Knowledge of diabetes among diabetic patients in government hospitals of Delhi

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ABSTRACT

Background: Poor patient knowledge of recommended diabetic self-care practices is a major barrier toward attainment of good glycemic control and prevention of diabetic complications.

Materials and Methods: We assessed the knowledge of diabetes self-care practices through a short 7-item pretested questionnaire among diabetes mellitus patients attending special clinics in three government hospitals.

Results: The average diabetes knowledge score attained by the patients was 3.79 ± 1.77 (maximum score = 7). Lifetime treatment requirement for diabetes mellitus, plasma glucose levels for good glycemic control, and symptoms of hypoglycemia were correctly reported by 89%, 74%, and 38.5% of the patients, respectively. Low educational status and female gender were significantly associated with poor knowledge of diabetes (P < 0.05). Low level of knowledge of diabetes was a predictor of poor glycemic control but not medication adherence.

Conclusion: Knowledge of diabetes in patients attending government hospitals in India is low. Future studies should explore low-cost health education interventions feasible in the Indian health-care context for improving patient knowledge of diabetes.

Keywords: Diabetes, government hospitals, knowledge

Introduction

Poor glycemic control in diabetic mellitus (DM) patients is a major public health problem since it increases the risk of development of diabetic complications and associated management costs.1,2 Patient knowledge and awareness of recommended diabetic self-care practices and need for adhering to them is associated with improved medical adherence to treatment recommendations which may promote better glycemic control.3-5 The objective of this study was to evaluate diabetes-related health knowledge of Type 2 DM patients following up for treatment in government hospitals.

Materials and Methods

A cross-sectional study was conducted in 385 Type 2 DM patients attending special outpatient department (OPD) clinics in three government hospitals of Delhi from July to November 2013. The study sites were chosen conveniently with respect to logistical feasibility while study participants were selected through systematic random sampling. Type 2 DM patients who were previously diagnosed with diabetes and undergoing treatment from their existing treating health-care institution for at least 1 year were invited to participate in the study and enrolled after obtaining written informed consent.

Evaluation of diabetes-related health knowledge of the patients was made through a pretested questionnaire with seven questions relating to patient knowledge of
their current and desired glycemic control, potential complications of diabetes, recognition of hypoglycemic symptoms, persistence of drug therapy during routine illnesses, interval for periodic retinal screening, and recommend frequency and duration of exercise. Patient medical records were used for assessing the validity of patient-reported glycemic control.

**Results**

The mean age of the study participants was 53.15 ± 10.2 years (n = 385). We enrolled 159 (41.3%) males and 226 (58.7%) females.

Three hundred and forty (88.3%) participants reported having received diabetes-related health education from a designated health-care provider at their respective treatment facility within the previous 3 months. Two hundred and four (53.4%) participants were satisfied with the health education received by them at their treatment facility.

The average diabetes knowledge score attained by the patients was 3.79 ± 1.77 (maximum score = 7). We classified a diabetes knowledge score of ≤3 out of 7 as a low score. We found that, among participants with duration since diagnosis of DM as ≤5 years, 95 of the 170 (55.8%) reported low knowledge scores. In the female participants, 115 out of 226 (50.8%) obtained low knowledge scores [Table 1].

A score of ≤3 was found among 76 out of 133 (57.14%) illiterate participants, 60 out of 135 (44.44%) participants with total years of education ≤10 years, and 33 out of 119 (27.73%) participants with total years of education >10 years.

A strong positive correlation was observed between patient satisfaction levels toward diabetes-related health education received at treatment facility and the knowledge score attained by them (Pearson’s correlation: 0.71, P < 0.01).

The lifetime treatment requirement in DM was understood by 343 (89%) participants. The appropriate plasma glucose levels associated with good glycemic control were correctly reported by 285 (74%) participants. A total of 323 (84%) participants were aware of the necessity of adhering to diabetes medication during minor illnesses while 210 (55%) participants correctly stated the minimum weekly recommended physical activity requirements in diabetic patients. However, only 146 (38%) patients correctly identified the symptoms of hypoglycemia. At least two major complications resulting from end-organ damage due to uncontrolled diabetes were correctly reported by 135 (34.5%) participants. The need for an annual retinal screening examination in diabetes was known to 62 (16%) participants.

Poor knowledge of diabetes was found to be a significant predictor toward poor glycemic control (P ≤ 0.05).

