MEDICAL EDUCATION (ORIGINAL ARTICLES)

ASSESSING KNOWLEDGE AND PRACTICE AMONG PATIENTS WITH DIABETES AT TERTIARY CARE HOSPITAL

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ABSTRACT

Objective: To assess knowledge and practice among patients with type 2 diabetes and to study their demographic details.

Study Design: Cross-sectional observational study.

Place and Duration of Study: Outpatient department, Combined Military Hospital Abbottabad, from Oct 2016 to Mar 2017.

Material and Methods: A total of 430 patients with type 2 diabetes who attended outpatient department for routine visits were included in the study after taking consent. While patients with type 1 DM, chronic illnesses like; cardiac failure, renal failure and psychiatric illness were excluded from study. All patients were selected by non probability convenient sampling technique. Data was collected by using a questionnaire and was analyzed by using SPSS software. Descriptive statistics were produced.

Results: Out of 430, 232 (53.95%) were male while 198 (46.04%) were female with male to female ratio of 1.17:1. The greatest numbers of patients were in age group 60-69 years with average duration of DM 1-5 years in about 35.35%. Seventy seven percent of patients had positive family history of disease. About 40% of patients had average knowledge with mean score of 2.02 while 52.5% had satisfactory practice and routine follow up. Eye complications, neuropathy and nephropathy were major complications observed.

Conclusion: The overall level of knowledge and practice concerning diabetes is average. This highlights the importance of awareness campaign and patient counseling to improve their knowledge regarding diabetes. There should be continuous process of evaluation to improve patient care and also health care delivery system.

Keywords: Glycemic control, Knowledge, Practice among diabetics, Type 2 diabetes mellitus.

INTRODUCTION

Over the last two decades, the dynamics of diabetes epidemic has changed rapidly. It has now emerged as formidable challenge to global community. The entity which was considered as disease of developing countries, disease of affluence and disease of elderly has rattled the people irrespective of age, socioeconomic status, culture and boundaries. As per International Diabetes Federation (IDF), worldwide DM effect about 285 million and this count may rise to 438 million while number of adults with impaired glucose tolerance will reach estimated figure of 472 million by year 2030[1]. South Asia is developing as epicenter of this global menace owing to its demography, dietary pattern and life style[2]. In Pakistan diabetes has reached an alarming rate. According to World Health Organization (WHO), about 12.9 million individual suffer from DM which accounts for 10% of the population[3]. According to a study, Pakistan ranked number seven among top ten countries having type 2 DM[4].

DM is one of the medical conditions that have been comprehensively studied. It is a metabolic syndrome characterized by chronic hyperglycemia resulting from decrease insulin secretion, impaired insulin action or both[5]. It may progress slowly over time leading to secondary complications or rapidly presenting as sudden complication like coma. Rapid urbanization, dietary transition and sedentary life style are the primary driving factors for this epidemic. Obesity, excessive intake of calories, sedentary

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life style, alcohol consumption and smoking accounts for 91% of the cases of diabetes[6]. According to Genome-wide Association studies (GWAS) individuals with some common genetic variations are more susceptible to develop diabetes. At least 40 genetic loci have been identified but they don't have clinical prediction of diabetes beyond risk factors[7]. DM being multifactorial disease is a result of interplay between genetic and environmental factors.

History of diabetes dates back to ancient time, 1550BC. However, first attempt at describing symptoms of disease was made by Aulus Cornelius Celsus (30 BC-50 AD)[8]. With time this entity was extensively investigated, pathophysiological and biochemical basis were studied and treatment strategies were formulated. Now disease has been considered as complex heterogeneous disorder requiring multidisciplinary approach. Besides continuous medical care it requires multifactorial risk reduction approach. American Diabetes Association (ADA) 'Standard of Medical Care in Diabetes" referred to as "standard of Care" focus on similar multidisciplinary approach to improve quality of care[9].

