

KNOWLEDGE, ATTITUDE AND PRACTICE OF HYPERCHOLESTEROLEMIC
TYPE 2 DIABETIC SUBJECTS ON DYSLIPIDEMIA

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Abstract

This study was undertaken to assess the knowledge, attitude and practice (KAP) of hypercholesterolemic type 2 diabetic subjects on dyslipidemia and to analyze the influence of some demographic and socioeconomic factors on the level of KAP. It was a descriptive cross-sectional survey. One hundred eleven newly diagnosed type 2 diabetic subjects (male 61%, female 39%, age 45 ± 9 years, BMI 24 ± 4.8 Kg/m²) with hypercholesterolemia (fasting plasma total cholesterol > 200 mg/dl) were selected from the out patient department of BIRDEM by purposive sampling method. Data were collected by a pre-designed, pretested, interviewer-administered questionnaire. Three categories were defined on the basis of the score obtained by each subject namely low, medium and high as follows: knowledge-score < 50%, 50-60% and > 60%; attitude-score < 60%, 60-80% and > 80%; and practice-score < 50%, 50-70% and > 70% respectively. The levels of knowledge were low in 42%, medium in 35% and high in 23% of the study subjects. The corresponding attitude levels were low in 1%, medium in 31% and high in 68%, and the levels of practice were low in 80%, medium in 14% and high in 6% of the subjects. The knowledge score was higher in secondary and graduate ($53.4 \pm 8.9\%$, and $54.9 \pm 10.1\%$) groups compared to illiterate-primary group ($48.9 \pm 9.9\%$). Practice score of illiterate-primary group ($34.5 \pm 16.8\%$) was lower than secondary and graduate ($43.1 \pm 13.9\%$ and $46.7 \pm 18.1\%$) groups, but they did not differ on attitude. The various income groups did not differ on knowledge. Attitude score of high-income group ($78.7 \pm 8.4\%$) was better than low-income group ($70.9 \pm 11.8\%$). Practice score in high-income group ($44.7 \pm 16.0\%$) was better than medium income and low-income groups ($31.3 \pm 14.5\%$ and $28.6 \pm 15.0\%$). Knowledge and practice score in Bangladeshi hypercholesterolemic type 2 diabetic subjects are not satisfactory although they have fairly good attitude levels. Education and income status are the major determinants of knowledge, attitude and practice regarding dyslipidemia in diabetes. A coordinated policy is required to promote knowledge and attitude on healthy lifestyle and to translate those into practice.

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Key words: Knowledge, attitude, practice, type 2 diabetes, dyslipidemia

Introduction

Diabetic dyslipidemia appears to be a very important component of the accelerated atherogenesis and cardiovascular disease that occurs in patients with diabetes. Dyslipidemia is observed practically in all patients with type 2 diabetes. It is possible to reduce mortality and cardiac events among patients with type

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2 diabetes by lowering their LDL-C levels. Pharmacological and non-pharmacological therapy may be effective in the management of dyslipidemia with type 2 diabetic subjects. Non-pharmacological therapy includes dietary control and exercise. Changes in lifestyle and diet has increased the life expectancy as well as profoundly influenced the burden of cardiovascular (CVD) and other chronic diseases.¹⁻³ Determining the knowledge, attitudes and related practice of the population towards dyslipidemia is necessary before effective prevention strategies can be introduced. Dyslipidemia is a major problem in Bangladesh. A pilot study conducted on newly diagnosed type 2 diabetic patients in a tertiary hospital of Diabetic Association of Bangladesh showed that the prevalence of dyslipidemia with type 2 diabetic subjects were as follows-hypercholesterolemia 51%, hypertriglycerimemia 47%, high LDL-C 10%, and low HDL-C 51%.⁴ To best of our knowledge KAP (knowledge, attitude and practice) of the diabetic patients regarding dyslipidemia has not never been studied before in Bangladesh although these are important for appropriate use of limited resources in health care in countries like Bangladesh. The aim of the study is to assess the KAP of hypercholesterolemic type 2 diabetic subjects on dyslipidemia and to analyze the influence of some of the demographic and socioeconomic factors on the level of KAP in a hospital situation. The results of this study may help to develop a hospital protocol for the management of patients with dyslipidemia.

