Research Article

Knowledge and perception of diabetes among patients with type 2 diabetes mellitus attending rural health care centre, Tamil Nadu, India

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ABSTRACT

Background: Diabetes mellitus (DM) is one of the most serious public health problems in 21st century. One of the reasons for the poor outcome in diabetic individuals is the lack of involvement and awareness about the complications of the disease. The participation of the patient with the knowledge is the key success factor in treatment and prevention of complications in diabetes mellitus. Objectives of the study were to assess the knowledge and perception about diabetes among patients with diabetes mellitus, attending Rural Health Training Centre (RHTC), Vayalanallur.

Methods: A hospital based, Cross sectional study was conducted to assess the awareness about complications of diabetes among patients with type 2 diabetes, attending RHTC in Tamil Nadu. The study was conducted in NCD clinic, RHTC, during the month of September 2015. Forty three participants gave written consent and they were included. The study was conducted using a questionnaire through one-to-one interview.

Results: Knowledge about the causes of diabetes mellitus-81.4%, symptoms-83.7%, accurate method of checking sugars-76.7%, correct frequency of checking sugars-95.3%, taking medications regularly- 95.3%, organs affected - 69.8%, modification in dietary pattern-72.1% and 93% believe that doing moderate physical exercise will helps in controlling diabetes but only 32.6% were doing it regularly.

Conclusions: Knowledge about diabetes is fair but still their practice on control of glycemic levels needs to be improved. This shows that there is a decisive need for health education programme for patients in order to prevent or postpone the complications of diabetes mellitus.

Keywords: Diabetes, Knowledge, Perception, Rural area

INTRODUCTION

Diabetes mellitus (DM) is a common non-communicable disease (NCD) that constitutes major public health problem throughout the world. About 347 million people worldwide have diabetes that accounts about 8.3% of world’s population.1 The causes for diabetes are a complex, but the increase is in large part due to rapid increases in overweight, including obesity and physical inactivity. Every seven seconds a person dies from diabetes and also 80% of diabetes deaths occur in low- and middle-income countries.1 The prevalence of diabetes mellitus in South-East Asia in the year 2010 was 7% but in 2014 it is 8.3% with 75 Million people living with diabetes, which shows the rapid increase in the prevalence. Also Diabetes is predicted to become the 7th leading cause of death in the world by the year 2030.

The populations in India are more susceptible to diabetes mellitus. According to International Diabetes Federation (IDF) in 2014, Prevalence of diabetes, India is 8.63% with about 1 million diabetes related deaths in the same
year. Because of this alarming burden, World Health Organization (WHO), made the World Health Day -2016, “Beat Diabetes”, in order to highlights the need to step up the prevention and treatment of Diabetes.

One of the reasons for the poor outcome in diabetic individuals is the lack of involvement in the treatment of the disease, among the diseased individuals and in the community. The participation of the patient in his treatment is the key success factor to treatment of type 2 diabetes mellitus, which demands motivation, knowledge and compliance to a difficult and complex lifetime regimen. Patient’s knowledge about diabetes is considered important in managing diabetes and its complications. Also in order to reduce the prevalence of all non-communicable diseases, the target set by the WHO in SDG 3, “By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being.”

Objective

To assess the knowledge and perception of diabetes among patients with type 2 diabetes, attending Rural Health Training Centre (RHTC), Vayalanallur, India.

METHODS

A hospital based, Cross sectional study was conducted to assess the knowledge and perception of diabetes and its complications among patients with type 2 diabetes, attending Rural Health Training Center (RHTC) of Sri Ramachandra University (SRU), Vayalanallur, India belonging to Poonamallee block in Thiruvallur district, Tamil Nadu.

The study was conducted in the Non-communicable disease (NCD) clinic, RHTC, during the month of September 2015. All the patients registered in Non-communicable disease clinic of Rural Health Training Center were eligible for the study. Forty three participants gave written consent for their participation in the study and they were included. Patients with Type 1 Diabetes Mellitus and Gestational Diabetes Mellitus (GDM) were excluded from the survey.

The principal investigator explained the purpose of the study to each participant and a written consent was obtained from the participants prior to the commencement of the study. The participants were also informed that their participation was voluntary and that they could withdraw from the interview at any time without consequences. Every effort was made, to be sure that all information collected from the participants, remain confidential.

The study was conducted using a self-structured questionnaire in the language English, which was translated to Tamil for better understanding of the participants and then their responds were again translated to English. Questionnaire has three sections covering demographic characteristics in section 1, clinical information about the participant in section 2 and knowledge and perception about type 2 diabetes mellitus in section 3. Data collection was done through one-to-one interview.

