Diabetes related Knowledge, Attitude and Practices of Family Physicians in Pakistan

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Abstract

Objective: To assess the Knowledge, Attitude and Practices (KAP) towards diabetes of Family Physicians (FPs) working in urban and rural areas of Pakistan.
Methodology: A cross-sectional survey was conducted on FPs through an interview by a trained person and filling up a questionnaire focused on diagnosis, treatment and complications of diabetes. The answers were scored by assigning marks and conversion to percentages. The computer package SPSS version 10 was used for statistical analysis.
Results: A total of 767 FPs (756 males, 11 females, average age 42.18 years) with a mean clinical practice duration of 13.41 years, with 681 practicing in urban areas and 86 in rUral areas, participated in the study. Each FP saw on an average 58 patients daily, spending a mean of 8.5 minutes with each case. More than 90% FPs treated diabetics and 107 (14%) of the doctors were diabetic themselves. Overall 62% answers were correct, with the FPs from Sindh having the highest score of 66% and the Federal Capital Area with the lowest 54%. The questions answered correctly by less than 50% of FPs pertained to diagnostic blood values of glucose, treatment of children with diabetes, pregnant diabetics, monitoring of diabetics and technique of insulin injection. The questions answered correctly by more than 50% of FPs were related to diagnosis of Impaired Glucose Tolerance (IGT), insulin in pregnancy, importance of education in diabetics and diabetes complications, screening and management.
Conclusion: This study has explored several aspects of diabetes related KAP of Family Physicians and identified the need for improvement in their practices for treating and educating diabetics, Awareness and education programmes are recommended to update the FPs on early detection and management of diabetes JPMA 52:465; 2002).

Introduction

The incidence of diabetes is rising throughout the world, The figures estimated in 1995 were 135 million escalating to 151 million in 2000[1]. By 2025 it is anticipated that there will be 300 million diabetics all over the globe[2] and more than 75 percent of the diabetics will be in the developing countries[3]. The diabetes prevalence figure, acquired through a survey conducted in the four provinces of Pakistan, is 11.47%, in people above the age of 25 years[4-6]. Diabetes therefore is a major health problem in this country and if no intervention is done, the incidence will rise further.
In Pakistan, majority of the members of the general public visit a family physician (FP) in case of illness. This is true of people with diabetes also. As diabetes care teams are virtually non-existent in the country, it is mainly or exclusively the FPs who are the first line of defence in treating and guiding diabetics and their family members. FPs are not fully equipped to provide initial and continuing care and counselling, because of the absence of training at the undergraduate level and continuing medical education programmes thereafter. It is therefore essential that Knowledge, Attitude and Practices (KAP) studies similar to those reported elsewhere[7,8] should be conducted in this country as well.
This study was designed to carry out a survey on Family Physicians working in the urban and rural

areas of Pakistan, to assess Knowledge, Attitude and Practices towards diabetes mellitus. The outcome will provide appropriate guidelines to the FPs, resulting in better care to the people with diabetes, ultimately leading to a reduction in morbidity and mortality among a large segment of the population.

Methodology

This was a cross-sectional survey conducted in the four provinces of Pakistan namely Punjab, Sindh, NWFP Baluchistan and also in Azad Jammu Kashmir (AJK) and Islamabad (Federal Capital Area). Family Physicians in both rural and urban areas formed the study subjects. A FP was defined as a physician with minimum basic medical qualification (MBBS), working in the private sector.

Selection Procedure

The participants were selected randomly from each area through Random Number Tables produced by Scientific calculator[9]. After identification of the potential respondents, the surveyors contacted them to obtain their consent for participating in the study and to set a suitable time for the interview. The interviewer approached the FP at the appointed time and filled the questionnaire. In case a selected FP declined the interview, another FP from the same or the nearest area was included. The data was collected through a structured questionnaire. A trained person interviewed each individual. The questions focused on diagnosis, treatment and complications of diabetes. Through the answers, the respondents were assessed for their knowledge, counselling skills, attitudes and actual practices towards the diabetics.