Diabetes awareness and education is the linchpin of diabetes care. Collecting data regarding the level of awareness about disease is first step in designing a prevention strategies[10]. Different studies has stressed that improving public awareness can change attitude towards disease. Keeping this perspective in mind, we conducted a study at our setting to study demographic details and knowledge, attitude and practice of patients that in long term will improve quality of care.

MATERIAL AND METHODS

This cross-sectional observational study was conducted at outpatient department of Combined Military Hospital, Abbottabad, from Oct 2016 to March 2017 over a period of 6 months. A total of 430 patients who attended outpatient department for routine visits were included in the study after taking verbal consent. All patients were selected by non probability convenience sampling technique. Inclusion criteria was age greater than 30 years, duration of disease greater than 1 year and diagnosed case of type 2 diabetes diagnosed according to WHO criteria (Fasting plasma glucose ≥7.0 mmol/l or OGTT ≥11.1 mmol/l or HbA1c ≥6.5%). Patients with type 1 DM, chronic illnesses like; Cardiac failure, renal failure and psychiatric illness were excluded from study. OPD mostly consist of serving and retired soldiers, officers and their families. Non-probability convenient sampling was done for patient selection.

A standardized, self report questionnaire was prepared containing both close and open ended questions and was pre-tested on 10 individuals. After taking verbal consent interview was done in local language. No interpreter was used. It was face to face survey. Questionnaire consists of 5 parts and 42 questions (15 for socio-demographic data, 9 to assess' knowledge, 9 to assess attitude and 9 to assess practice). Each question was assigned 1 mark. The knowledge score ranged from 0-9 and was categorized as follow:

- <4 = poor knowledge,
- 4-6 = average knowledge
- >6 = good knowledge.

The total practice score was 36 and categorized as:

- < 13 = poor
- 13-24 = satisfactory
- >24 = good.

All the data was entered, coded and analyzed by using SPSS version 21. Descriptive statistics were produced. Person's Chi square/ Fisher's exact test was used to determine the association between score and socio-demographic data.

RESULTS

A total of 430 patients were included in this study out of which 232 (53.95%) were male while 198 (46.04%) were females with male to female ratio of 1.17:1. Baseline characteristics including

age, male to female ratio, educational status, monthly income, duration of disease and treatment they are taking are shown in table-I.

Table-I: Socio-demographic details.

S. No	Characteristics	n (% age)
1	**Total**	
	Male	232 (53.95%)
	Female	198 (46.04%)
2	**Age Group**	
	<39	30 (6.9%)
	40-49	88 (20.46%)
	50-59	109 (25.34%)
	60-69	123 (28.6%)
	>70	80 (18.6%)
3	**Educational status**	
	Illiterate	79 (18.37%)
	Metric and below	90 (20.93%)
	Intermediate	118 (27.44%)
	Graduation	75 (17.44%)
	Master and above	68 (15.81%)
4	**Residential status**	
	Rural	232 (53.95%)
	Urban	198 (46.04%)
5	Monthly Income	
	< Rs 25000	116 (26.97%)
	25001-45000	142 (33.02%)
	45001-65000	92 (21.39%)
	65001-85000	80 (18.6%)
6	**Duration of DM**	
	<1 year	41 (9.5%)
	1-5	152 (35.35%)
	5.1-10	117 (27.20%)
	0.1-15	120 (27.90%)
7	**Age at which diagnosed**	
	<39	71 (16.5%)
	40-49	146 (33.95%)
	50-59	176 (40.93%)
	60-69	37 (8.6%)
8	**Mode of diagnosis**	
	Incidental	249 (57.90%)
	Symptomatic	181 (42.09%)
9	**Family history of DM**	
	Present	331 (76.79%)
	Not present	99 (23.02%)
10	**Mode of treatment**	
	Diet only	41 (9.5%)
	Oral medication	225 (52.32%)
	Insulin only	72 (16.74%)
	Combination of oral and insulin	92 (21.39%)

Nine questions were asked from individuals to assess their knowledge about the disease. About 40% have average knowledge, 29% have poor knowledge while 31% have good knowledge regarding their disease. The mean knowledge score was 2.02, which fall within our definition of 'Average Knowledge'. Response of

patients to knowledge questionnaire is shown in table-II.