Material and Methods

Subjects

One hundred and eleven type 2 diabetic subjects with hypercholesterolemia (fasting serum total cholesterol >200 mg/dl⁵) were recruited from the Out-Patient Departments of BIRDEM which is a tertiary care hospital of Diabetic Association of Bangladesh.

Study design

It was a descriptive cross-sectional survey. Purposive sampling method was used for selection of subjects.

Collection of data

Methodologies adapted in different countries for KAP studies⁶⁻⁸ were modified in the context of Bangladeshi population. The KAP of the subjects was assessed by

an interviewer-administered questionnaire. Likert scales^{9,10} were used to assess attitude on various items. Detailed socioeconomic and anthropometry data of the study subjects were recorded. A biochemical report of the patients was collected from the patients' guidebook. Knowledge was assessed by questionnaires based on definition, causes of hypercholesterolemia, control levels, recognition of complications, diet modification, importance and duration of exercise. The attitude was assessed by questionnaires about control of hypercholesterolemia through diet and exercise and finally practices were assessed by scrutinizing patients' record books for clinical, biochemical and treatment parameters and by questionnaires on diet and exercise. Income was categorized into three groups: low income group (< 30,000 BDT), medium income group (30,000- 50,000 BDT) and high income group (> 50,000 BDT). Moderate worker was defined as shop assistants, drivers etc, heavy workers were farmers, fisherman, forestry workers and sedentary workers were office workers, students, unemployed etc.

KAP Score

A scoring system was developed for each question. Each correct answer was given a score of 1 while for each incorrect answer the score was 0. Three categories of knowledge, attitude and practice (KAP) were defined on the basis of the score obtained by each participant. The categories were: low knowledge score (< 50% of the total score), medium (50-60% of the total score) and high (> 60% of the total score); attitude score low (< 60% of the total score), medium (60-80% of the total score) and high (> 80% of the total score) and practice score low (< 50% of the total score), medium (50-70% of the total score) and high (> 70% of the total score).

Data editing and statistical analysis

Data editing was carried out by checking and verifying the completed questionnaire at the end of interview and also at the end of the whole survey and before analysis. The data analysis was done by using Statistical Package for Social Science (SPSS, Windows version 10.0). P value less than or equal to 0.05 was considered significant. Unpaired student's t test was performed to compare any two means. One-way ANOVA (with Post Hoc-Bonferroni) test was done to compare means between more than two groups.

Results

Mean age of the study subjects was 45 ± 9 years and male 61%, female 39%. Most of the study subjects (72%) came from urban area. About 30% of them had primary education while 8% had no formal education. Among the study subjects 33% had completed higher secondary education and 29% had completed graduation and above. Mean BMI of the study subjects was 24 ± 4.8 Kg/m.² About 37% of them were overweight and 4% were obese. More than half (53%) of them had weight within the normal range, while 6% of them were underweight.

Among the study subjects, the levels of knowledge were low in 42%, medium in 35% and high in 23%. (Fig.1). The levels of attitude were also described accordingly as low 1%, medium 31% and high 68%. (Fig.1). The levels of practice of study subjects were found to be low in 80%, medium in 14% and high in 6% (Fig.1).

The KAP scores of male and female did not differ significantly (53.1 ± 9.7 vs 50.7 ± 10.1 , 78.6 ± 9.1 vs 77.3 ± 9.4 , 42.1 ± 17.7 vs 39.1 ± 15.7 ; Table 2).