Scoring Criteria

parts:

The questionnaire was basically divided into two

A. Demographic information about the participants

B. Questions about diabetes. This part was further subdivided into 3 sections: Section 1 to assess Knowledge, Section 2 to determine the Attitudes and Section 3 to evaluate the Practices. A scoring mechanism was built by assigning marks to every question. These scores were then converted into percentages at the time of analysis.

The survey form contained 19 questions. Of these 9 were related to Knowledge, 5 to Attitude and 5 to Practices (Table 1).

Table 1. Diabetes related knowledge of the subjects.

Questions	Options	Answers
Related to Knowledge		
What is the fasting diagnostic level of diabetes	110	40
	126 *	42
	140	17
	DNK	1
What is the post prandial diagnostic level of diabetes	140	13
	160 - 180	55
	200 *	30
	DNK	2
What is meant by Impaired Glucose Tolerance (IGT)	glucose test performed incorrectly	9
	pre diabetic condition *	64
	insufficient glucose load	20
	DNK	5
What is the glucose load given for Glucose Tolerance Test	50 G	13
	75 G *	62
	100 G	19
	DNK	5
What test is best for monitoring of diabetes	urine sugar	6
	blood sugar *	69
	HbA1c	23
	DNK	1
Which of the diabetes is hereditary in nature	Type 1 DM	61
	Type 2 DM *	31
	MRDM	5
	DNK	3
What are the post glucose load diagnostic levels of IGT	100 - 120 mg%	7
	110 - 140 mg%	24
	140 - 199 mg% *	56
	DNK	12
What other co-morbid conditions do you see with diabetes	obesity	14
	hypertension	13
	hyperlipidemia	3
	all of them *	70
A child less than 2 years of age diagnosed as diabetic should be on	no treatment	7
	oral drugs	3
	insulin injection *	87
	others	2
Related to Attitude		
Do you think diabetes is a dangerous disease	Yes *	92
	No	7
	DNK	0
A young Type 1 DM patient should be allowed to adjust insulin on his own	Yes *	39
	No	60
	DNK	1
Questions	Options	Answers
What is most important for management of diabetes	oral drugs	6
	education *	88
	insulin	4
	others	2

Cont'd...

Questions	Options	Answers
Does a patient with diabetes need	more attention *	93
	less attention	1
	same as others	6
Women with Type 1 DM should avoid pregnancies	yes	55
	no *	42
	DNK	2
Related to Practice		
Insulin should be injected at an angle of	45 degrees	44
	75 degrees	13
	90 degrees *	40
	DNK	3
Pregnant diabetics should be treated with	diet	22
	oral drugs	6
	insulin injections *	69
	DNK	2
How often do you check diabetics cholesterol, eye and renal function	six monthly	65
	once a year *	30
	every two years	2
	others	3
If a diabetic comes with eye problems, you	refer to eye specialist *	84
	perform funduscopy yourself	15
	do nothing	1
	others	0
Which anti-hypertensive drugs you use in a diabetic	beta-blockers	9
	diuretics	5
	ACE inhibitors *	85
	others	1

*	Correct answer
DNK	Do Not Know
DM	Diabetes Mellitus

Data Processing and Statistical Analysis

The computer package SPSS version 10 was used for statistical analysis. A p value of <0.05 was taken as significant.

Results

Basic Characteristics

A total of 767 FPs, 756 males and 11 females were included in the study (Table 2).

Table 2. Sample size.

	Area						Group Total
	Punjab	Sindh	NWFP	Baluchistan	Islamabad	AJK	
Males	285	247	138	66	13	7	756
Females	7	1		2	1		11
Total	292	248	138	68	292	7	767

The average age was 42.18 years and the mean duration of clinical practice was 13.41 years. Averages of 58 patients were seen by a PP daily, spending a mean of 8.5 minutes with each case. This figure was higher in Sindh and Punjab as compared to other provinces and accordingly the time spent in seeing each patient was slightly less (Table 3).

Table 3. Age and experience of the respondents.