RESULTS

Results were analyzed using SPSS version 16. The mean age of participants is 55.1±9.3 and the percentage of participants in each group is given in the Figure 1. More than half of the participants (55.8%) were female. 20.9% were illiterate and 37.1% were unemploye, in this study. Majority of the participants (55.8%) were belongs to class III Socio-economic class as per Modified Prasad’s Classification (2012) (Table 1).

| Character                          | Numbers (%) |
|-----------------------------------|-------------|
| **Sex**                           |             |
| Male                              | 19 (44.2)   |
| Female                            | 24 (55.8)   |
| **Religion**                      |             |
| Hindu                             | 36 (83.7)   |
| Christian                         | 6 (14)      |
| Muslim                            | 1 (2.3)     |
| **Education**                     |             |
| Primary school                    | 10 (23.3)   |
| Middle school                     | 20 (46.5)   |
| Higher secondary                  | 3 (7)       |
| Degree                            | 1 (2.3)     |
| Uneducated                        | 9 (20.9)    |
| **Occupation**                    |             |
| House wife                        | 13 (30.2)   |
| Security                          | 2 (4.7)     |
| Driver                            | 2 (4.7)     |
| Farmer                            | 7 (16.3)    |
| Private company employee          | 3 (7)       |
| Unemployed                        | 16 (37.1)   |
| **Per capita income**             |             |
| Class I (INR >4680)               | 1 (2.3)     |
| Class II (INR 2340-4679)          | 16 (37.2)   |
| Class III (INR 1400-2339)         | 24 (55.8)   |
| Class IV (INR 700-1339)           | 1 (2.3)     |
| Class V (INR <699)                | 1 (2.3)     |

The proportion of participants who has diabetes for less than one year, 1-10 years and more than 10 years are 20.9%, 60.5% and 18.6% respectively. 39.5% has positive family history of diabetes. Majority of the participants, 83.7% has diabetes alone (no other chronic illnesses) and 11.6% has both diabetes and hypertension. The diabetes related risk factors were common among diabetic patients; 11.6 % tobacco use, 14 % alcohol drinking. Majority of the participants are taking oral
hypoglycemic drugs (95.3%) and 4.7% were taking both insulin and oral hypoglycemic drugs (Table 2).

Table 2: Clinical profile and risk factors of the participants.

| Character                        | Numbers (%) |
|----------------------------------|-------------|
| Years of diabetes mellitus       |             |
| <1 year                          | 9 (20.9)    |
| 1-5 years                        | 18 (41.9)   |
| 5-9 years                        | 8 (18.6)    |
| >10 years                        | 8 (18.6)    |
| On treatment with                |             |
| Oral Hypoglycemic Agents (OHA)   | 41 (95.3)   |
| OHA and Insulin                  | 2 (4.7)     |
| Risk factors of DM               |             |
| Family History of DM             | 17 (39.5)   |
| Tobacco use                      | 5 (11.6)    |
| Alcohol consumption              | 6 (14)      |
| Other chronic illnesses          |             |
| Hypertension                     | 5 (11.6)    |
| Bronchial asthma                 | 1 (2.3)     |
| Cardiovascular diseases          | 1 (2.3)     |
| None                             | 36 (83.7)   |

Table 3: Knowledge and perception of DM.

| Particulars                           | Correct responses in nos. (%) |
|---------------------------------------|-------------------------------|
| Knowledge components                  |                               |
| Causes of DM                          | 35 (81.4)                     |
| Symptoms of DM                        | 36 (83.7)                     |
| Sugar levels in uncontrolled DM       | 39 (90.7)                     |
| Accurate method of checking sugar levels | 33 (76.7)                 |
| DM can be controlled                  | 39 (90.7)                     |
| Mode of treatments of DM              | 43 (100)                      |
| Parts of the body affected in DM      | 30 (69.8)                     |
| Ideal screening time for complications| 17 (39.5)                    |
| Ideal time for taking medications before food | 18 (41.9)   |
| Perception components                 |                               |
| Regular exercise helps in control of DM | 40 (93)                      |
| Hypoglycemia can be controlled        | 27 (62.8)                     |
| All DM cases should undergo regular checkup | 23 (53.5)                 |
| Taking medications regularly         | 41 (95.3)                     |
| Scared of taking Insulin             | 29 (67.4)                     |
| Frequency of checking blood sugars    | 41 (95.3)                     |
| Modification in dietary pattern      | 31 (72.1)                     |
| Moderate physical exercise           | 14 (32.6)                     |
| Frequency of screening for complications | 7 (16.3)                   |
| Proper foot care                     | 36 (83.7)                     |
| Practice to prevent hypoglycemia     | 22 (51.2)                     |
| Has Diabetic card all the time       | 3 (7)                         |

Knowledge and perception about diabetes mellitus

About the causes of diabetes mellitus 81.4%, symptoms-83.7%, accurate method of checking sugars 76.7%, correct frequency of checking sugars 95.3%, taking medications regularly- 95.3%, modification in dietary pattern 72.1% and 93% believe that doing moderate physical exercise will helps in controlling diabetes but only 32.6% were doing it regularly.

