

Knowledge, Attitude and Practices of Patients Visiting a Diabetes Care Unit

Naeema Badruddin¹, Abdul Basit², M.Zafar Iqbal Hydrie³ and Rubina Hakeem³

¹Baqai Institute of Diabetology and Endocrinology, Baqai Medical University.

²Medical Unit IV, Baqai Medical University, Baqai Institute of Diabetology and Endocrinology.

³Research Department Baqai Institute of Diabetology and Endocrinology,
III-B, 3/17, Nazimabad-3, Karachi-74600, Pakistan

Abstract: All patients if given proper guidance and education regarding diabetes care would be able to make significant improvement in their life-style which is helpful for good glycemic control. Education to diabetic patients would be more effective if we know the level of knowledge, attitude and practices of our patients. Thus a study was conducted to assess the general characteristics, knowledge, attitude and practices of type 2 diabetic patients attending the Out-Patient Department (OPD) of Baqai Institute of Diabetology and Endocrinology (Karachi, Pakistan). Fifty-seven percent of the patients were overweight or obese. Only 10.7% had good glycemic control. Sixty seven percent did not do exercise of any kind. The overall awareness about the risk of complications was satisfactory but the misconceptions regarding diet, insulin and diabetes were quite common. This study highlights the need for better health information to the patient through large scale awareness programmes so as to change the attitude of our public regarding diabetes.

Keywords: KAP, diabetes, education

Introduction

Prevalence of Type 2 diabetes is increasing globally (Kuller, 1997) and the rate of increase is higher in the developing countries (Grol, 1997). According to a survey done by the Diabetic Association of Pakistan prevalence of diabetes in Pakistan is around 10% and an equal number of people are suffering from impaired glucose tolerance (Samad Shera, 1999). According to WHO estimates with the rising trend of diabetes seen world-wide Pakistan is currently 8th in the world ranking of diabetes and will become 4th by the year 2025 with nearly 14.3 million diabetics (Murray, 1996). Mortality and morbidity related to diabetic complications poses great threat and burden to a nation's economy (Lorenz, 1986). Thus educating the patient is essential for prevention of complications (Lantion-Ang, 2000).

All patients if given proper guidance and education regarding diabetes care should be able to make significant improvements in their life style which would be helpful in maintaining good glycemic control. Patient's lack of understanding or attitude hinders proper guidance about disease. Even in developed countries it has been observed that improper guidance and communication could lead to poor compliance (Nutrition Sub-Committee Of the British Diabetic Association's Medical Advisory Committee, 1982). Education is likely to be effective if we know the characteristics of the patients in terms of knowledge, their attitude and practices about diabetes. For planning effective education programs identification of vulnerable groups and characteristics of the sufferers provides useful information. In a developing country like Pakistan where literacy rates are low, the chances of improper guidance about disease due to lack of understanding of patients characteristics i.e. the personality and attitude of the patients are high. Thus this study was planned to study the general characteristics and diabetes related knowledge, attitude and practices of Type 2 Diabetic patients attending a Diabetes Care Unit in Karachi.

Materials and Methods

Subjects and Sampling: One hundred Type 2 diabetic patients seen by the dietician sequentially for the first time during the period from July to September 2000.

Data Collection: Data regarding patient's characteristics, knowledge, attitude and practices was collected through questionnaire administered individually by the dietitians. The questionnaire contained queries about patient's general

characteristics e.g., age, sex, family size; their knowledge of diabetes and their self-care practices such as dietary habits, exercise pattern and home monitoring of blood glucose. Anthropometric assessment included measurement of height and weight. Information regarding HbA1c, Total Blood Cholesterol (TBC) and Fasting Blood Triglyceride (FBTG) levels were obtained from medical records.

Data Entry and analysis: Data was entered and analysed on SPSS 10. Cut-off points used for categorising the patients according to various characteristics were as given below

Characteristics:

Body Mass Index: Patients having a BMI of greater than 40 were considered as very obese, those having BMI between 31-40 were considered obese, between 26- 30 were overweight, between 19- 25 were normal and less than 19 were considered underweight.

Glycemic control: Patients with HbA1c between 4 to 6.4% , 6.5 - 7.5% and > 7.5% were considered as having good, fair and poor glycemic control respectively.

Cholesterol levels: Patients having total plasma cholesterol levels between 150-200 mg/dl, 201-250 mg/dl and > 250 mg/dl were regarded as having normal, high and very high cholesterol levels respectively.

Triglyceride levels: Patients having fasting plasma triglyceride levels between 50-150 mg/dl were regarded as having normal, between 151-250 mg/dl as having high and more than 250 mg/dl as having very high levels of triglycerides respectively.