**Table 1: Sociodemographic predictors of poor diabetes knowledge score**

| Variable                        | Total (n=385) (%) | Diabetes knowledge score | χ² | P       |
|---------------------------------|-------------------|--------------------------|----|---------|
|                                 |                   | ≤3/7 (n=175) | ≥4/7 (n=210) |
| Gender                          |                   |             |              |         |
| Female                          | 226 (58.7)        | 115          | 111          | 6.5     | 0.013   |
| Male                            | 159 (41.3)        | 60           | 99           |         |         |
| Age (Years)                     |                   |             |              |         |
| ≥60                             | 138 (36)          | 62           | 76           | 0.024   | 0.915   |
| <60                             | 247 (64)          | 113          | 134          |         |         |
| Duration of diabetes mellitus (years) |                   |             |              |         |
| <5                              | 170 (44)          | 95           | 75           | 13.4    | <0.001  |
| ≥5                              | 215 (56)          | 80           | 135          |         |         |
| Education (years)               |                   |             |              |         |
| ≤5                              | 197 (51.7)        | 116          | 81           | 29.34   | <0.001  |
| >5                              | 188 (48.3)        | 59           | 129          |         |         |
| Medication adherence            |                   |             |              |         |
| Poor                            | 98 (25.5)         | 46           | 52           | 0.117   | 0.814   |
| Good                            | 287 (74.5)        | 129          | 158          |         |         |
| Glycemic control                |                   |             |              |         |
| Poor                            | 209 (54.3)        | 107          | 102          | 6.079   | 0.014   |
| Good                            | 176 (45.6)        | 68           | 108          |         |         |

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However, there was no significant association of patients’ diabetes knowledge score and their medication adherence.

Discussion

We found inadequate levels of patient knowledge of control and management of diabetes among Type 2 diabetes patients undergoing treatment in OPDs of three government hospitals of Delhi. Patients with low educational level, female gender, and diabetic patients on treatment for <5 years were particularly at risk of being deficient in their knowledge of diabetes and its management through appropriate self-care practices. A majority of the participants were unaware of the symptoms of hypoglycemia and almost one-fourth of the study participants did not know their optimal glycemic control levels.

In the study by Gulabani et al., in a tertiary care center among diabetic patients, 48% of the participants were unaware of the symptoms of hypoglycemia while 37% of the patients lacked awareness of the lifetime treatment requirement in diabetes.[6] The study by Shah et al. in Gujarat also reported 38.2% patients believed that diabetes could be permanently cured.[7] The knowledge of diabetes among our study population was higher regarding these aspects. However, similar to the study by Gulabani et al., we also found significantly lower knowledge scores in women ($P < 0.05$).

Conclusion

Lack of awareness of diabetes’ pathophysiology and self-care practices among diabetic patients is a major challenge in government health-care settings. Better knowledge of diabetes can improve glycemic control and treatment satisfaction in patients. Therefore, health programs should target improvement of diabetes health education levels in those with minimal or no formal education, especially women. In government health facilities with limited health providers and high patient load, innovative methods for imparting diabetic health education to patients which allow for reinforcement even with minimal human intervention should be explored.

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Conflicts of interest

There are no conflicts of interest.

References

1. Shetty S, Seenik K, Oglesby AK. Relationship of glycemic control to total diabetes-related costs for managed care health plan members with type 2 diabetes. J Manag Care Pharm 2005;11:559-64.
2. Wagner EH, Sandhu N, Newton KM, MCCulloch DK, Ramsey SD, Grothaus LC. Effect of improved glycemic control on health care costs and utilization. JAMA 2001;285:182-9.
3. Heisler M, Piette JD, Spencer M, Kieffer E, Vijan S. The relationship between knowledge of recent HbA1c values and diabetes care understanding and self-management. Diabetes Care 2005;28:816-22.
4. Khattab M, Khader YS, Al-Khawaldeh A, Ajlouni K. Factors associated with poor glycemic control among patients with type 2 diabetes. J Diabetes Complications 2010;24:84-9.
5. Al-Qazaz HK, Sulaiman SA, Hassali MA, Shafie AA, Sundram S, Al-Nuri R, et al. Diabetes knowledge, medication adherence and glycemic control among patients with type 2 diabetes. Int J Clin Pharm 2011;33:1028-35.
6. Gulabani M, John M, Isaac R. Knowledge of diabetes, its treatment and complications amongst diabetic patients in a tertiary care hospital. Indian J Community Med 2008;33:204-6.
7. Shah VN, Kandak PK, Shah N. Assessing the knowledge, attitudes and practice of type 2 diabetes among patients of Saurashtra region, Gujarat. Int J Diabetes Dev Ctries 2009;29:118-22.