41.9% of participants are correct about the ideal time of taking oral diabetic medications before food and 90.7% were correct about the high sugar levels in case of uncontrolled diabetes mellitus . Also 90.7% of participants believe that diabetes can be controlled and 67.4 % were scared of taking insulin for treatment of diabetes.

There is nil knowledge about HbA1c and only 7% of the participants has diabetic card with them, all the time. In diabetes mellitus, 69.8% were aware about the organs affected. Only 53.5% are aware that all diabetes patients should undergo regular checkups.39.5% knew about the ideal time for screening for complications of diabetes 39.5% but whereas only 16.3% were doing investigations for screening of complications. 62.8% are sure that hypoglycemia can be controlled and 51.2% were following correct hypoglycemia control practice. Proper foot care is practiced by 83.7% (Table 3).

DISCUSSION

This study was undertaken among type 2 diabetes mellitus patients, to assess their knowledge and perception about diabetes. Type 2 diabetes is much more common than type 1 diabetes which accounts for around 90% of all diabetes, worldwide. In developed countries, most people with diabetes are above the age of retirement, whereas in developing countries those most frequently affected are aged between 35 and 64. In this study the participants were aged between 36 and 74. Majority of the patients were females, this is because of the timings of Non-Communicable Disease clinic. Also about 80% of the participants are literate.
The diabetes related risk factors were common among diabetic patients; 11.6% tobacco use, 14% alcohol drinking and 32.6% reported lack of moderate physical exercise. Whereas the study which was conducted in Nepal though showed a similar proportion of smokers and alcoholics, the proportion of participants who practice moderate physical exercise is comparatively high.

In this study about 39.5% has positive family history of diabetes and 60.6% has negative family history of diabetes. A study conducted in Pakistan to assess the level of awareness about diabetes reported that about 65% of adults with a positive family history of diabetes were aware of DM while only 32% of participants with a negative family history were aware of the disease. Also there are several studies proved that level of awareness depends on socioeconomic gradient, culture and ethnic variation.

The results of the present study were similar to the findings of study conducted on knowledge on risk factors of diabetes in a different population. The majority of study respondents agreed that sugar level in uncontrolled diabetes mellitus will be high and accurate method of checking sugar is through blood investigations. In this study, majority of the participants were aware that regular physical exercise will help in control of diabetes mellitus, whereas a study conducted in Chennai, Knowledge of the role of obesity and physical inactivity in producing diabetes was very low. This could be because this study was conducted in the non-communicable disease clinic and thus most of participants were aware about the disease when compared to the other studies.

None of the participants were aware about the investigation HbA1c, in this study. But other studies have shown that respondents who knew about HbA1c and their last HbA1c value had higher odds of accurately assessing their diabetes control and better reported understanding of their diabetes care. The findings in this study could be because of the lack of newer investigation technology in rural area and also participant’s un-affordability for the investigation.

Strengths and limitations

This study was conducted in rural area of Thiruvallur district in Tamil Nadu, where not many studies were done to assess the knowledge and perception of diabetes and its complications.

There were some limitations in this study that should be noted. Majority of the participants were females. This is probably due to the fact that the clinic was conducted on weekdays, during which most of the male participants might be at work compared with the female participants who were mostly dependent, married females. This study was a small study conducted with the participants who attended the non-communicable disease clinic in a rural area. Therefore the reports here may not be representative of the community as there may be diabetics who do not visit the hospital.

CONCLUSION

Though the overall knowledge about diabetes mellitus is fair in this study, their practice in order to control blood sugar levels and to prevent the complications of diabetes are still needs to be improved. Because, diabetic patients should possess good knowledge about their illness in order to do life style modifications and improve their self-management skills and thereby to prevent the complications of diabetes.

Recommendations

Health programmes are to be structured to deliver intensive education regarding the diabetes, its causative factors, and symptoms to diagnose the complications of the disease as early as possible and various lifestyle modifications like change in dietary pattern, physical exercise and weight management, in order to control the sugar levels. Also proper care with supervision of the patients’ sugar level and life style modifications are needed to help the diabetic patients to gain knowledge and confidence, which can progress their outcomes, glycemic control and improve their standard of living.

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