ORIGINAL ARTICLE

Awareness of Diabetic Complications in Type 2 Diabetic Patients

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ABSTRACT

Objective: To evaluate the frequency of awareness in type 2 diabetic patients regarding diabetic complications.
Material and Methods: A cross sectional descriptive study was carried out from November 2015- December2015 at out patient department of PNS Shifa hospital Karachi. Type 2 diabetic patients of more than 20 years of age of both genders were included in the study. A pre designed questionnaire was used to interview diabetic patients. Demographic variables such as age, gender, marital status, education, socioeconomic status, duration and treatment of diabetes along with the questions regarding diabetic complications.Data was stored and analyzed using SPSS version 16.
Results: Total of 150 patients were included in the study. Out of which 110(73.3%)were males and 40 (26.7%) were females. Mean age was 47.2 with standard deviation of 11.36. Awareness among these patients regarding diabetic complications was poor, only 38 (25.3%) patients were aware of diabetic complications. Knowledge in terms of gender was same in both males and females. Awareness was significantly higher in patients who were more than 65 years of age (p=.0001), graduates (p=.010), patients who had >50,000 Rs salary/ month (p=.0020), in patients who were diabetic for more than 20 years(p=.020) and who knew that they could control their blood sugar through diet,exercise and medications (p=0.002),
Conclusion: This study demonstrated lack of knowledge of diabetic patients hence, endeavors should be made to promote and increase the awareness about diabetes and its complications through health education, not focusing only diabetic patients but should be delivered generally to every individual to prevent and manage diabetes and to reduce the morbidity and mortality resulting from its complications.

Key words: Diabetes mellitus, diabetic complications, awareness.

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INTRODUCTION

Diabetes mellitus is a mixture of metabolic diseases characterized by hyperglycemia due to inappropriate insulin secretion, action or both. In addition to acute complications such as hypoglycemia and hyperglycemic comas, the chronic hyperglycemia of the disease is associated with long term complications such as nephropathy, ischemic heart diseases, neuropathy, etc.

The increasing incidence of type 2 diabetes is a global problem[1] resulting from a various etiologies and risk factors acting jointly[2]. The number of adults with diabetes in the world will rise from 135 million in 1995 to 380 million in the year 2025. The major part of which will occur in developing countries[3].

Pakistan with a population of 184.35 million is the 6th most populous country of the world[4]. No current data is available regarding prevalence of diabetes in Pakistan. Previous national diabetes surveys of Pakistan by Diabetes Association of Pakistan and WHO showed an overall prevalence of diabetes as 11.47% (ranged from 6.39–16.5%)[5,6]. According to International Diabetic Federation (IDF), in 2014, 6.9 million diabetic patients were reported in Pakistan and in adults who were 20-79 years old, the prevalence was 6.8%[7]. IDF estimates the prevalence of 12.8 million diabetics by 2035, an alarming situation, and Pakistan will be ranked 8th among the world's top 10 countries having increased prevalence of Diabetes[8], which means increased morbidity due to its complications. According to another study, mortality associated with diabetes alone will increase by 51% over the next 10 years[9]. A study by Diabetic Association of Pakistan shows chronic complications affecting 500 people, retinopathies affected 43% of people, nephropathy affected 20%,

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and neuropathy affected 40 percent of people[10]. Another study done in Multan, by Farooq Chaudhary showed that >50% of the patients were aware of diabetic complications[11]. A study done by Jafar TH, showed around 50% awareness about the disease[12]. Ulvi et al found <50% awareness about complications in diabetic patients[13]. Another study carried out in Pakistan showed that only 13.6% of the patients had a good knowledge score[14]. Some of the international studies done in Singapore[15], Turkey[16], Iran[17], Saudi Arabia[18] and India[19], showed low awareness, about 30%.

The rationale of the study was that the local data is not only scarce on this topic but also appropriate criteria to assess the awareness were not used. Secondly, the complications of diabetes mellitus is high in our country, therefore present study was conducted to assess the current and actual magnitude of awareness of diabetic complications among diabetics, so that necessary measures should be taken to educate the patients regarding diabetes and morbidity associated with diabetic complications.