Similarly 9 questions were used to assess the practice among the individuals. The practice score was determined by awarding the highest score which is 4 for always, 3 for often, 2 for some time and 1 for never. The total practice score was

In our study there was a significant association between knowledge and gender (p-value<0.001), educational status (p-value <0.001), residential area (p-value<0.001), monthly income (p-value<0.001), and status of job (p-value <0.001) while age (p-value=0.153) has no significant association with knowledge.

Table-II: Knowledge questionnaire.

S. No.	Statement	Yes	No
		n (% age)	n (% age)
1	Diabetes is the condition of high blood sugar?	227 (52.79%)	203 (47.20%)
2	In diabetes body fails to response to insulin?	221 (51.39%)	209 (48.60%)
3	Diabetes meal plan allows you to have sweets anytime you want?	71 (16.51%)	359 (83.48%)
4	Frequent urination, hunger, thirst are common symptom of diabetes?	264 (61.39%)	166 (38.60%)
5	Diabetes is caused excessive use of sugar and sweet?	268 (62.32%)	162 (37.67%)
6	Insulin control blood sugar level?	275 (63.95%)	155 (36.04%)
7	Is Diabetes preventable?	174 (40.46%)	256 (59.53%)
8	The normal fasting blood sugar level is 80-110?	262 (60.93%)	168 (39.06%)
9	The normal random blood sugar level is 80-180?	262 (60.93%)	168 (39.06%)

Table-III: Practice questionnaire.

S. No	Statements	Always n (%)	Often n (%)	Sometime n (%)	Never n (%)
1	Do you go for routine checkup?	197 (45.81%)	126 (29.30%)	103 (23.95%)	4 (0.93%)
2	Do you follow any special diet?	81 (18.88%)	66 (15.34%)	109 (25.34%)	174 (40.46%)
3	Are you monitoring blood sugar level?	81 (18.88%)	148 (34.41%)	176 (40.93%)	25 (5.8%)
4	Are you monitoring your BP level?	181 (42.09%)	144 (33.48%)	90 (20.93%)	15 (3.4%)
5	Do you use glucometer?	169 (39.30%)	60 (13.95%)	77 (17.9%)	124 (28.83%)
6	Do you include fruit in your diet?	195 (45.34%)	163 (37.90%)	56 (13.02%)	19 (6.7%)
7	Self control of blood sugar?	81 (18.88%)	146 (33.95%)	176 (40.93%)	27 (6.2%)
8	Do you take care for your toes and feet?	135 (31.39%)	107 (24.88%)	84 (19.5%)	104 (24.18%)
9	Do you take any physical exercise?	103 (23.95%)	49 (11.39%)	74 (17.2%)	204 (47.44%)

36 and categorized as: <13 = poor, 13-24= satisfactory, >24 = good.

Most of the patients 226 (52.5%) have satisfactory practice and regular routine follow up. About 17 (4%) has poor practice while 187 (43.5%) have good practice. Majority don't follow a dietary plan and lack care of feet and toes. Only 82 (19%) has good glycemic control also blood sugar monitoring was poor.

Table-III shows response of patients to attitude and practice questions.

Out of 430 patients 198 (46%) had eyes complications, 187 (43.4%) were suffering from neuropathies, 151 (35.2%) had nephropathy, 77 (18%) had a history of stroke, 52 (12.2%) had diabetic foot disease and 105 (24.5%) had heart disease.

