An Epidemiological Study to Assess the Knowledge and Self Care Practices among Type 2 Diabetes Mellitus Patients Residing in Rural Areas of Tamil Nadu

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Abstract

Background: Diabetes Mellitus is a major public health problem and is acknowledged as one of the leading cause of death and disability worldwide. So the present study was done with the objective of assessing the knowledge and self-care practices among diagnosed type 2 diabetes mellitus patients residing in rural areas of Tamil Nadu.

Methods: A cross-sectional descriptive study for a period of 3 months (October 2014 – December 2014) was conducted among diagnosed Type-2 Diabetes Mellitus patients attending outreach camps. The study subjects were selected based on their suitability with the inclusion and exclusion criteria. The total sample size was 143. Statistical analysis was done by using SPSS 19 software. Frequency distribution was calculated for all the socio-demographic variables.

Results: Majority of the subjects, 76.2%, 67.1%, 87.4%, had correct knowledge with regards to role of diet, exercise, smoking and alcohol, respectively, in diabetes. 72% subjects had strict drug compliance while only 29.3% subjects followed a favourable physical exercise schedule.

Conclusion: In conclusion, even though knowledge with regard to risk factors of type-2 diabetes mellitus was observed to be better among the patients, they were significantly lagging in terms of self-care practices in the same domains. Thus, there is a great need to provide periodic health education to the diagnosed patients so that this knowledge-application gap is narrowed down.

Keywords: Diabetes mellitus; Self-care; Physical activity; Smoking

Introduction

Diabetes Mellitus (DM) is a major public health problem, globally and is ever growing as an epidemic in both developed as well as developing nations [1,2]. In 2014, the global prevalence of diabetes was estimated to be 9% among adults aged above 18 years [3]. In India, the prevalence of Type 2 Diabetes Mellitus is reported to be the highest in the world with more than 28 million cases in 2007. It is also expected that it will further grow more rapidly in India than in any other country in the world with an estimated 60 million and 80 million people affected by DM by the years 2017 and 2030 respectively [4]. Recent surveys indicate that diabetes now affects a staggering 10-16% of urban population and 5-8% of rural population in India and Sri Lanka [5-7]. Even in countries like United Kingdom and Iran, the prevalence rate of diabetes was found to be 6% and 8.6% respectively [8,9]. DM is also recognized as one of the leading cause of death and disability worldwide [2].

The aetiology of diabetes is multi-factorial and both modifiable (like socioeconomic class, lifestyle, dietary habits, presence of obesity, etc.) and non-modifiable (such as genetic - Obesity-related genmic loci or genes determining lipid metabolism or polymorphism in the receptor and its co-activator, age of the individual, positive family history, etc.) parameters have been identified [10-15]. The physical, social and economic factors involved in the management of diabetes are a continuous strain for health sector as well as to Government Agencies. Findings of a study revealed that increasing patient knowledge regarding disease and its complications has significant benefits with regard to patient compliance to treatment and to decreasing complications associated with the disease [16]. Hence, the present study was conducted with the objective of assessing the knowledge and self-care practices among type 2 diabetes patients.

Materials and Methods

A cross-sectional descriptive study was conducted among diagnosed Type 2 Diabetes Mellitus patients attending outreach camps organized by Shri Sathya Sai Medical College and Research Institute. The study was conducted for a period of 3 months (October 2014 – December 2014). The study subjects were selected based on the following inclusion and exclusion criteria.

Inclusion criteria

a) Known cases of type 2 diabetes mellitus, diagnosed at least 6 months back.

b) Patients who were willing to give informed consent.

Exclusion criteria

a) Newly diagnosed cases of type 2 diabetes mellitus or those
diagnosed within 6 months.

b) Patients who were not willing to give informed consent.

A total of 167 patients diagnosed with type-2 diabetes mellitus were available as the study sample. Out of these 167 patients, 15 patients were newly diagnosed with type 2 DM and therefore excluded from the study. Also, 9 patients did not give consent for the study so they were also excluded from the study. Thus, a total of 143 study subjects were available as the final sample size. All the selected study subjects were interviewed face to face using a pretested semi-structured questionnaire after obtaining their informed consent. The questionnaire comprised of the following parts:

i. Socio-demographic information (age, sex, education, occupation, income, etc.);

ii. Knowledge regarding diabetes among subjects (nature of the disease, risk factors, mode of diagnosis, importance of diet, exercise and drug compliance, etc.); and

iii. Self-care practices followed by them (testing blood sugar, lifestyle modification, compliance to the drugs, foot and eye care, etc.).

The subjects’ knowledge and self-care practices regarding diabetes were scored using an arbitrary scoring system. Each correct response under knowledge attracted one point, whereas any wrong or don’t know answer attracted no mark. Overall, total score of ten points was designed for assessing the knowledge of the study participants. For the final assessment of knowledge of the participants, subjects were categorized as having poor knowledge (0-4 points); fair knowledge (5-7 points) and good knowledge (8-10 points). Similarly, self-care practices of the subjects were also assessed based on eight domains with each correct practice securing one point with a total score of eight points. Self-care practice was also categorized into good practice (6-8 points), average practice (3-5 points) and below average practice (0-2 points).

Rapport was established with each of the participant in order to retrieve correct information. Socioeconomic status of the patient was calculated by using modified B.G. Prasad classification.

Operational definitions

4.3a: Type 2 diabetes mellitus: Defined as per guidelines proposed by Indian Council of Medical Research (ICMR) [fasting blood sugar (>125 mg/dL) and/or postprandial blood sugar (>200 mg/dL)] [17]. But individuals who were already under treatment with oral hypoglycemic agents/insulin were labelled as diabetic irrespective of their blood glucose status.

