A STUDY TO ASSESS KNOWLEDGE, ATTITUDE AND PRACTICE CONCERNING INSULIN USE IN ADULT PATIENTS WITH DIABETES MELLITUS IN TERTIARY CARE CENTRE

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Abstract

India had 69.2 million diabetic patients (8.7%) in 2015. Insulin is an important part of diabetes treatment, despite this one-third of patients fail to take their insulin as prescribed, and many adults intentionally skip their doses. Since, diabetes treatment continues for lifetime, there is a need to assess the knowledge and understanding of patients in relation to their disease process and its management. A cross sectional, observational, KAP (knowledge, attitude and practice) survey was carried on patients of both type I and type II diabetes mellitus who self-administered insulin and attended medicine diabetes OPD in tertiary care centre for duration of 3 months. 56 diabetic patients ≥18 years of age who were willing to respond to the study questionnaire were interviewed. The finalized questionnaire contained 43 questions of which the first 20 pertained to knowledge and attitude and rest focused on practice. None of the subjects were aware of HbA1c as monitoring tool and none of them used glucometer and only 35.71% carried simple carbohydrates for use while travelling for hypoglycemia. Knowledge and attitude as compared to previous literature were not satisfactory. Some aspects of practice were satisfactory but use of modern practices were absent.

Introduction

Diabetes mellitus (DM) is a metabolic disorder of multiple etiological factors characterized by chronic hyperglycemia with disturbance of carbohydrate, fat and protein metabolism which resulted from either insufficient insulin secretion, resistance to the action of insulin or both[1,2]. India had 69.2 million diabetic patients (8.7%) in 2015[3], second only to China, and this figure is likely to increase substantially by 2025[4]. People with diabetes are at increased risk of cardiovascular, peripheral vascular and cerebrovascular disease[1,5]. Many of these complications can be prevented with appropriate timely medical care[6,7].

Diabetes mellitus is classified into type I, type II and gestational diabetes mellitus. Type I is characterized by deficient insulin production and requires daily administration of insulin. Type II diabetes mellitus results from the body's ineffective use of insulin while gestational diabetes is hyperglycemia with onset or first recognition during pregnancy[8]. Insulin therapy is an important part of diabetes treatment often and is a cornerstone of treatment in type I diabetes and also critical, in many cases, to the management of type II diabetes. Despite this at least one-third of patients fail to take their insulin as prescribed, and 20% of adults intentionally skip their doses[9].

The treatment for DM includes use of oral hypoglycemic agents and injectable insulin therapy along with life-style modifications. The insulin therapy requires coordination and understanding of both the individual with diabetes and those responsible for diabetic care. There is no definite insulin dose that works well for every individual, the dosage of insulin changes based on patient's blood glucose levels and the type of insulin used. Therefore, insulin treatment must be individualized to fit the life style of the individual and metabolism of individual with diabetes. The changes and modifications are made as needed throughout the life of individual with diabetes[10].

Constant Education gives consequent improvements in knowledge, attitudes and skills which leads to better control of the disease and is an integral part of comprehensive diabetes care[11]. Patient education proves to be an effective method in management of prevailing health problem[12]. Since, diabetes treatment continues for lifetime, there is a need to assess the knowledge and understanding of patients in relation to their disease process and its management[13].

There are several Indian studies with emphasis on diabetes epidemiology[14-17] but those related to knowledge, attitude and practice (KAP) survey in diabetics with regards to insulin use are limited[20].

Therefore the objective of this study was to assess the knowledge, attitude and practice of diabetic patients who are self-administering insulin towards their management of disease.