MATERIALS & METHODS

A cross sectional descriptive study was carried out from November – December 2015 at PNS Shifa, Karachi. It's a tertiary care facility. All type 2 adult diabetics who were older than 20 years of age were included. Patients having secondary causes of diabetes, gestational diabetes and who did not attend the school at all, were excluded. A verbal consent was taken from each patient. A validated structured questionnaire was used to interview the patients who were attending the general OPD. The questionnaire had contained demographic details including: age, gender, marital status, educational status, socioeconomic status, duration of diabetes, treatment, regularity, means of controlling the diabetes and source of information regarding diabetes and its complications. There were questions to asses the patient's knowledge regarding diabetic complications like hypoglycemia, hyperglycemic comas, neuropathy, nephropathy, retinopathy, ischemic heart diseases, diabetic foot, cerebrovascular accidents etc. Each factor had yes/ no response. A scoring system was developed to assess the awareness regarding diabetic complications.Patients who answered the 60% of the questions correctly were declared as aware of diabetic complications. Some of them just knew the target organs of these complications while others also had some knowledge regarding the clinical presentation. The mark up was taken as 60% as we did not include the patients who did not attend the school or madrasah at all. That is because majority of the patients coming to the OPD were soldiers, officers or ex soldiers and few civilians. Most the civilians were educated. The sample size was calculated by WHO calculator for single population proportion. Proportion of awareness was taken by local study done in Multan[11] which was 55.6%. Confidence level was 95% and absolute precision 8%. So the sample size for this study was 150 diabetics. The data was collected and analyzed using SPSS version 16. Results were recorded as frequencies and percentages. Chi square test was applied to compare different strata for significant difference in awareness, p-value of = 0.05 was considered as significant.

All procedures followed were in accordance with the ethical standards of the responsible committee on human experimentation (institutional and national) and with the Helsinki Declaration of 1975, as revised in 2008. Informed consent was obtained from all patients for being included in the study.

RESULTS

In this study, 150 diabetic patients were included. Mean age was 47.21±11.36. Majority of the patients 68(45.3%) belonged to the age group of 36-50 years. Majority of them 110 (73.3%) were males and only 40 (26.7%) were females. Among these 140 patients (93.3%) were married. Most of the patients 93(62%), were graduates. Out of these 78 patients (52%) belonged to the group who had monthly income between 20-50,000 PKRs. Most of the patients 130(86.7%) had diabetes for last 10 years or less. Majority of the patients 127(84%) were on oral hypoglycemic alone while 146 patients (97.3%) were taking their medicines regularly. Most of them (n=95, 63.3%) were aware of the fact that diabetes and complications can be controlled by diet, exercise and medications. Regarding source of information about diabetic complications, 79 patients (52.7%) were informed and educated by their physicians while 44 patients (29.3%) came to know about the complications when they experienced those by themselves. Only 21 (14%) learnt it from their friends and family and 6 patients (4%) had the information through social media. Regarding awareness about diabetic complications only 38 patients (25.3%) were aware of the diabetic complications. Most of them knew the names of target organs while others knew the names and manifestations of complications. Variables significantly influencing awareness about diabetic complications were also studied. Patients who were >65 years of age were much more aware as compared to other age groups (p=0.001). There was no significant difference in awareness between male

and females. Awareness was significantly high in patients who were graduates and postgraduates (p=.010) as compared to undergraduate, who had >50,000 Rs/ month salary (p=0.002), who were diabetic for more than 20 years (p=.020), and who knew that they could control their blood sugar through diet, exercise and medications (p=0.002).

DISCUSSION

Diabetes is a silent disease, most of the patients come to know about harboring the disease only when they come across the life-threatening complications. Awareness about the disease can not only helps in early detection but also reduces the incidence of complications.

Table 1: Baseline Characteristics

Age in years (Mean± SD)	47.21±11.36	
Age Groups (years)	Frequency	Percent
20-35	26	17.3
36-50	68	45.3
51-65	44	29.3
>65	12	8
Gender		
Male	110	73.3
Female	40	26.7
Marital Status		
Single	10	6.7
Married	140	93.3
Educational Status		
Undergraduate	93	62
Graduate	55	36.7
post graduate	2	1.3
Socioeconomic Status		
15k-20k Rs/month	36	24
20k-50k Rs/month	78	52
>50k Rs/month	36	24
Duration of DM		
1-10 years	130	86.7
11-20 years	18	12
21-30 years	2	1.3
Treatment		
Oralhypoglycemics	127	84
oral+insulin	17	11.3
Insulin	6	4
Total	150	100
Regularity		
Yes	146	97.3
No	4	2.7
Means of controlling of blood glucose		
diet/medication	51	34.0
diet/exercise/medication	95	63.3
Medication	4	2.7
Source of information for DM complications		
Physicians	79	52.7
self experience	44	29.3
friends and family	21	14.0
social media	6	4.0