4.3b: Regular exercise: At least 30 minutes of brisk walking for 4 days or more in a week.

4.3c: Regular blood sugar testing: Every quarterly check-up of blood sugar.

4.3d: Treatment compliance: Daily consumption of medication as advised by the physician.

Statistical Analysis

Statistical analysis was done by using SPSS 19 software. Frequency distribution was calculated for all the socio-demographic variables.

Ethical considerations

Clearance from the Institutional Ethics Committee was obtained. Written informed consent was obtained from the study subjects before obtaining any information from them.

Results

Table 1 shows the baseline characteristics of the study subjects. Majority of the subjects, 51 (35.7%), were more than 60 years of age with the youngest subject being 29 years old and the eldest being 84 years of age. The study sample had a slight female preponderance, 56.7%. Most of the subjects were Hindus, 68.6% and married, 79%. Among the employed subjects, majority, 72.8% were working on daily wages while only 17% were engaged in sedentary lifestyle. About 42.6% subjects were on the higher side of normal on the body mass index scale.

Table 2 reveals the varied status of diabetes among the study participants. It was observed that as many as 79.5% of the subjects were diagnosed after the age of 40 years which suggests significant lack of appropriate screening methods being employed for early diagnosis of the disease. It also shows that hypertension was a common comorbidity among 37.8% subjects.

Table 3 shows the knowledge and self-care practices among the study participants. It was observed that 79.8% of the subjects had correct knowledge about the hereditary nature of diabetes, even then as many as 70.7% also opined that consuming excess of sugar causes diabetes. Almost half of the subjects believed that diabetes can be cured. Majority of the subjects, 76.2%, 67.1%, 87.4%, had correct knowledge with regards to role of diet, exercise, smoking and alcohol, respectively, in diabetes. It was also observed that more than half the subjects, 54.5%, were of the opinion that anti-diabetic drugs can be stopped once the sugar levels are controlled. Few of the subjects 18.3% also agreed to the fact that if they forget any dose anytime, they take double the dose next time.

The table also reveals the self-care practices followed by the study participants. It was observed that only 29.3% subjects followed a favourable physical exercise schedule. With regards to medical adherence, majority of the subjects, 76.2% were getting their blood glucose levels checked regularly while, 72% subjects had strict drug compliance. While majority of the subjects, 82.5% agreed to be regularly wearing footwear only a meagre, 17.5% subjects took extra care of their feet.

Based on the arbitrary scoring system it was seen that 19 (13.3%) subjects observed good self-care practices while 53 (31.1%) and 71 (49.6%) subjects observed average and below average self-care practices respectively.

Table 4 depicts the association between socio-demographic parameters and knowledge about diabetes among the study subjects. It was observed that 33 (23.1%) subjects had good knowledge while 65 (45.4%) and 45 (31.5%) subjects had fair and poor knowledge about diabetes respectively. Significant association was observed between literacy and socio-economic status and knowledge regarding diabetes.

Discussion

The present study reveals that even though majority of the subjects (79.8%) were aware about the hereditary nature of type 2 diabetes mellitus, myth that excess consumption of sugar causes diabetes was highly prevalent (70.7%). In contrast to our findings, a study conducted in Warangal revealed that 63.5% of the participants correctly knew that there was no relation between excess sweet consumption and causation.
of diabetes [18,19]. This could be because of more number of literate study subjects in the study done in Warangal.

In the present study, it was observed that majority of the subjects, 76.2% and 67.1%, was aware about beneficial effects of dietary modification and exercises in diabetes respectively as also 87.4%, were aware about adverse effects of smoking and alcohol. Similar results were also obtained in various other studies done in Andhra Pradesh, Gujarat and Karnataka, respectively [20-23].

The present study also depicted that about half the subjects had incorrect knowledge about diabetes being a curable disease and hence, as many as 54.5%, believed that anti-diabetic drugs can be stopped once the sugar levels are controlled. Similar results were obtained in a study conducted in Andhra Pradesh [20]. The finding suggests need for adequate counselling of all diabetic patients not only at the time of diagnosis but time and again at each and every follow up visit in order to reinforce the importance of drug compliance.

Significant knowledge – application gap was observed in the present study subjects; 79.8% and 76.2% was aware about beneficial effects of dietary modification and exercises in diabetes respectively as also 87.4%, were aware about adverse effects of smoking and alcohol. Similar results were also obtained in various other studies done in Andhra Pradesh, Gujarat and Karnataka, respectively [20-23].
study pertaining to physical activity - while 67.1% knew about benefits of regular physical activity, in reality, only 29.5% were practicing the same. Similar results were obtained in studies done in Warangal and Tiruchirappalli [18,23].

In the present study, 72% subjects agreed to have strict drug compliance, similar to that observed in a study done in Uganda [24]. However, our results contradict the results of a study done in India which found 75% of the subjects to be non-adherent to drug management [25]. This difference could possibly be due to the fact that our patients were receiving free medical care and drugs whereas in the other study patients may have had to pay for their treatment. Also, in the current study, only 17.5% subjects took extra care of their feet in contrast to 56% subjects in a study conducted in Gujarat [20].

The current study had its limitations in the form that the sample size was not large enough to generalize the results to entire population. Also, only self-reported self-care practices were taken into consideration.

Conclusion

In conclusion, even though knowledge with regard to risk factors of type-2 diabetes mellitus was observed to be better among the patients, they were significantly lagging in terms of self-care practices in the same domains. Thus, there is a great need to provide periodic health education to the diagnosed patients so that this knowledge-application gap is narrowed down.

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