The KAP scores of moderate, heavy and sedentary workers (52.7 ± 10.6 vs 50.3 ± 3.1 vs 50.6 ± 9.6 ; 77.7 ± 9.1 vs 76.6 ± 11.8 vs 77.1 ± 9.3 ; 39.7 ± 15.5 vs 41.4 ± 17.3 vs 42.6 ± 18.3) did not differ significantly. The KAP scores of urban, semi-urban and rural residents did not significantly differ (52.1 ± 10.2 vs 54.8 ± 5.2 vs 51.5 ± 10.4 , 78.1 ± 9.4 vs 83.5 ± 5.1 vs 75.9 ± 9.3 , 43.1 ± 17.5 vs 39.1 ± 12.9 vs 33.5 ± 15.1 ; P=ns). Compared with illiterate-primary group ($48.9 \pm 9.9\%$) knowledge score was significantly high in secondary and graduate ($53.4 \pm 8.9\%$ and $54.9 \pm 10.1\%$, P=0.022) groups. Practice score of illiterate-primary group ($34.5 \pm 16.8\%$) was significantly lower than secondary and graduate

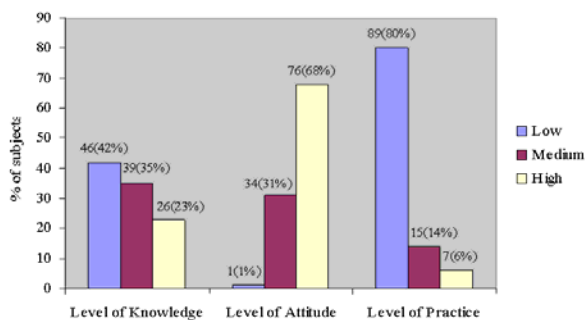


Fig 1: Levels of Knowledge, attitude and practice of the study subjects

Table-1: Characteristics of the study subjects

| Variables | Subjects (n=111) |
|--------------------------|------------------|
| Age, years | 45 ± 9 |
| Sex | |
| Male | 68 (61%) |
| Female | 43 (39%) |
| Residence | |
| Urban | 80 (72%) |
| Semi urban | 21 (19%) |
| Rural | 10 (9%) |
| Education | |
| Illiterate-Primary | 42 (38%) |
| SSC-HSC | 37 (33%) |
| Graduate & above | 32 (29%) |
| FPG (mmol/l) | 8.3 (4.6-22.8) |
| TC (mg/dl) | 231.36 ± 29.4 |
| BMI (kg/m ²) | 24.28 ± 3.17 |
| Underweight (< 18.5) | 6 (6%) |
| Normal weight (18.5-25) | 50 (53%) |
| Overweight (25-30) | 34 (37%) |
| Obese (> 30) | 4 (4%) |

Results are expressed as mean ± SD, median (range) and number (%), FPG=Fasting Plasma Glucose, TC=Total Cholesterol, BMI= Body Mass Index.

($43.1 \pm 13.9\%$ and $46.7 \pm 18.1\%$, P=0.005) groups but they did not differ on attitude. Income group did not differ on knowledge. Attitude score of high-income group ($78.7 \pm 8.4\%$) was better than low-income group ($70.9 \pm 11.8\%$, P=0.02). Compared with high-income group ($44.7 \pm 16.0\%$), practice score was better than medium income group and low-income group ($31.3 \pm 14.5\%$ and $28.6 \pm 15.0\%$, P=0.0001) (Table 3). Better knowledge was associated with better attitude ($r = 0.275$, $p=0.004$) and also better attitude was associated with better practice ($r = 0.187$, $p=0.05$).

