Research Article

SELF-MANAGEMENT OF DIABETES AND TREATMENT COMPLIANCE AMONG DIABETIC PATIENTS ATTENDING A TERTIARY CARE HOSPITAL, TRIPURA

Bansari Das[1]., Ananya Ray Laskar[2]., Shyambhavee Behera[3] and Arti Bahl[4]

[1]Health & Family Welfare Society, Agartala, Tripura- 799001 & Former MPH scholar at National Centre for Disease Control (NCDC), Delhi. 9811858006
[2]Department of Community Medicine, Lady Hardinge Medical College, New Delhi-110001
[3]Department of Community Medicine, University College of Medical Sciences UCMS, 2-Tahirpur Rd, Dilshad Garden, New Delhi-110095
[4]Epidemiology Division & former MPH coordinator, NCDC, 22-Sham Nath Marg, New Delhi-110054

ABSTRACT

Background: Self Management of Diabetes and compliance to treatment has a strong correlation with glycaemic control and prevention of complications. There are inter-state variations in relation to the above and paucity of literature particularly from North Eastern states of our country. Hence, the study was conducted to assess the self-management practices and compliance to treatment among diabetes in Tripura.

Methodology: A cross sectional study was conducted in a Diabetic Clinic of a Tertiary Care Hospital in Tripura among diagnosed patients of type 2 DM who were $\geq$ 18 years and attending diabetic clinic. Purposive sampling was used. Information regarding knowledge about diabetes self-care and compliance was assessed using standardized Chennai Urban-Rural diabetes questionnaire. Data was analyzed in Statistical Package for Social Science version 20.0 (SPSS 20.0).

Results: Most common cause of diabetes as reported by the study participants was family history (36%), followed by consumption of sweets, obesity, decreased physical activity. Although 41.5% respondents had the knowledge about increasing physical activity to keep DM under control, only 34% were engaged in physical activity. Twenty-one percent of them missed their medicine often. Only 8% inspected their foot regularly.

Conclusion: Even in presence of significant knowledge regarding the disease and its complication, the current study reported significant lacunae in the practices in relation to self-management and compliance to treatment among the diabetic patients. Thus, imparting and re-enforcing them regarding the best practices for diabetes management and self-care becomes the key to address these lacunae.

INTRODUCTION

Type-2 Diabetes Mellitus (DM) has emerged as one of the major global public health challenges of the 21st century. Economic transition clubbed with rapid urbanization, has lead to change in lifestyles and DM is no longer a disease restricted to the effluent or the elderly population [1]. It is steadily increasing across different socio-economic and younger age groups particularly in the developing world [2]. In India, an estimated 7.8% of the population above 18 years of age has raised blood glucose levels or are on treatment for diabetes [3,4].

Counselling is one of the key components in ensuring better treatment and control of diabetes. Poor awareness and practices are some of the important variables influencing the development and progression of diabetes and its complications. Evidence shows that improvement in self-management practices and compliance to treatment has a tremendous potential to increase glycemic control. Although there have been small regional studies on this aspect. There is dearth of such research work in the North-eastern regions of the country. Moreover, Tripura as the highest prevalence of type-2 DM (9.4%) and pre-diabetes (14.7%) according to ICMR-INDIAB study[4]. Hence the study was conducted to assess their awareness and practices regarding Diabetes with special emphasis on self-management practices and compliance to treatment.

METHODOLOGY

A cross-sectional study was conducted in a Diabetic Clinic of Agartala Govt. Medical College & associated G.B.Pant

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Corresponding author: **Bansari Das**
Health & Family Welfare Society, Agartala, Tripura- 799001 & Former MPH scholar at National Centre for Disease Control (NCDC), Delhi. 9811858006

hospital, Tripura from August, 2017 to November, 2017. Diagnosed patients of type 2 DM who were ≥18 years and attending diabetic clinic for at least 6 months and willing to participate were included in the study. Critically ill patients and who were not in a condition to give the interview were excluded from the study. The Diabetic Clinic OPD is functional on a daily basis in a 600 bedded tertiary care hospital in Agartala, Tripura, catering to nearly 140 diabetic patients in a week.

A list of diabetic patients attending the diabetes clinic was obtained from the OPD register. Patients with fasting plasma glucose of ≥126 mg/dl and 2-hour plasma glucose as ≥200 mg/dl [5] as defined by Indian Council of Medical Research (ICMR) guidelines was used as operational definition. Purposely all the patients who were attending the diabetic clinic for atleast 6 months during the study period, who were willing to participate in the study, were included in the study.

The study participants were interviewed, after obtaining an informed written consent, using semi structured questionnaire to assess their awareness and practices regarding Diabetes with special emphasis on its causation, prevention, self-management practices and compliance to treatment.

