients coming to the diabetes clinic, 59% had uncontrolled diabetes, 37% had controlled diabetes, whereas 1.8% were newly detected diabetes and another 1.8% were pre diabetics. Age wise distribution clearly indicates that 41% diabetic patients were in age group >=61 years, while 30% were in the age group of 51-60 years, while 21% were in the age group of 41-50 years and 6% were in the age group of 31-40 years. Gender wise distribution of diabetic patients shows that 50.8% were males and 49.1% were females. The education status shows that majority of our study participants were either educated up to primary level or illiterate. From economic status view point majority of patients in this study belonged to lower or middle socioeconomic group. A large proportion of the patients were from urban area as compared to rural areas.

Table 2, shows that 54% were hypertensive, 33% were pre-hypertensive and 13% were normotensive among diabetic patients.

The mean Body mass index (BMI) was found to be 23.8 for males and 27.1 for females in this study. As per the classification of BMI, 38% had normal BMI, whereas as high as 35% were underweight. Twenty one percent were in pre-obese category and 8% were on obese category. The mean waist-hip ratio in our study was 0.9 among the female patients and 0.97 among the male patients. Overall, 72% had high waist hip ratio while 28% had normal waist hip ratio as depicted in table 3.

Table 1: Demographic and diabetes profile of diabetic patients attending clinic

Variables	Patients (N=167) (%)
Age	
<30 yrs	2 (2.9)
31-40	10 (5.9)
41-50	35 (20.9)
51-60	51 (30.5)
>=61	69 (41.3)
Gender	
Male	85 (50.8)
Female	82 (49.1)
Religion	
Hindu	153 (91.6)
Muslim	16 (9.5)
Education	
Illiterate	40 (23.9)
Upto 10th std	106 (63.4)
Graduate	13 (7.7)
Above graduation	8 (4.8)
Economic status	
Lower income group	155 (92.8)
Middle Income group	10 (5.9)
Higher Income group	2 (1.2)
Area of residence	
Urban	148 (88.6)
Rural	19 (11.3)
Screening status	
Uncontrolled DM	99 (59.2)
Controlled DM	62 (37.1)
Newly detected DM	3 (1.8)
Pre diabetes	3 (1.8)

Table 2: Blood pressure Status among diabetes patients (n=167)

Blood pressure status	Patients (%)
Normal	22 (13.1)
Pre-hypertension	55 (32.9)
Hypertension	90 (53.8)

Table 3: BMI and Waist hip ratio among diabetic patients (n=167)

Variables	Patients (%)
BMI	
≤ 18.5 (Underweight)	13 (7.8)
18.5 - 22.9 (Normal)	31 (18.6)
23 - 24.9 (Pre-obese)	28 (16.8)
≥ 25 (Obese)	95 (56.9)
Waist Hip Ratio	
High	121 (72.5)
Normal	46 (27.5)

DISCUSSION

The hospital where this study was conducted is a government hospital attached with a medical college. This explains the demographic profile of the study participants. Majority of the participants of this study were from lower socioeconomic strata.

This finding probably also points towards the notion that the diabetes is no more restricted to the higher socio economic circles.

Our study has shown that majority of the patients were in the geriatric age group. A study by Patel et al in a private hospital from the city of Ahmedabad in Gujarat has shown the proportion of geriatric patients (defined as >55 years in their study) to be only one forth.[8] The difference may be because a large number of younger patients with diabetes coming from lower socioeconomic class catered by our hospital may not be detected early for the reasons of non-awareness about the disease. The awareness among the population served by the hospital in study by Patel et al may be high so that patients are detected at an early age.

With regard to gender, while our study showed an almost similar proportion in both the genders the study by Patel et al found males to be 62% of the total which is higher than our study.[8] This makes an interesting finding the reasons of which needs to be explored. There is a difference in the educational status of the patients in our study and other studies. In our study majority of the patients were either educated upto primary or they were illiterate. While Patel et al observes that majority of their patients had graduate education and illiterates formed a mere one percent in their study.[8]

With regard to the glycaemic control, our study had to rely on the random blood sugar measurements to define control for lack of availability of other sophisticated laboratory tests. Our study reports the mean random blood sugar levels to be at 185.9 gm/dl. A large multicenter study by Mohan et al from India also showed that the average random plasma glucose was found to be 193 gm%.[9] Our study showed that almost one third participants had diabetes under control and two thirds had uncontrolled diabetes. Patel et al showed that only 7% of their participants had controlled diabetes whereas almost 52% had sub-optimal control and 41% had uncontrolled diabetes.[8] Such large proportion of patients getting treatment even from tertiary care facility points towards the need for having awareness and intervention programs targeting the measures at glycaemic control among diabetics.

With regard to the nutritional status the findings of our study matches with the same from study by Patel et al. More than half of our patients were in the obese category as per their BMI whereas in the study by Patel et al almost 70% of their patients were in obese category.[8] It is noteworthy here that both the studies have used the new criteria for defining obesity because of which we see large proportion of patients in obese category. A study by Shrivastava et al from Reva city in Madya-Pradesh showed that 55% of their patients were obese and

another 22% were overweight.[10] With regard to the mean BMI, ours and a study by Shekar MA et al among south Indian diabetic population showed mean BMI to be more among females.[11] The study by Maria AK et al in Punjabi diabetics showed that the mean BMI was almost equal in both genders.[12]

The mean waist-hip ratio was higher (0.96 among females and 1.05 among males) in a study by Maria AK et al in north Indian Type 2 diabetic patients.[12] Whereas it was found to be lower (0.92 among males and 0.83 among females) in south Indian diabetic patients studied by Shekar et al.[11]

While our study showed almost half of the diabetic patients to be hypertensive and another one third to be pre-hypertensive, the study by Patel et al also shows half of their patients having hypertension.[8] Another study by Al-Zurfi et al among Malasian type 2 diabetic patients showed lower average systolic and diastolic blood pressure values (Systolic 134.4 and Diastolic 79 mm Hg) compared to our study.[13] A study by Venugopal K et al from Christian Medical College, Ludhiyana showed a quarter of the patients to be hypertensive and as high as 50% being pre-hypertensive.[14] Even a community based study by Basavegowda M et al from urban slums of city of Mysore showed the prevalence of hypertension among diabetics to be around 65%.[15] A large proportion of diabetics also having hypertension call for commensurate preventive efforts.

Limitations: The current study is based in tertiary care teaching hospital and hence the results may not be fully representative of the diabetic patients in the community. Only selected variables of interest could be included in this study.

CONCLUSION

This study shows the demographic profile of the diabetic patients attending the tertiary care hospital a large part of who are from lower socioeconomic strata and having limited education in their geriatric age group. Also we saw a higher proportion of obesity and hypertension among the studied diabetic patients. All these factors points towards increased efforts at educating this vulnerable lot of patients for secondary prevention in diabetes.

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