Materials and methods

Study Design: A cross sectional, observational, KAP (knowledge, attitude and practice) survey was carried on patients of both type I and type II diabetes mellitus who were self-administering insulin.
Duration of study: 3 months.
Place of study: Patients who attended Medicine Diabetes outpatient department in tertiary care centre.
Inclusion criteria: Adult diabetic patients ≥18 years of age, self-administering insulin and who were willing to respond to the study questionnaire were interviewed in a language they understood and the questionnaire was accordingly filled by the investigator.
Exclusion criteria: Patients who were not physically or mentally able to conduct the interview.
Written informed consent was obtained prior to interview and the study was approved by the institutional ethics committee. The questionnaire used for the survey has been used in previous KAP study[20] among diabetics and has proven to be reliable. The questionnaire which was finalized by authors contained 43 questions of which the first 20 pertained to knowledge and attitude and rest focused on practice. The data collected through questionnaire was organized and tabulated. Results were analyzed based on categorization of the responses and expressed as percentage. All data was analyzed using Microsoft Excel software.

Results

Patient's demographics:
Out of 56 surveyed subjects, mean age of study subjects was 39.48± 3.49(95% CI: 35.99-42.97); with a mean duration of diabetes 7.768± 1.372(95% CI: 7.07-9.64). Majority of patients were males 64.29%.

- **Sex wise distribution of patients(n=56)**
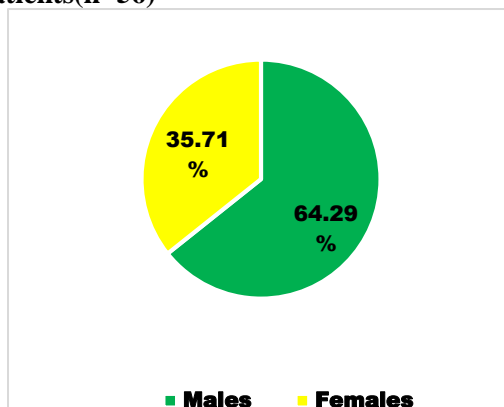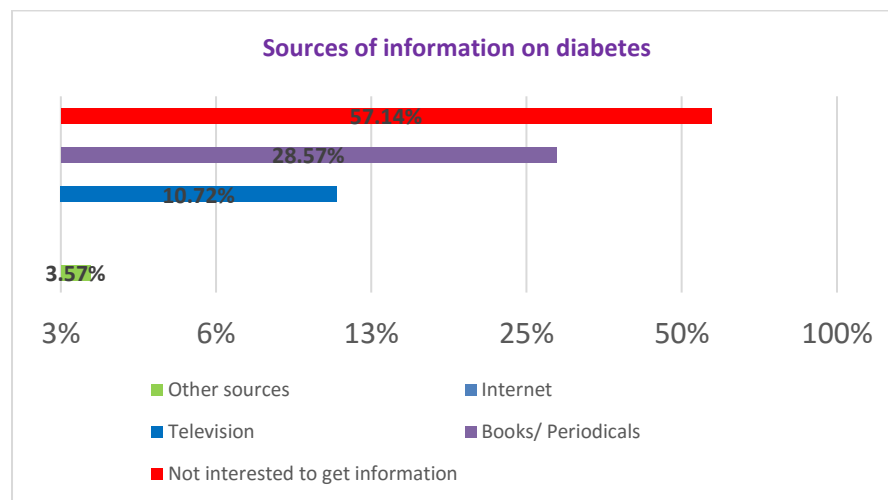
• **Age wise distribution of patients(n=56)**

Age(yrs)	No. of patients
20-29	6(10.34%)
30-39	20(34.48%)
40-49	15(25.86%)
50-59	8(13.79%)
60-69	6(10.34%)
>70	3(5.17%)

Knowledge and attitude of patients:

Only 8(14.28%) patients had good idea of diabetes and hardly 10 (17.85%) patients could specify various complications of diabetes. Among complications, renal complications were least known to patients. 38 (67.86%) patients were aware that insulin cannot cure diabetes while 36(64.29%) patients believed insulin is last resort for diabetes while majority of patients thought insulin cannot cause harm [40(71.43%)]. 22 patients (39.25%) believed insulin can be stopped once blood sugar levels normalize.