The study tool was developed from standardized diabetes questionnaire used in Chennai Urban, Rural Epidemiology study (CURES) [6]. The questionnaire was translated in local language and pre-tested in the field settings and it included socio-demographic profile, knowledge about diabetes disease, its causative factors, attitude towards prevention, self management practices, dietary and lifestyle modifications, foot-care and compliance to drugs (correct dosage, regularity, appropriate timings of medications), regularity of check-ups and other control measures. A composite score was calculated using the CURES questionnaire. The following scoring system was adopted:

1. Close ended: correct answers=1, incorrect/ inconclusive=0
2. Open ended: checklist was used to categorize the answers eg. for causative factors max 4 was given for decreased physical activity, obesity, family history, faulty eating habits, 3 for answers like consuming sweets, 2 mental stress, 1for any other answer close to above but 0 for incorrect answers. Maximum score that could be obtained was 8.
3. A composite score was then derived by dividing the score of individual by the max score possible. Suppose a participant scores 6 on one domain then composite score was calculated as 6/8x 100= 75%

Statistical analysis: Data was entered and analyzed in Statistical Package for Social Science version 20.0 (SPSS). Continuous variables were expressed as mean with standard deviation (SD). Categorical variables were presented as proportions. Permission was sought from the hospital authorities of Tertiary care hospital of Agartala, Tripura and ethical clearance was obtained from Institutional Ethical Committee of National Centre for Disease Control (NCDC).

RESULTS

A total of 200 Type 2 DM diagnosed patients were enrolled of out the total 458 patients attending the OPD during the study period. The mean age of the respondents was 53.82±12.14 years. Almost 31% of the study participants were housewives,

followed by government employees(18%), labourer(17%), farmer(16%), retired personnel(10%) and businessmen(8%). The mean duration of DM was 5.67±2.3 years and almost half 53% of the participants were males. Majority 108(54%) were residing in urban areas and 14% of the study participants belonged to tribal community. Majority of the participants (81.5%) were literate. A family history of Diabetes was present in almost one-third of the study participants.

Awareness & Knowledge regarding Diabetes and self-management: Overall knowledge regarding the causes and symptoms of diabetes was fairly satisfactory; however the awareness about complications, organs effected were dismal (table1). Majority of the participants 126(36%) were only aware about fasting blood sugar test while their awareness about the rest of the screening tests to detect control and onset of complications was dismal. Only 28%, 18%, and 6.5% of respondents were aware of complications affecting kidney, heart and liver, and eye, respectively, with majority having no knowledge about any complications

Table 1 Mean Composite Score (%) values using modified CURES according to the knowledge of various domains of Diabetes among participants

S.No.	Domains of Knowledge about Diabetes	Mean Score (N=200)
1.	Cause of Disease	42.5±26.7
2.	Symptoms of Disease	58.5±24.6
3.	Lifestyle changes to control diabetes	56.8±27.3
4.	Importance of compliance to medicines	38.7±18.9
5.	Awareness of complications	22.5±22.8
6.	Awareness regarding checkups and their frequency	28.6±19.0

Table 2 Knowledge about diabetes self-management

| Awareness regarding foot care	Yes	16 (8%)
	No	184 (92%)
Awareness regarding way of taking care of foot	Inspection of foot	5 (31.5%)
	Use special footwear	11 (68.5%)
Awareness regarding not to skip any meal	Yes	101 (50.5%)
	No	99 (49.5%)
Awareness regarding keeping of sweet/biscuit for emergency	Yes	25 (12.5%)
	No	175 (87.5%)
Awareness regarding diabetes can affect several organs of the body	Yes	78 (39%)
	No	122 (61.0%)
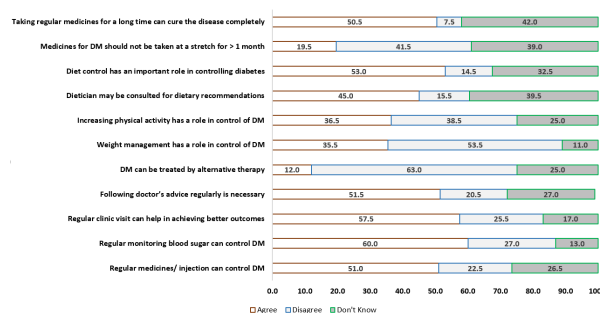
Figure 1 Attitude regarding diabetes self-management on various aspects

Practices regarding diabetes self-management: Only half of the diabetics used to consult the physician on monthly basis. Despite of knowledge and a positive attitude towards lifestyle changes only one-third of the participants had included these practices like increased physical activity, dietary modifications and reduction in tobacco/alcohol consumption. More than three-fourth of the study participants still had tendency to miss their medications. Owing to gaps in the knowledge regarding foot care, only 16(8%) participants were practicing regular

foot care (Table 2) It was also observed that a significant proportion of patients 128(64%) felt that the doctors do not devote adequate time to explain the self-management particularly with regards to foot care, specific lifestyle modifications and intervals at which checkups need to be done.