Assessment of Knowledge: A questionnaire was designed to assess the diabetic knowledge of the patients and it contained 17 questions about Diet, Insulin and Diabetes. One point was given for each correct answer. A total score of 12 or above was taken as having good knowledge, 6-11 was assessed as having fair knowledge and less than 6 meant having poor knowledge about diabetes.

Diet and Exercise practice: Diet was assessed by dietician by asking about the major food groups taken by the patient. Exercise practice was assessed by inquiring about the nature of exercise done like, walking, brisk walking, jogging, swimming or weight lifting etc. The patients were also asked about the duration of their

Badruddin *et al.*: KAP of Diabetic Subjects in a Diabetic Centre

exercises. Duration of exercise was assessed in terms of less than 15 minutes, 15-30 minutes, 30-60 minutes and more than one hour daily. Sedentary life style involved office work and not much walking around during normal work. while no exercise but active life style indicate walking and climbing stairs or extensive outdoor work during normal/routine work.

Results

Characteristics of the Subjects: The mean age of men and women was 50 and 52 respectively. Most of them had at least nine years of school education and average family income was 15,000 to 17,000 per month. (Table 1)

Weight status: Around 57% of the patients were either overweight or obese and prevalence was much higher in women as compared to men (70% Females while 52% Males). Out of those patients who were either overweight or obese only 21 patients (38%) considered themselves overweight or obese. Greater BMI with co-relation to poor glycemic control was comparative in females only.

HbA1c, Cholesterol and Triglycerides levels: Information regarding HbA1c and blood lipids was available for a smaller group of subjects as all the patients did not have their blood tests done. Around 2/3rd of the patients had their HbA1c done. Only 8 patients (11%) had good glycemic control while 57 patients (76%) had poor glycemic control. (Table 2)

Total Blood Cholesterol levels of 73 patients were assessed, out of which 40 (55%) had normal blood cholesterol levels while the rest (45%) had high or very high cholesterol levels.

Seventy one percent of the patients had their triglyceride levels tested; out of which 34 patients (48%) had normal triglyceride levels while the rest (52%) had high or very high Triglyceride levels. (Table 2)

Self Care Practices

Blood Glucose Monitoring: Sixty nine patients had glucometers but only 14 patients did Home Blood Glucose Monitoring (HBGM) regularly (daily or more than twice a week). Despite having glucometers 19 patients never did Home Blood Glucose Monitoring. As regards Lab testing only 8 patients did lab testing once in 1-2 weeks, where as 12 patients never did lab testing. (Table 3a)

Exercise practice: Thirty five patients had very sedentary life style i.e. their work as well as leisure activities both did not involve much physical activity. Only 9 patients exercised for more than half an hour daily. Females were less active than males. While 32 patients did not exercise at all but reported to have an active life style (outdoor work involving walking and climbing stairs etc.). (Table 3b)

Dietary Practices: Fruit and vegetable intake was very low as only 47% had any fruit and vegetable intake daily. Intake of sugar or sweet foods was not frequent as only 16 patients daily consumed food containing table sugar. High blood cholesterol levels was associated with low consumption of fruits. To assess the dietary indulgence the frequency of patients attending parties, lunch and dinners was seen. Majority of the patients did not attend parties frequently. Thirteen patients attended parties twice a week or more. Two patients avoided going to parties, lunch or dinner.

Knowledge: Overall knowledge regarding diabetes was not very good. Around 54% had poor knowledge about diabetes. Thirty-four percent had fair knowledge about diabetes while only 13% had good knowledge. (Table 4).

Discussion

The management of Diabetes Mellitus not only requires the prescription of the appropriate nutritional and pharmacological

Table 1: Characteristics of the Sample

Parameters	Female	Male
Age in years	51.8 ± 11	50.1 ± 9
Number of family members	6.5 ± 2.5	6.8 ± 2.9
Years of formal Education	7.9 ± 4	10.9 ± 3
Income per month	15.0 ± 9	17.5 ± 11
Body Mass Index	28.4 ± 6	25.4 ± 4
Duration of Diabetes in years	7.5 ± 5	10.5 ± 16

Table 2: Biochemical assessment of Health Status

Parameters	Level	Percentage
HbA1c	Good	10.7
	Fair	13.3
	Poor	76.0
Cholesterol Levels	Normal	54.8
	High	37.0
	Very High	8.2
Triglyceride Levels	Normal	47.9
	High	28.2
	Very High	23.9

Table 3a : Self Care -Blood Glucose Monitoring

Type of Monitoring	Frequency	No.	Percent
Home Monitoring	Don't have glucometers	31	31
	Daily or more than twice a week	14	14
	Twice or thrice a month	15	15
	Once a month or once in two months	9	9
	Very Occasionally	12	12
Laboratory Test	Never	19	19
	Once a week or once in two weeks	8	8
	Once a month or once in two months	16	16
	Thrice a year	11	11
	No regularity	53	53
	Never	12	12
	Total	100	100

