Assessment of sociodemographic and health profile and find out awareness on diabetes mellitus among diabetic patients of V. S. General Hospital, Ahmedabad

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ABSTRACT

Background: India is currently experiencing an epidemic of Type 2 diabetes mellitus (T2DM) and has the largest number of diabetic patients. It is often referred to as the diabetes capital of the world. **Objectives:** (1) To assess the sociodemographic and health profile of diabetic patients and (2) to assess the awareness on DM among patients. **Materials and Methods:** A cross-sectional study was conducted among diabetic patients of V. S. General hospital, Ahmedabad, during February to September 2015. Pretested per forma was used for study after informed consent of patients. A total of 250 patients were selected for study. **Results:** Male patients (58.8%) were higher than female. The majority (34.8%) were belongs to 45-55 year. Gutkha (37.2%) was the most common life style habit. The majority of patients (34.4%) were studied up to higher secondary level. The majority of patients (46%) were sedentary workers. Family history of one diabetic parent was found among majority (53.6%) of patients. The majority of patients had higher fasting (44.4%) and PP2BS blood sugar level (47.2%). Body mass index of patients indicates majority were obese (68%). **Conclusions:** Mean age was 45.7 ± 12.8 noted. According to patients, the most common risk factor, symptom, and complication of DM was hereditary history (38%), delayed healing of wounds (32.8%), and gangrene/nonhealing ulcers (35.6%). Statistically significant association was noted at majority of times between blood sugar level and different risk factors.

KEY WORDS: Sociodemographic and Health Profile; Awareness; Diabetes Mellitus

INTRODUCTION

India is currently experiencing an epidemic of Type 2 diabetes mellitus (T2DM)/noninsulin dependent DM and has the largest number of diabetic patients. It is often referred to as the diabetes capital of the world.[1] Diabetes is now heterogeneous group of diseases, characterized by chronic hyperglycemia, resulting from a diversity of etiologies, environmental and genetic, acting jointly. Diabetes is a long-term disease with variable clinical manifestations and progression. Chronic hyperglycemia, from whatever cause, leads to number of complications-cardiovascular, renal, neurological, ocular and others such as inter current infections.[2] Diabetes is an "iceberg" disease. Although increase in both the prevalence and incidence of Type 2 diabetes have occurred globally, they have been especially dramatic in societies in economic transition, in newly industrialized countries and in developing countries. It is estimated that 20% of the current global diabetic population resides in the South-East Asia region. Currently, the number of cases of diabetes worldwide is estimated to be around 150 million. This number is predicted to double by 2025 (a prevalence rate of about 5.4%) with the greatest number of cases being expected in China and India.[3,4] International Diabetes Federation 2009 report

reveals that the total number of diabetic subjects in India is 50.8 million.[4] Previously, a disease of the middle-aged and elderly, Type 2 diabetes has recently escalated in all age groups and is now being seen in younger age groups, including adolescent especially in high-risk populations this means, that developing countries, the majority of diabetic patients acquire the disease during the most productive period of their lives.[2,5] This will have major implications with respect to health care needs and costs as they will live up to an older age to develop chronic complications of diabetes. The rising prevalence of diabetes in developing countries is closely associated with industrialization and socioeconomic development.[6] Major determinants for projected increase in the number of diabetics in these countries are population growth; age structure and urbanization. With the rise in the urban/rural population ratio in all regions, and growing prevalence of obesity among urban dwellers, diabetes will increasingly concentrate in the urban areas.[2,7] Hence, the study was conducted with following objectives:

- To assess the sociodemographic and health profile of diabetic patients.
- To assess the awareness on DM among patients.

MATERIALS AND METHODS

A cross-sectional study was conducted among chronic diabetic patients who came in OPD for routine follow-up visits and medication of diabetes in V. S. General Hospital, Ahmedabad. Details regarding study and their objectives were discussed with diabetic patients. Informed consent of patients was taken before study. Those who denied for the same were excluded from study. The study was conducted during February to September 2015. Total 250 diabetic patients were selected for study purpose. The selection was done on basis of availability and consent of patients. Fully structured per forma which was specially designed and pre-tested was used for data collection purpose. The performa has different components, e.g., sociodemographic and health profile of patients, their awareness on risk factors, and symptoms and complications of DM. After the data collection, each patient was taught on different aspects of DM as mentioned above. IEC materials, e.g., posters, charts and photographs were used to improve the awareness of patients on DM and advices were given for regular checkup and regular medication. After that, data entry was carried out and data analysis was done using appropriate statistical software and applying suitable statistical tests, e.g., Chi-square test, proportion, mean etc.