Table-2: KAP score of the study subjects according to sex

| Sex | Knowledge score (Percentage) | Attitude score (Percentage) | Practice score (Percentage) |
|-----------|------------------------------|-----------------------------|-----------------------------|
| Male | 53.1 ± 9.7 | 78.6 ± 9.1 | $42. \pm 17.7$ |
| Female | 50.7 ± 10.1 | 77.3 ± 9.4 | 39.1 ± 15.7 |
| t/P-value | 1.2 / 0.22 | 0.68 / 0.49 | 0.92 / 0.35 |

Results are expressed as mean ± SD. Student's t-test was performed as the test of significance, P < 0.05 was taken as level of significance

Table-3: KAP score of the study subjects according to the different variables

| Variables | Knowledge score (%) | Attitude score (%) | Practice score (%) |
|-----------------------|------------------------|-----------------------|-------------------------|
| Occupation | | | |
| Moderate worker | 52.7±10.6 | 77.7±9.1 | 39.7±15.5 |
| Heavy worker | 50.3±3.1 | 76.6±11.8 | 41.4±17.3 |
| Sedentary worker | 50.6±9.6 | 77.1±9.3 | 42.6±18.3 |
| F/P -value | 0.58/0.56 | 0.06/0.93 | 0.33/0.71 |
| Location | | | |
| Urban | 52.1±10.2 | 78.1±9.4 | 43.1±17.5 |
| Semi-urban | 54.8±5.2 | 83.5±5.1 | 39.1±12.9 |
| Rural | 51.5±10.4 | 75.9±9.3 | 33.5±15.1 |
| F/P- value | 0.40/0.66 | 2.3/0.1 | 2.7/0.06 |
| Education | | | |
| Illiterate-Primary | 48.9±9.9 | 76.1±9.8 | 34.5±16.8 |
| S.S.C-H.S.C. | 53.4±8.9 | 78.4±8.7 | 43.1±13.9 |
| Graduate & above | 54.9±10.1 ^a | 80.4±8.7 | 46.7±18.1 ^a |
| F/P-value | 3.9/0.02* | 2.1/0.13 | 5.5/0.005* |
| Income | | | |
| Low (<30,000) | 47.0±8.4 | 70.9±11.8 | 28.6±15.0 |
| Medium(30,000-50,000) | 51.8±8.3 | 79.3±10.1 | 31.3±14.5 |
| High (>50,000) | 53.1±10.2 | 78.7±8.4 ^a | 44.7±16.0 ^{ab} |
| F/P-value | 1.8/0.1 | 3.8/0.02* | 8.7/0.0001* |

Results are expressed as mean ± SD. One way ANOVA (Post Hoc Bonferroni) was performed as the test of significance, $P < 0.05$ was taken as level of significance BDT=Bangladeshi Taka, a = Low; b = medium; c = high.

Discussion

Diabetic dyslipidemia is an important cause of accelerated atherogenesis and cardiovascular diseases in patients with diabetes. A person's knowledge and attitude regarding the disease play an important role in the overall success of the treatment. To best of our knowledge, KAP of the diabetic patients regarding dyslipidemia have never been studied in Bangladesh.

The majority (42%) of the subjects had 'poor' knowledge and 68% had 'good' attitude. On the other hand, the practice of the majority (80%) was 'poor'. These findings were similar to India. In India, all educational and occupational categories (including qualified doctor patients) had lack of knowledge regarding self-care of diabetes.⁶ In spite of good attitude, a large proportion of dyslipidemic patients did not follow appropriate practical measures to manage their disease as reflected in their clinical condition and laboratory reports. The causes of this gap between knowledge, attitude and practice need to be identified and intervened. Sex, occupation and area of residence did

not seem to affect the KAP score regarding dyslipidemia. Education and income had significant effect on KAP score. Education had a positive effect on the level of knowledge and practice regarding dyslipidemia. Subjects of high and medium income group had higher levels of knowledge, attitude and practice compared to the low income group. A previous study showed similar relationship of education and income with knowledge and attitude but not with practice.¹¹ Our findings showed the influence of socioeconomic and demographic factors on knowledge, attitude and practice regarding dyslipidemia. Better knowledge was associated with better attitude and better attitude was also associated with better practice among dyslipidemic diabetic patients.

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Diabetic Association of Bangladesh

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