	Punjab	Sindh	NWFP	Baluchistan	Islamabad	AJK	
Age (years) Mean ±SD	42.48 ± 8	42.00 ± 8	43.09 ± 10	39.09 ± 7	46.43 ± 10	40.00 ± 10	42.18 ± 8
Duration of Practice (years) Mean ±SD	13.10 ± 8	13.63 ± 7	14.64 ± 9	11.37 ± 7	14.79 ± 7	11.43 ± 9	13.41 ± 8
Average # of Patients seen daily Mean ±SD	69.68 ± 42	69.51 ± 41	25.64 ± 16	36.48 ± 33	36.29 ± 14	28.57 ± 6	57.69 ± 41
Average duration of time spent (min/patient)	8.22 ± 4	7.32 ± 4	10.36 ± 4	9.79 ± 5	11.93 ± 8	7.86 ± 4	8.51 ± 4

All the 767 FPs were private practitioners with 681 practicing in urban areas and 86 in the rural areas. More than 90% in each area were treating people with diabetes. Of the 767 study subjects (FPs) 107 (14%) had diabetes themselves.

Diabetes related knowledge of the subjects

The proportion of correct answers in the sections of Knowledge, Attitude and Practice, obtained from the survey are shown in Tables 4, 5 and 6 respectively.

Table 4. Correct answers by FPs on Knowledge.

Questions on Knowledge	n	%
What is the fasting diagnostic level of diabetes	319	41.6
What is the postprandial diagnostic level of diabetes	228	29.7
What is meant by Impaired Glucose Tolerance (IGT)	493	64.3
What is the glucose load given for Glucose Tolerance Test	469	61.1
What is the diagnostic level for diagnosing IGT	430	56.1
What test is best for monitoring of diabetes	521	67.9
Which of the diabetes is hereditary in nature	239	31.2
A child less than 2 years of age diagnosed as diabetic should be on insulin	664	86.6
What other co-morbid conditions do you see with diabetes	543	70.8

Table 5. Correct answers by FPs on Attitude.

Questions on Attitude	n	%
Diabetes is a dangerous disease	705	91.1
Young diabetics being empowered to adjust insulin dose	295	38.5
Education is most important for management of diabetes	644	84.0
More attention for diabetics	713	93.0
Should diabetic women avoid pregnancies	318	41.5

Table 6. Correct answers by FPs on Practice.

Questions on Practice	n	%
Correct insulin injection technique	304	39.6
Treatment of pregnant diabetics	514	67
Management of eye problem in diabetics	631	82.3
Monitoring of cholesterol, eye and renal functions	223	29.1
Choice of anti-hypertensive medication	631	82.3

The analysis results also showed that doctors practicing in the urban areas gave more correct answers in the segment of Attitude (53% vs. 43%, p= 0.05) and Practice (52% vs. 41% p=0.O3). In the Knowledge variable, the doctors of the rural areas scored better (62% vs. 56%). This however did not achieve statistical significance (p0.2). The diffences in Practice and Knowledge were insignificant. Regarding the clinical experience, doctors with practice duration of 6-10 years provided more correct answers in the segment of Knowledge and Attitude, than those with either less or more (p=0.0l). The study subjects who did not have diabetes themselves had a better attitude towards their patients. There was no notable difference in the segment of Knowledge and Practice. Comparing the technique of insulin injection, it was observed that FPs seeing a larger number of patients and spending lesser time with them, knew the correct technique compared to their counterparts. Here the clinical experience factor was insignificant. The time spent with the patient had an inverse correlation with the results of the KAP. FPs spending 5-8 minutes with each patient, scored better than those giving more than 10 minutes.

Overall 62% of answers were correct. However in each area, the mean proportion of correct answers varied, being the highest in Sindh (66%) and the lowest in the Federal Capital (54%). The questions that were answered correctly by less than 50% of the doctors pertained to diagnostic blood values of glucose, treatment of diabetics of less than 2 years of age, pregnant diabetics, monitoring of diabetics and technique of insulin injection. The questions that were answered correctly by more than 50% of the doctors pertained to diagnosis of Impaired Glucose Tolerance, use of Insulin in pregnancy, importance of education in diabetics and Diabetes complications, screening and management.

Discussion

FPs can play an important role with the care and education of people with diabetes. They can augment the knowledge and motivate the diabetics to acquire a healthy life style, which would further lead to a good glycaemic control providing protection from the chronic complications[7].

Lack of compliance with the guidelines on the part of the diabetic subject, indicates deficiencies in the FPs knowledge, implementation techniques and attitude problems[8].