DISCUSSION

Diabetes mellitus is reaching potentially epidemic proportions in India. The study attempts to address dearth in the literature regarding diabetes self-management and treatment compliance among diabetic patients in one of the north-eastern region of India. The mean age of the respondents was 53.8 years which was almost similar in the study conducted in Karnataka by Raj C.K. et al (56.4± 11.38 years) [7]. The mean duration of DM in the study subjects were 5.67 years in the present study. Another study by Kapoor D et al in the north east state of Sub-Himalayan region reported the average duration of diabetes to be 8.2 years [8].

Overall knowledge of the respondents was average in most of the aspects. With regards to the knowledge about causes of diabetes, majority of the respondents in the present study reported positive family history (36%), consumption of more sweets (31%). CURES-9 study also reported positive family history (31%) and consumption of high calorie food (21%) to be the predispositions to diabetes[6]. Another study from United Arab Emirates reported similar findings along with sedentary lifestyle (43.6%) being identified as a risk factor for type 2 diabetes[9]. Knowledge regarding the role of obesity (20%) and physical inactivity (9%) as a risk factor for diabetes were also very low. The above findings in the study could also be attributed to poor accessibility to health promotional counselling services.

Worryingly, diabetes is associated with a spectrum of complications. Only 12%, 8%, and 6.5% of respondents were aware of complications affecting kidney, heart and liver, and eye, respectively, with majority having no knowledge about any complications. Similar finding were reported by Shah N et al in a study in Sourashtra and Kapoor D et al in Sub-Himalayan region[8,10]. Another crucial finding was limited knowledge of complication and life style modifications. In another study regarding diabetes conducted by Mukhopadhyay P et al in Kolkata, knowledge regarding symptoms and complications of the disease was poor except for kidney (42.2%) and eye complication (62.5%). However, only 25% of the patients had gone for eye examination during the last 1-year of their treatment [11]. The present study too reported fairly good awareness but low practice levels of getting routine check-ups, undergoing periodic eye examination, BP monitoring. The awareness and practices regarding self-management of hypoglycaemia and foot-care were found to be poor. In an Australian study conducted by Kueh YC et al. it was also observed that out of all the components of self-management practises, foot care was practiced by least number of the participants[12]. Attitude toward regular exercise and dietary modification in diabetics was found to be favourable in the majority of diabetic patients.

In the present study only 12% of the respondents felt that they should adopt alternative medicines in addition to allopathic medicines and rest of them had faith in allopathic medicines. Also, 48% believed that taking regular medicines /injections can keep diabetes under control. However, in the CURES-9 study, it was observed that patients had misconception about insulin injection and very few knew that diabetes could be prevented. Insulin was not favoured by most of respondents and 40 % of patients were taking herbal drugs[6].

Traditionally in developing regions such as North-East, being overweight is considered as a sign of health, wealth and power, hence this perception drives food habits and lifestyle modification. Though a good number of respondents in the current study had positive knowledge and attitude regarding various aspects of diabetes, unfortunately the same did not translate into practice. It was observed 41.5% respondents had the knowledge about enhancing physical activity to keep diabetes under control, which is higher than CURES-9 study (12%), only 34% in present study were engaged in physical activity (of any form) while 21% of them were non-adherent to medicines. Only 8% inspected their foot regularly which reflects lack of awareness and risk perception. This gap can be attributed to the fact that the doctors do not devote adequate time to explain the self-management as reported by majority (64%).

A KAP study in rural Bangladesh by Fakir M et al. showed 31% patients checked blood glucose level once in a year and 16% twice in a year[13] . While in the present study 57.5% study subjects attended diabetic OPD periodically and about 50% got their blood sugar level checked once in a month which shows a satisfactory awareness level but there is scope for improvement. The limitation in the study was it was conducted in a tertiary care setting using a purposive sampling. A community based study could revealed more ground realities.

CONCLUSIONS

The current study reported significant lacunae in the practices among the diabetic patients particularly self-management like foot care and compliance to treatment and routine check-ups. This may be attributed to lack of reinforcement by health care practices at the time of hospital visits and less time devoted by treating physicians as reported. Innovative methods can be employed such as screening of educational videos or live role-plays performed by medical students for awareness generation about complications, treatment compliance and self care etc while the patients are waiting in the OPD area or distribution of pamphlets to educated patients, to transmit important public health messages at the health facility level. In addition, NCD Counsellors dedicated to providing one to one patient counselling for Diabetes should be deputed under the NCD programme in the diabetic clinics to address this issue.

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