Majority of the patients believed diet (51.79%) and exercise (53.58%) is equally important along with insulin. Only 16 patients (28.57%) were aware of different types of insulin and 8 patients (14.25%) could specify about different insulin delivery devices. However, none of them was aware of HbA1c test. All the patients were confident about self-administering insulin.

16(28.57%) patients believed that they can get information regarding diabetes through newspaper while majority of patients (32) were not interested to get information.

Sources of information on diabetes

- 57.14% — Not interested to get information
- 28.57% — Books/ Periodicals
- 10.72% — Television
- 3.57% — Other sources

Legend:
- Other sources
- Internet
- Television
- Books/ Periodicals
- Not interested to get information

Practice by patients:

40 patients (71.43%) injected insulin on upper arm, 16 patients (28.57%) on abdomen while only 3 patients (5.36%) injected in thigh. All the patients rotated injection sites. Majority of patients (72.42%) didn't clean the injection site beforehand while none of them withdrew syringe partly to check for presence of blood.

All patients kept the insulin in refrigerator. None of them used glucometer while majority of patients checked their blood sugar levels infrequently at 3-4 months interval.

26 patients (46.43%) visited eye specialist less frequently than required while none of the patients get any other pathological test done in relation to diabetes. 45(80.36%) patients could mention symptoms of hypoglycaemia, while majority of patients 39(69.64%) didn't carry simple carbohydrates while travelling. 45(80.36%) patients did not take any other medication(s) for diabetes without informing the physician while most of the patients 51(91.07%) didn't self-adjust dose of insulin without consulting physician.

Discussion

As far as knowledge and attitude are considered, the present study shows poor trends comparable to earlier KAP studies conducted in other parts of India[18-21].

Nearly 46% of the subjects had satisfactory idea about diabetes its signs and symptoms and complications in present study, while 51% subjects had satisfactory idea in patients of eastern India, whereas 60-77% had good idea in a study done in Bhilai steel plant workers[21].

Most of the patients (46.43%) wrongly believed bitter condiments/ herbal drugs can cure DM which was similar to study among patients in eastern India (45-47%)[20] than study in patients of Gujarat (39.49%)[18]. Majority of patients lack knowledge of different types of insulin and insulin delivery devices. Almost 90% of patients would stop insulin if given a chance. Majority of the patients checked their blood glucose levels infrequently (85%) which was regularly checked by majority of patients in study of eastern India[20].

Some aspects of practice were rightly followed by patients. All the patients rotated the site of insulin injection. Longer duration of insulin use was associated with confidence of self-administration of insulin. More than 70% of patients did not skip insulin doses nor meals after taking insulin which was satisfactory and similar to KAP study in eastern India[20].

However, the use of modern practice like glucometer for home blood glucose monitoring was absent. This is particularly significant as guidelines from western countries clearly recommend self-monitoring of blood glucose in insulin users[22]. As none of the patients were aware of HbA1c test, none of them had undergone one. Although more than 80% patients enumerated hypoglycaemic symptoms, very few patients carried simple carbohydrates while travelling (35.71%) which was much carefully followed by patients in KAP study of a Bijapur (67.1%)[19]. These aspects of practice needs further evaluation and emphasis.

Limitations:

The prime reason for inadequate knowledge, attitude and practice in our study population as compared to earlier KAP studies might be that study subjects were from government hospital where literacy and affordability is the main concern. Present study was single institutional based, hence results may not be extrapolated to general population.

Conclusion

Inspite of the limitations, this study can be used as baseline to identify educational needs and formulate strategies to impart positive attitudes and beneficial practices among diabetics. Diabetics need to be educated about some modern monitoring and practice aspects.

Diabetes education must be imparted by physicians by counselling the diabetics at each follow up visit while physicians themselves should be enriched with more knowledge through CME (Continuing Medical Education) and other programmes. Other sources of information like articles, newspapers, television, NGOs (Non-Government Organisations) can play vital role in imparting knowledge regarding diabetes and insulin use in the community.

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