Table 3b: Self care –Exercise Practice

Exercise Practice	Frequency	Percent
Sedentary life style	35	35
No exercise but active	32	32
Less than 15 minutes of exercise	13	13
15 –30 minutes of exercise	11	11
30-60 minutes of exercise	5	5
One hour of daily exercise	4	4
Total	100	100

Table 3c : Self-care diet

	Once or Twice or a day	Twice or Thrice a week	Once a week	More than once a week	Totally avoids
Fruits	47%	27%	11%	15%	0%
Vegetables	41%	26%	21%	11%	0%
Meat	47%	25%	15%	12%	1%
Sugar	16%	13%	11%	6%	54%

regimen by the physician but also intensive education and counselling of the patient (Nuttall, 1993).

Control of obesity and ideal body weight is important for better glycemic control and prevention of complications, but the characteristics of our patients were not according to this norm as more than half of the patients were overweight or obese. Majority of the patients had a wrong assessment of their own weights and most overweight patients did not consider themselves to be overweight, thus a problem with their attitudes. Thus the results of this study highlights the need to educate the patients about their body weight as well as assessment of obesity.

Greater BMI with co-relation to poor glycemic control was comparative in females only. It was not easy for everybody to understand the concept of Body Mass Index and it was suggested that waist circumference may be used as a crude parameter

Badruddin *et al.*: KAP of Diabetic Subjects in a Diabetic Centre

Table 4: Knowledge about diabetes

Misconceptions	Agree%
Insulin in the last treatment and it should be avoided as much as possible	42
Insulin is an addiction	25
The dose of insulin keeps on increasing and at one stage it stops to work	35
Insulin causes severe hypos	35
If strict diet control is done, insulin can be avoided	37
Human insulin can be extracted from human pancreas	15
If someone experiences hypos or an infection insulin can be stopped	28
Karela Water and Jaman seeds are very effective in reducing blood sugar	64
Under root vegetables are not allowed in diabetes	65
Besan and Channa reduces blood sugar	64
Ghee increases weight but oil does not	34
Milk should not be taken during infections	22
Diabetes is caused by a Diabetic virus	7
Diabetes is an epidemic disease	14
A bad shock can cause diabetes	43
No diet control is needed after tablets	22
If one spouse has Diabetes the other can get it	28

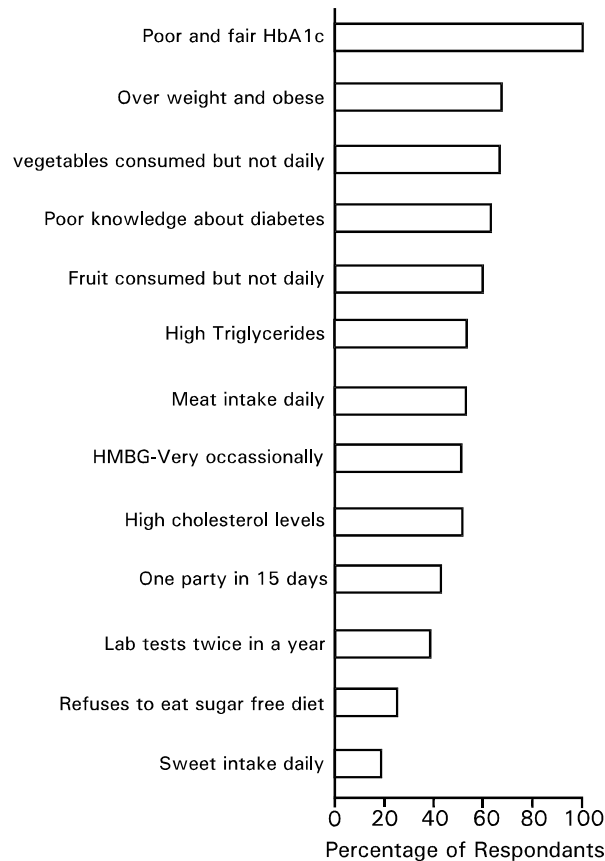


Fig. 1: Proportion of diabetics having risk indicating characteristics

instead as it is easier and more understandable. Glycemic control could be improved by a weight loss of only 10% of the initial weight and thus public education and awareness about the beneficial effects of consuming a healthy diet was required (Grol, 1997).

