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Original Research Article

Awareness and knowledge of diabetes mellitus among diabetic patients in Puducherry, India

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ABSTRACT

Background: Diabetes prevalence is high in India and the numbers are increasing every year. Many patients are aware that they have diabetes only when they develop one of its complications. Since there is a paucity of literature on the level of awareness and knowledge about diabetes, this study was done.

Methods: It is a cross-sectional study conducted on diabetic patients attending Sri Lakshmi Narayana Institute of Medical Sciences and Hospital, Puducherry over a period of two months, using questionnaire. The demographic data were analyzed using descriptive statistics. Quantitative data were expressed as percentages.

Results: Among 104 diabetics, 60%, 49% and 66% of the patients answered high sugar intake as the cause of diabetes, loss of vision as its complication and diet control as the important measure of treatment of diabetes respectively. Only 30.67% of the patients were aware of the name of the medicine they consume.

Conclusions: Awareness and knowledge about diabetes were less in our study populations. Hence it is important to extend the diabetic health programs in mass campaigns to improve their knowledge.

Keywords: Diabetes, Hyperglycaemia, Glycated hemoglobin

INTRODUCTION

Diabetes Mellitus (DM) is one of the most important public health problems in the 21st century.[1] India has a high prevalence of diabetes mellitus and the numbers are increasing every year, estimated to be 79.4 million by the year 2030.[2]

Uncontrolled diabetes can lead to lifelong complications associated with increased morbidity and mortality like diabetic retinopathy, neuropathy, and cardiovascular disease, it also causes heavy financial burden to the society.[1] Many patients are aware that they have diabetes only when they develop one of its complications. Knowledge of DM can reduce the incidence of complications. Although much effort has been taken to educate the diabetic patients about diabetes through various forms of media, it is not known how much of them actually knows about diabetes and its complications.

Several studies show that awareness of the DM in the general population seems to be low.[1,3] Increasing patient knowledge regarding diabetes and its complications would help them to assess their risks, motivate to seek proper care and treatment. Compliance of patients will also increase and thereby it decreases the complications associated with the disease.[4] There are only a few data on the level of awareness and knowledge about diabetes in developing countries like India.[5] Hence, this study was done to assess the awareness and knowledge of DM among diabetic patients in Puducherry.

The objectives of this study was to assess the awareness and knowledge of diabetes mellitus among diabetic patients using questionnaire.

METHODS

It is a cross-sectional study on diabetic patients with the sample size of 104. The study was conducted in Sri Lakshmi Narayana Institute of Medical Sciences and Hospital, Puducherry over a period of two months from June to July 2016. The protocol of the study was reviewed and approved by the Institutional Ethics Committee (IEC). Informed consent was obtained from all participants enrolled in the study. Inclusion criteria are patients with type I and type II DM with age more than 18 years of either gender. Patients with Gestational diabetes mellitus and age less than 18 years are excluded.

A structured questionnaire containing series of questions on patient's demographic characteristics like age, gender and basic details about the awareness and knowledge of various aspects of diabetes mellitus like causes, complications, management is used as a tool. The study was explained to all patients attending the Out-patient department (OPD) and in patients (IP) of Sri Lakshmi Narayana Institute of Medical Sciences and Hospital, Puducherry diagnosed with diabetes mellitus during the study period. The patients who agreed to participate were asked to fill the questionnaire, after obtaining informed consent. The questionnaires were interpreted into local language (i.e Tamil) to those who could not understand or read English. No names were mentioned on the questionnaires and all the data collected are kept confidential. After the study period, all the data were analyzed and interpreted. Age of the patients was expressed in mean±standard deviation. The demographic data were analyzed using descriptive statistics. Quantitative data were expressed as percentages.

RESULTS

Table 1: Demographic characteristics.

Variable	Number (n = 104)	%
Gender		
Male	65	62.5
Female	39	37.5
Education		
Illiterate	41	39.42
Primary	23	22.12
Secondary	28	26.92
College	12	11.53
Area of residence		
Rural	76	73.08
Urban	28	26.92

Overall, a total of 104 patients provided consent and were interviewed. The mean age of the study population was 54.26±11.30 years. The demographic characteristics of these participants are shown in Table 1. The duration of diabetes of 31% patients was in the range of 1-5 years as shown in Figure 1.
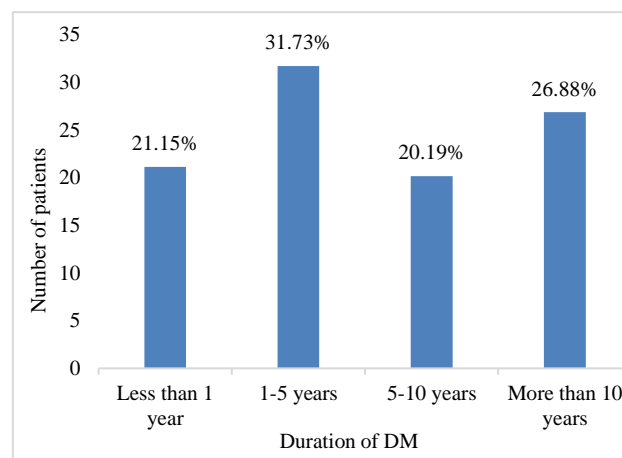

Figure 1: Duration of diabetes.

Among 104 diabetics, only 17% and 12% of the patients answered correctly the normal values of normal fasting and postprandial blood sugar respectively. And only 8% of patients know the significance of glycated hemoglobin (HbA1C) as shown in Table 2.

Table 2: Knowledge about blood tests.