DISCUSSION

Diabetes is chronic varied endocrine disorder affecting the metabolism of carbohydrates, fats and protein. It has emerged as one of the most deadly disease to mankind causing 3.2

million deaths worldwide each year[11]. Medical field has made tremendous development in its management over year. 21st century will be marked as century of insulin development in the historical development of this disease. Besides these remarkable pharmacological achievements education and patients counseling will remain as corner stone of management[12]. American Association of Clinical Endocrinologists has stressed the importance knowledge and skill as a component of self care that are necessary for managing crisis and making life style changes[13]. If proper guidance and counseling regarding the disease care is given to all patients they will be able to maintain a good glycemic control. Keeping these things in mind we conducted this study to evaluate knowledge and practice among diabetics regarding their disease.

Majority of the patients (53.95%) were male which is a consistent finding in literature[14]. Most of the patients suffering from diabetes in our study lie in age group 40-49 years (20.49%), 50-59 years (25.34%) and 60-69 years (28.6%). This is in line with the fact that diabetes is more common after age of 40 years[15]. About 27.44% of the participants had attained intermediate grade while 20.93% had formal education till matric which is consistent with the findings of Solanki *et al*[16]. About 53.95% patients had rural background which can limit the accessibility to healthcare facilities. Most of the individuals had average monthly income with 26.97% participants having monthly income of <25000 Rs while remaining had monthly income above 25000 Rs. Economic status is a strong factor in diabetes care and management because it could limit life style modification practices. Majority of the participants (76.79%) had family history of diabetes while Al-Maskari *et al* described a figure of 64.4% in their study[17]. Different studies come up with different percentage of people having family history of diabetes.

In our study majority of the patients had average knowledge and satisfactory practices which is consistent with the findings of Mufunda *et al* and Farzana *et al*[18,19] while contrary to Sutriya

Table-IV: Cross tabulation between knowledge and different variables.

S. No	Variable	Knowledge Score		
		Poor	Average	Good
1	**Gender**	125	172	133
	Male	26	122	84
	Female	99	50	49
2	**Educational status**			
	Illiterate	67	11	1
	Metric and below	46	43	1
	Intermediate	12	88	18
	Graduation	0	25	50
	Master and above	0	6	62
3	**Residential Area**			
	Rural	110	92	30
	Urban	15	80	103
4	**Monthly income**			
	< Rs 25000	54	60	2
	25001-45000	41	75	26
	45001-65000	15	22	55
	65001-85000	15	15	80
5	**Status of job**			
	Retired	8	61	87
	Serving	106	96	72

et al[20]. Females had poor knowledge scores as compared to male patients as stated in literature[24,21]. In our study 52.97% patients knew what diabetes is, 60.93% knew the normal ranges of blood glucose level, and 61.93% knew what the common symptoms of disease are while 63.95% knew the role of insulin.

Only 18.88% patients were following dietary schedule in our study. This is observed in many studies where patients are not adhering to diet as advised. Shooka *et al* stated a figure of 27% while Kanwal et al found that only 47% patients follow a dietary plan to some extent[22,23]. About 18.88% patients check their blood sugar levels regularly while 42.09% monitor blood pressure regularly while Mansouri *et al* found 70% patients who check their sugar level regularly[24]. Similarly Solanki *et al* and Shooka *et al* stated a figure of 79.5% and 39% respectively. Sedentary life style and lack of physical activity are potent risk factors for diabetes and obesity. In our study about 24% patient had regular physical activity as compared to Okonta *et al* who stated a figure of 8.3%[25]. Eye complications were the major complication observed as described by Konduru *et al*[26].

In our study positive association between gender, monthly income, educational status, residential area and duration of diabetes and knowledge, practice score was found.

CONCLUSION

The overall level of knowledge and practice concerning diabetes is average. This highlights the importance of awareness campaign and patient counseling to improve their knowledge regarding diabetes. There should be continuous process of evaluation to improve patient care and also health care delivery system.

LIMITATION OF STUDY

Limitation of our study is that since the study was conducted at outpatient department of our hospital so it cannot be generalized to overall population. Also it was conducted at single hospital so it cannot be a true representative of whole population.

CONFLICT OF INTEREST

This study has no conflict of interest to declare by any author.

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