RESULTS

Out of 250 diabetic patients, 147 (58.8%) were male and 103 (41.2%) were female. Age distribution shows majority (87, 34.8%) were belongs to 45-55 year. Age group followed by 35-45 year. Age group (54, 21.6%). Mean age was 45.7 ± 12.8 noted. Regarding the lifestyle habits, majority of them had habits of oral tobacco chewing, e.g., Gutkha

(93, 37.2%) and Pan-masala (78, 31.2%). Bidi (64, 25.6%) was more common in smoking tobacco habits. Only few (28, 11.2%) of patients had no habits mentioned in Table 1. The majority of patients (86, 34.4%) were studied up to higher secondary level followed by secondary level (58, 23.2%). Very few (7, 2.8%) were found illiterate. As per the occupational classification, majority of patients (115, 46%) were sedentary workers. Moderate workers were 97, 38.8% and heavy workers were 38, 15.2%. As per family history, one diabetic parent was found among majority (134, 53.6%) of patients (Table 1). As per Table 2, most common risk factor

Table 1: Sociodemographic profile of diabetic patients (*n*=250)

Sociodemographic	*n* (%)
Age distribution	
≤14 year	5 (2)
15-25 year	12 (4.8)
25-35 year	39 (15.6)
35-45 year	54 (21.6)
45-55 year	87 (34.8)
55-65 year	42 (16.8)
≥65 year	11 (4.4)
Gender distribution	
Male	147 (58.8)
Female	103 (41.2)
Habits of patients*	
No habits	28 (11.2)
Gutkha	93 (37.2)
Pan-masala	78 (31.2)
Khaini	55 (22)
Snuffing	21 (8.4)
Bidi	64 (25.6)
Cigarette	51 (20.4)
Alcohol	42 (16.8)
Other (drugs)	09 (3.6)
Education level	
Illiterate	07 (2.8)
Primary	42 (16.8)
Secondary	58 (23.2)
Higher secondary	86 (34.4)
Graduate	44 (17.6)
Post-graduate	13 (5.2)
Life style on the basis of occupation of patients	
Sedentary worker	115 (46)
Moderate worker	97 (38.8)
Heavy worker	38 (15.2)
Diabetic status of parents of the patients	
No parents	90 (36)
One parent	134 (53.6)
Both parents	26 (10.4)

*multiple answers

for DM was hereditary cause (95, 38%), the most common symptom was delayed healing of sores/wounds (32.8%) and most common complication of DM was gangrene/nonhealing ulcers (89, 35.6%). Health profile of patients was shown in Table 3. According to that majority of patients had higher fasting blood sugar (111, 44.4%) and PP2BS level (118, 47.2%). The majority were having hypertension (systolic hypertensive-127, 50.8% and diastolic hypertensive-115, 46%). Body mass index (BMI) of patients indicates majority were obese (170, 68%). Currently, most of them (178, 71.2%) were on oral hypoglycemic drug treatment. Cross tabulation between blood sugar level and different DM relevant variables/ risk factors were shown in Table 4. Statistically significant association was noted at majority of times between different blood sugar level and different risk factors.

DISCUSSION

As there is rising trend of DM in India, the study was conducted on diabetic patients with objectives mentioned above. Male patients (58.8%) were higher than female. DM was usually noted in middle-aged and in elder population but recent data shows DM in all age groups and is now being seen in younger age groups, including adolescent especially in high-risk populations.[2,5] However, current study results shows the mean age of diabetic patients was 45.7 ± 12.8, which is still reflecting middle age trend. Higher number of oral tobacco chewing habits was noted among diabetic patients. Only few of patients (11.2%) were having no lifestyle habits, e.g., tobacco and alcohol which is one of the risk factors of DM.[2] Literacy rate according to census 2011 of India was 74.04% and of Gujarat was 79.31%.[8] Current studies also shows good literacy rate. Depend on type of occupation; diabetic workers were divided into sedentary, moderate, and heavy worker groups. The majority of were found sedentary workers, which is also a risk factor of DM.[3] Positive family history of DM is consider as high risk/target group for DM prevention strategy.[6] Half of patients (53.6%) had history of having one diabetic parent. For better prevention and control of diabetes; awareness on risk factors, symptoms and complications of DM is essential.[1,2] Table 2 shows awareness of patients on different aspects of DM. According to the majority of patients, familial history was common risk factor; delayed healing of sores/wounds was common symptom and gangrene/nonhealing ulcer was common complications of DM. As per the guideline, if fasting blood sugar level is >126 mg/dl and PP2BS level is >200 mg/dl than it can be diagnosed as DM.[2] Health profile of diabetic patients was measured at the time of data collection. Table 3 shows the current data on health profile of patients. The majority of the patients were on oral hypoglycemic drug therapy. Still higher fasting (44.4%) and PP2BS (47.2%) level was observed. This might be due to irregularity in drug consumption or inadequate drug dose. Around half of patients were found hypertensive (systolic as well as diastolic). BMI data shows 68% of the patients were in obese group. Among the numerous risk factors for DM, important and common risk factors were life style,

Table 2: Awareness on risk factors, symptoms and complications of diabetes mellitus (DM) among patients (*n*=250)