Table 2: Awareness with Respect to Different Variables (n=150)

Age Groups	Awareness			P-value
	No	Yes	Total	
20-35	21	5	26	
36-50	50	18	68	
51-65	38	6	44	
>65	3	9	12	0.0001
Gender				
Male	81	29	110	
Female	31	9	40	0.630
Marital Status				
Single	7	3	10	
Married	105	35	140	0.725
Educational Status				
Undergraduate	75	18	93	
Graduate	37	18	55	
post graduate	0	2	2	0.010
Socioeconomic Status				
15k-20k Rs/month	31	5	36	
20k-50k Rs/month	62	16	78	
>50k Rs/month	19	17	36	0.002
Duration of DM				
1-10 years	96	34	130	
11-20 years	16	2	18	
21-30 years	0	2	2	0.020
Regularity				
Yes	108	38	146	
No	4	0	4	0.238
Source of awareness				
physicians	60	19	79	
self experience	36	8	44	
friends and family	14	7	21	
social media	2	4	6	0.061
Awareness about controlling of blood glucose				
diet/medication	46	5	51	
diet/exercise/medication	62	33	95	
medication	4	0	4	0.002
Treatment				
oral hypoglycemic	91	36	127	
oral+insulin	15	2	17	
Insulin	6	0	6	0.116

People should be educated and warned about the morbidity resulting from its devastating complications[20]. There is surprisingly little data on awareness level of diabetic patients specially regarding its complications. According to our study, only 25% of the diabetic patients were aware of diabetic complications. A study done by Jafar TH, showed around 50% awareness of the disease[12]. Another study done in Multan, by Farooq Chaudhary showed that >50% of the patients were aware of diabetic complications[9]. The reason for the higher percentage was, they accepted a positive response if the participant could tell any two complications of diabetes while we took a patient as aware of complication if he gave 60% answers in affirmation. The reason for our high mark up was most of our patients went to school at least till class 8. Another local study done by Ulvi found <50% awareness about complications in diabetic patients[13]. Another local study showed that only 13.6% of the patients had a good knowledge score (> 60)[14]. Some of the international studies showed low awareness level, about 30%[15-19] and these studies support our study results which is also low.

In our study we also noted significant relationship between certain demographic factors and awareness of diabetic complications. Patients who were >65 years of age were much more aware as compared to other age groups (p=0.001). This was also shown by several other studies that found a positive relation between age and awareness of diabetes[15,21]. Awareness was significantly high in patients who were graduates and postgraduates (p=.010) as compared to undergraduate patients. Similar results were obtained in another local study[9]. It was also significantly high in patients who were diabetic for more than 20 years (p=0.020) which is not evident by anyother study[9]. In our study most of the patients received the knowledge regarding diabetic complications by Physicians. It is a need of an hour to improve the efforts towards educating diabetic patients at least about the disease and its complications by utilizing multiple sources. It is necessary that diabetics should have a good knowledge about their illness so that they can manage the blood sugar level efficiently and prevent the associated complications. Beside the lack of awareness about the disease itself the diabetic patients do not have proper screening and monitoring facilities (e.g. urine analysis, blood sugar tests),and poor affordability for medications.

Undoubtedly, public health education is a key for the early diagnosis of diabetes[22]. It should be given to all the diabetic patient at every level from physician to undergraduate medical student. Enhancing the awareness can contribute to an overall healthy society and reduce the prevalance of diabetes[23].

CONCLUSION

This study reflects the poor knowledge and awareness about diabetes among those diabetic patients who had received primary education at least. It's so bothersome that if the awareness is low in these patients who went to school and received some education, then it must be almost certainly nil in illiterate patients which forms the majority of our general population. Awareness of any disease, highlighting all the aspects of the disease, is an important component in the management of the disease.There is an urgent need to increase the knowledge and to improve the standard of awareness of diabetes in our population specially among diabetic patients. A coordinated effort by health care professionals, dieticians, social media and social workers is required to improve awareness level. Health care providers should take time to explain in depth the disease it self, causes, prevention and control through health and self care measures to prevent complications.

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