Questions	Number (n = 104)	%
Normal FBS		
Less than 100 mg/dl	18	17.28
Other values	31	29.80
Don't know	55	52.80
Normal PPBS		
Less than 140 mg/dl	13	12.48
Other values	24	23.07
Don't know	67	64.32
HbA$_1$c test are done to find blood		
Sugar level of particular day	5	4.8
Sugar control for past 3 months	9	8.64
Don't know	90	86.40
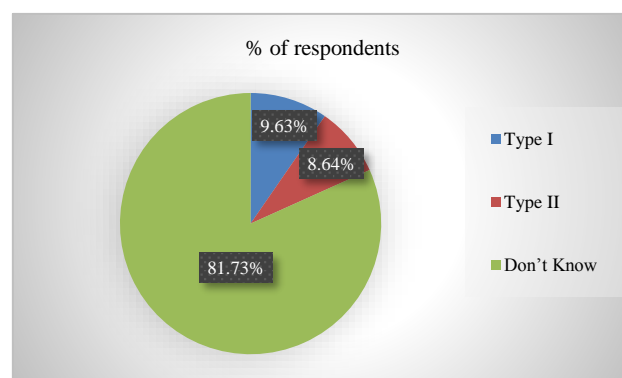
Figure 2: Patient's response to their type of DM.

81% of the patients are not aware of the type of diabetes they belong, as shown in Figure 2. Among 104 patients, 53% knows that obesity is a risk factor for diabetes and 89% answered that they don't take a double dose after missing a dose as shown in Table 3.

Table 3: Awareness of diabetes.

Questions	Number (n = 104)	%
Glucometer at home		
Yes	12	11.52
No	70	67.20
Don't know about it	22	21.12
Is obesity a risk factor		
Yes	56	53.84
No	24	23.04
Not sure	24	23.04
Choice of daily food pattern		
2-3 large meals/day	71	68.16
5-6 small meals/day	25	24
Not assigned	8	7.68
Double dosage after missed dose		
Yes	11	10.56
No	93	89.28

Among 104 diabetics, 60%, 49% and 66% of the patients answered high sugar intake as the cause of diabetes, loss of vision as its complication and diet control as the important measure of treatment of diabetes respectively as shown in Table 4. Only 30.67% of the patients were aware of the name of the medicine they consume.

Table 4: Knowledge of diabetes.

Parameters	n	%
Knowledge of the cause of DM		
High sugar intake	63	60.57
Family history	34	32.69
Lack of insulin	19	18.26
Failure of body to use insulin	10	9.61
Don't know	27	25.92
Knowledge of complications of DM		
Loss of vision	51	49.03
Poor wound healing	35	33.65
Heart failure	25	24.03
Kidney failure	23	22.11
Amputations	12	11.53
Don't know	24	23.04
Knowledge of the management of DM		
Diet control	69	66.34
Medications	67	64.42
Exercise	51	49.03
Knowledge of preventive measures		
Eating less sugar	69	66.24
Physical activity	41	39.36
Healthy diet	31	29.76
Don't know	11	10.56

DISCUSSION

Our findings show that awareness and knowledge about diabetes were less among diabetic patients. The mean age of our study population was 54 years, as age is one of the risk factors for the development of diabetes.[6] Similar findings are seen in previous studies where there is a high prevalence of diabetes among the elders.[7,8] Many patients are illiterate in our study group, as educational level is positively associated with knowledge of the disease.[9] Similar finding was seen in a study done in rural area of Chennai, which reports that the higher the educational levels, the higher the knowledge about diabetes.[10]

Duration of diabetes in the majority of the study population was in the range of 1-5 years. If the duration of diabetes is more, then awareness of DM would also be more due to positive association.[1] The majority of the diabetics in our study are not aware of the normal blood values and its significance and they do not know the type of diabetic they are suffering, it might be because many of them were illiterate. So, proper education campaigns should be performed in simpler languages in which the can understand.

More than half of the patients answered obesity as a risk factor for diabetes and it also mentioned in other studies.[11,12] Many patients were taking two to three large meals compared to frequent small meals. In a study done by Kahleova et al, it suggests that eating two large meals a day are more beneficial than six smaller meals in type 2 diabetes.[13] Further studies are needed before recommending the meal frequency, especially in Indian population. Around 10% patients answered of taking a double dose if they forget the previous dose, and this idea of them should be discouraged to prevent the hypoglycemic condition.

In present study, many patients felt that diabetes is caused by high sugar intake but only a few patients were aware of the lack of insulin or failure of the body to use insulin could lead to a diabetic. This finding is in agreement with that of a study conducted by Foma et al.[1] Only about 1/3rd of them knew that diabetes could be familial. It implies that most patients are unaware that diabetes runs in family. These patients should be provided with appropriate education regarding the causes of diabetes.

Knowledge of complication such as loss of vision and poor wound healing was more compared to heart failure and kidney failure. This finding is similar to the study done by Foma et al.[1] In Mohan et al study was done in Chennai, it is observed that knowledge of complication was poor among diabetic population.[14,15] It is, therefore, necessary to educate these people to be aware of this complication, so that it can be prevented.

The most patients responded that diet control and medication as an important step in the management of DM. They should be motivated to do exercise.

Knowledge of prevention of diabetes is also poor. It is, therefore, necessary to perform more diabetic camps to motivate people in their lifestyle modification, healthy diet, and exercise.

The sample size being small is a limitation of our study.

CONCLUSION

Awareness and knowledge about diabetes among diabetic patients were less in our study populations. Hence it is important to extend the diabetic health programs in mass campaigns to improve their knowledge. All doctors, nurses, dietitians should help diabetic patients by providing the right information in a simpler language which they could understand and make them healthy. This can be done by issuing pamphlets of information about DM to diabetic patients with pictures, through public speaking sessions to address the general public.

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