The results of this study identify modifiable aspects of the diabetes related KAP of family physicians of Pakistan. The participants were all qualified doctors with an average experience of 13.41 years in

medical practice. It was encouraging to note that ninety percent of the respondents considered diabetes to be a dangerous disorder and education as the most important tool in its management. This compares well with a French study conducted on Family Physicians to assess their attitudes and practices in managing people with Type 2 diabetes mellitus[10].

In our study, 70% of the FPs knew that estimation of blood glucose was the best parameter for assessing glycaemic control. Nearly 90% of them identified insulin as the first line of treatment in type 1 diabetics, about seventy percent had the knowledge of co-morbid conditions related to diabetes and eighty five percent claimed to use ACE Inhibitors for treating hypertension in diabetics. This leads to the presumption that FPs do make an effort to follow the Clinical Guidelines for diabetes management. These results are in accordance with an Israeli study evaluating the attitudes of FPs toward clinical guidelines[11].

Lack of knowledge about the hereditary nature of diabetes may result in missing of diagnosis of high-risk cases presenting with vague and unrelated symptoms. Thirty percent of FPs were unaware of the importance of insulin use in pregnancy. Only one third of the study subjects allowed the type 1 diabetics to make adjustments in their insulin dose and a similar number followed the recommended protocol for monitoring serum lipids, renal function and fundus examination.

Regarding the technique of insulin injection, only forty percent respondents appeared to know the correct angle insulin injection. This highlights the confusion that persists in FPs in this aspect. Also these were the ones seeing more patients in a lesser time. It is true that a FP who has learnt the correct technique of subcutaneous insulin injection can impart the technique quickly and accurately to the diabetics initiating insulin therapy. The length of clinical experience is thus insignificant. Acquiring correct practice depends entirely on the individual practitioner and his aptitude for learning and knowledge.

An interesting observation in the presented study was that FPs who did not have diabetes themselves, had a better attitude towards diabetic subjects. This can be attributed to a higher level of importance given to this disorder and its complications by non-diabetics. The psychological impact of a chronic illness is known to alter the attitude of the individual[12].

It was interesting to note that, the FPs in the rural areas had better level of knowledge on diabetes. In the rural settings, a FP works in isolation and cannot easily contact a specialist for an opinion in difficult cases. It is thus likely that the rural FP tries to update his knowledge on his own more than the urban FP, when it comes to life long common diseases such as diabetes.

The FPs with practice duration of 6-10 years fared better in the section of knowledge and attitude. This could be explained by the fact that in Pakistan we do not have a system of re-certification of practicing physicians and FPs. Therefore senior doctors with established practices may not necessarily be conversant with recent approaches regarding diagnosis and treatment of diabetes. Of all the regions surveyed, the province of Sindh scored the maximum correct answers. This suggests that this group of FPs had more opportunities to attend educational programmes, which are a regular feature in Karachi, the largest city of the province.

Diabetes is a life long disorder, It is hard to treat because, firstly doctors lack time and secondly people with diabetes are deficient in resources for comprehensive care. In our setup, patients with symptoms demand a quick relief. If they are asymptomatic, they avoid visiting the doctor. The role of the health care provider, in the case of chronic illness is different than that of seasonal, episodic and temporary ailments, For the successful treatment of a diabetic, the FP has to acquire the understanding, cooperation and involvement of other family members[12]. This will demand more of the doctor's time along with a sympathetic approach. The ideal method would be a team work, where the education of the diabetics is shared and coordinated by Medical education and Continuing Medical Education (CME) Programmes play an important role in enabling the health care providers to treat diabetics in a most efficient and economical manner[13]. To achieve the targets, the change has to be made from the

core. Awareness programmes for the lay people and CME for the doctors will give an impetus to promote positive attitudes and encourage compassionate treatment of diabetics. Practice behaviours can be changed into more positive ones, improving the outcome of diabetes and compliance by the subjects.

This study has explored several aspects of diabetes related KAP of Family Physicians. It has identified the need for improvement in their practices for treating and educating diabetics. It is thus recommended that awareness and education programmes are necessary to update the FPs on screening, effective treatment of diabetes and prevention of the complications.

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