Concepts of healthy food consumption among patients were not clear. In general the diabetics were overweight even though they were not taking sugary foods regularly. Thus positive energy

balance could probably be due to sedentary life style and high-energy intake. The source of calories appears to be starchy or fatty foods rather than simple sugars. High blood cholesterol levels was associated with low consumption of fruits. While daily vegetable consumption was not affecting blood cholesterol and glucose levels. Thus the need for education about caloric requirements and energy value of foods is required. The lack of proper knowledge as regards diet requirements of each patient should be given individual dietary advice with clear view of its purpose, so that they understand and follow it in practice.

The role of high fibre diet in improving glycemic control is well established and high fibre diet decreases the risk of diabetes (Schneider, 1997). The consumption of fruits and vegetables in our study as shown by Table 3c seems to be low which shows the poor intake of fibre and this is due to wrong dietary habits that are prevailing in our society. Improving the dietary pattern of the diabetics in our society will not be an easy task. Great efforts would be needed by health teams to enhance education of the diabetic patient in order to promote compliance with recommendations regarding diet and exercise (Aravjo, 1999). This also highlights the need of having dieticians and educators alongside consultant diabetologists in our diabetes care centres to educate the patients about diet and exercise.

Overall Exercise was also found to be poor. Only a few had good exercise practices (> 30 minutes per day). Females were less active than males. Many studies have confirmed the beneficial role of physical activity in improving glycemic control. Given the importance of physical activity to diabetes management, the low physical activity in this and similar studies should raise concerns among clinicians and it is necessary that all patients should be encouraged to increase their physical activity (Tans, 1997).

Self-monitoring of blood glucose is a simple and practical procedure acceptable for those patients who can afford it and facilitates the attainment of good glycemic control but unfortunately in our local population the practice of using glucometers was not good as although 50% of the patients had their own glucometers but only 14 patients were regularly monitoring their blood sugars. This could be due to the financial constraint of the patients as they have to purchase the costly strips. This problem can somewhat be resolved by using urine strips for glucose checking.

Education and counselling about all the aspects of diabetes is needed. Group education as well as individualised education programmes should be planned which can lead to better preventive and management techniques in diabetes.

The attitude and practices of patients studied in this study is summarised in Fig. 1 and this shows the cumulative effect of

Badruddin *et al.*: KAP of Diabetic Subjects in a Diabetic Centre

various risk factors which can lead to poor control and complications of diabetes.

The knowledge of the subjects visiting the centre for the first time was found to be inadequate. This probably is due to inadequate information, non-availability of educational material and improper guidance. The reasons of the poor knowledge need to be further studied in detail in our population. Thus there is need for arranging large scale awareness programs for the general public and also to identify and use media to spread the message which could change the attitude of our public in the future.

References

- Aravjo R.B., I dos Santos, 1999 "Assessment of diabetic patient management at primary health care level". Rev. Saude. Pulica, 33:24-32
- A.Samad Shera, 1999. "National Clinical Practice Guidelines, Diabetes Mellitus".
- Grol M.E., V.T. Halabi, Gerstenbluth, J.F. Alberts and J. O'Neil, 1997. "Life Style In Cracao. Smoking, Alcohol Consumption, Eating Habits and Exercise". West Indian Med. J., 46:14.
- Kuller L.H., 1997. "Dietary Fat and Chronic Diseases" Epidemiologic Overview[Review][8ref]. J. Am. Diet. Assoc., 97:(7suppl) 9-15.
- Lantion-Ang L.C., 2000. "Epidemiology of Diabetes Mellitus in Western Pacific region: focus on Philippines, Diabetes Res. Clinical Practice, 50 suppl. 2:S 29-34.
- Lorenz R.A., J.W. Pichert, S.J. Enns and S.L. Hanson, 1986. "Impact of Organisational Interventions on the Delivery of Patient Education in a Diabetes Clinic". Patient Edu. Couns., 8:115-23.
- Murray C.J.L., A.D. Lopez, 1996. The global burden of disease. Geneva: World Health Organization.
- Nuttall F.Q., 1993. "Carbohydrate and Dietary Management of Individuals with Insulin Requiring Diabetes". Diabetes Care, 16:1039-42
- Nutrition Sub-Committee of the British Diabetic Association's Medical Advisory Committee, 1982. "The Role of Dietitian In The Management Of Diabetes". A Policy Statement By The British Diabetic Association . Human Nutrition: Applied Nutrition, 36A: 395-400.
- Schneider D.J., B.E. Sobel, 1997 "Determinants of Coronary Vascular Disease In Patients With Type II Diabetes Mellitus And Their Therapeutic Implications"[Review]. Clinical Cardiology, 20: 433-40.
- Tans A.S., L.S. Yong, S. Wan, M.L. Wong, 1997. "Patient education in the management of Diabetes Mellitus". Singapore Med. J., 38 :156-60