Particulars	Frequency (%)
Risk factors for DM*	
Congenital	31 (12.4)
Hereditary/familial	95 (38)
Obesity	62 (24.8)
Habits (tobacco, alcohol, drugs, etc.)	54 (21.6)
Pancreatic pathology (insulin related)	39 (15.6)
Symptoms of DM*	
Polyuria (frequent urination)	74 (29.6)
Polyphagia (extreme hunger)	33 (13.2)
Excessive thirst	41 (16.4)
Tingling or numbness in hands/feets	56 (22.4)
Feeling tired/weak most of time	68 (27.2)
Unexplained weight loss	37 (14.8)
Sudden vision changes	29 (11.6)
Delayed healing of sores/wounds	82 (32.8)
Complications of DM*	
CVD	78 (31.2)
Neuropathy	26 (10.4)
Nephropathy	47 (18.8)
Retinopathy	31 (12.4)
Dermatopathy (Skin infections)	53 (21.2)
Gangrene/nonhealing ulcers	89 (35.6)

*multiple answers, CVD: Cardio vascular diseases

Table 3: Health profile of diabetic patients (*n*=250)

Blood sugar level			
Fasting level (mg/dl)	*n* (%)	**PP2BS level (mg/dl)**	*n* (%)
Normal (70-110)	54 (21.6)	Normal (70-140)	33 (13.2)
Borderline (110-126)	85 (34)	Borderline (140-200)	99 (39.6)
Higher (>126)	111 (44.4)	Higher (>200)	118 (47.2)
Blood pressure analysis			
Systolic (mm Hg)	*n* (%)	**Diastolic (mm Hg)**	*n* (%)
Normal (<130)	47 (18.8)	Normal (<85)	52 (20.8)
High normal (130-140)	76 (30.4)	High normal (85-90)	83 (33.2)
Hypertensive (>140)	127 (50.8)	Hypertensive (>90)	115 (46)
BMI level			
Underweight (<18.5)	06 (2.4)	Preobese (25-29.99)	56 (22.4)
Normal (18.5-24.99)	18 (7.2)	Obese (≥30)	170 (68)
Current treatment of DM			
Oral drugs	178 (71.2)	Both	42 (16.8)
Insulin	30 (12)		

obesity, hypertension, habits, hereditary, etc. Comparison between blood sugar level (fasting and PP2BS) and some of important risk factors were done. Statistically significant level

Table 4: Comparison of blood sugar level and different variables of patients (n=250)

Variables	Fasting level			PP2BS level		
	Normal	Borderline	Higher	Normal	Borderline	Higher
Male	38	79	30	27	88	32
Female	45	37	21	31	42	30
χ^2 and P	χ^2: 9.9 and P: 0.007			χ^2: 9.1 and P: 0.01		
Sedentary worker	15	61	39	12	58	45
Moderate worker	06	57	34	14	54	29
Heavy worker	23	09	06	26	08	04
χ^2 and P	χ^2: 58.7 and P<0.0001			χ^2: 63.9 and P<0.0001		
BMI (<25)	15	08	01	13	09	02
BMI (≥25)	46	117	63	39	103	84
χ^2 and P	χ^2: 22 and P<0.0001			χ^2: 19.7 and P<0.0001		
Systolic BP (<130)	27	14	06	24	16	07
Systolic BP (≥130)	16	119	68	10	54	139
χ^2 and P	χ^2: 66 and P<0.0001			χ^2: 79.2 and P<0.0001		
Diastolic BP (<85)	32	15	05	28	18	06
Diastolic BP (≥85)	39	47	112	22	51	125
χ^2 and P	χ^2: 45.2 and P<0.0001			χ^2: 59.7 and P<0.0001		
Oral drugs	26	94	68	11	75	96
Insulin	08	13	09	16	12	02
Both	31	07	04	25	11	06
χ^2 and P	χ^2: 62.1 and P<0.0001			χ^2: 87.4 and P<0.0001		

P<0.05 indicates significant level

was found in majority of data which indicates positive relation of blood sugar level and associated risk factors (Table 4).

CONCLUSIONS

Among study, male patients (58.8%) were higher than female. Mean age was 45.7 ± 12.8 noted. The majority (88.8%) of the patients had some life style habits, among them Gutkha (37.2%) was the most common habit. The majority of patients (46%) were sedentary workers. Around half of patients had family history of one diabetic parent. According to patients, commonest risk factor, symptom, and complication of DM was hereditary history (38%), delayed healing of wounds (32.8%) and gangrene/nonhealing ulcers (35.6%). Higher fasting and PP2BS blood sugar level was noted in 44.4% and 47.2% of patients. Obesity was common risk factor for DM and was found in majority of patients. Oral hypoglycemic drug was mostly (71.2%) used for treatment. Statistically significant association was noted at majority of times between blood sugar level and different risk factors. Regular health checkup and medication for maintaining normal blood sugar level and to avoid serious complications of DM was recommended.

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