SELF-CARE AND DIETARY PATTERNS AMONG DIABETES MELLITUS PATIENTS IN RAWALPINDI

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ABSTRACT

Objective: To find out the knowledge, attitude and practice among diabetic patients regarding their dietary patterns.

Study Design: Descriptive cross-sectional study.

Place and Duration of Study: In a tertiary care hospital of Rawalpindi of six month's duration from August, 2013 till January, 2014.

Patients and Methods: A sample size of 131 was calculated using the WHO sample size calculator. Convenience sampling technique was used. Clinically diagnosed diabetes mellitus by a consultant and those who were able to show the diabetes medication were included in the study. Any patient unwilling or failing to show the diabetes medicine was excluded from the study. Data was collected by the researcher using pre-tested mixed questionnaire. Data was entered into and analyzed using SPSS version 20.

Results: A total of 135 patients were enrolled in the study, with a mean age of 55.16 ± 10.47 years. There were 92 (68 %) males and 43 (32%) females. Good knowledge regarding diabetes mellitus was observed in 82 (60.7%) of the participants while 53 (39.3%) were having poor knowledge. Positive attitude was observed in 51 (37.8%) participants while negative attitude in 84 (62.2%). Good practice was observed in only 28 (20.7%) while poor practice was seen in 107 (79.3%) of the participants.

Conclusion: Knowledge regarding self-care was sound among the diabetic patients but there existed a wide gap between knowledge and practice. Attitude was positive in the educated class but deficient in the illiterates. Healthy Dietary patterns were satisfactory among the study participants.

Keywords: Attitude, Diabetes mellitus, Dietary patterns, Knowledge, Practice.

INTRODUCTION

The term Diabetes mellitus is derived from the Greek words 'diabetes' meaning "to go" and 'mellitus' meaning "honey''[1]. It is a syndrome characterized by chronic hyperglycemia that is either due to the relative insulin deficiency or due to resistance or sometimes both.

It affects 30 million people worldwide. Diabetes is usually irreversible, and although the patients can live a normal life, its late complications result in reduced life expectancy and considerable uptake of health sources. Macrovascular disease leads to an increased incidence of IHD, peripheral vascular disease and stroke. Microvascular disease causes diabetic retinopathy, neuropathy and nephropathy[2].

Diabetes has distinct clinical types, namely:-

Type 1 DM results from the body's failure to produce insulin, and currently requires the person to inject insulin or wear an insulin pump. This form was previously referred to as "insulin-dependent diabetes mellitus" (IDDM) or "juvenile diabetes".

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Type 2 DM results from insulin resistance, a condition in which cells fail to use insulin properly, sometimes combined with an absolute insulin deficiency. This form was previously referred to as non insulin-dependent diabetes mellitus (NIDDM) or "adult-onset diabetes".

The third main form, gestational diabetes occurs when pregnant women without a previous diagnosis of diabetes develop a high blood glucose level. It may precede development of type 2 DM.

Many processes injure pancreas and can result in diabetes for example pancreatitis, trauma, infection, pancreatectomy, and pancreatic carcinoma. Drugs also impair insulin secretion and impairs insulin release. Several genetic syndromes are associated with an increased occurrence of diabetes[3].

There is no disease which provokes greater thought on diet than diabetes. Diet management alone may suffice to prevent or treat diabetes in 10-15% of patients[4]. Even in others, effective diet control helps in reducing the requirement of drug/insulin and delays the onset of complications such as blindness, renal failure, stroke and heart disease.

Pakistan is currently on 7th number in the world with regard to the number of diabetics and according to the current studies, it will be ranking 4th by 2030. The estimated prevalence of diabetes in Pakistan in 2011 was over 350 million and it is expected to be more than 550 million by year 2030[5,6,9]. Type 2 diabetes mellitus is more dominant as compared to other types in developing countries if compared to developed countries. The medication of diabetes has a successful effect on glycemic control in recent years but lack of knowledge, poor attitude and practice especially behavior change modifications are tacloes leading to high burden of non-communicable diseases[7]. This alarming situation can have serious repercussions and presents as a challenge for health care providers and health care policy makers in the country.

According to a survey conducted in Karachi, Pakistan, the prevalence of uncontrolled diabetes mellitus was about 39% among persons with type 2 diabetes visiting a specialized care unit for diabetes. Based on reports of studies[5-8] conducted in Pakistan, an upcoming epidemic of diabetes mellitus complications is feared[8]. The scarcity of health-care services and poor infrastructure for health care in Pakistan is an important factor in making it difficult to control the emerging epidemic of DM in the country[9].

To achieve and maintain glycemic control it is very important to adopt and sustain multiple self-care behaviors like blood glucose monitoring, regular exercise, balance eating regime etc Consumption of food is one of the major component of daily living that effect development and further progression of diabetes mellitus[10]. People behavior is appropriately predicted by the cultures, beliefs, attitudes that they have regarding self-care as what individual do with their knowledge and skills is what determines their capabilities. Self-efficacy was found to be an important predictor of self-care behaviors in type 2 diabetes patients[11].

According to WHO, NCD's account for 46% of all deaths in Pakistan, amongst which about 1% are caused by complications of diabetes. WHO projects that over the next 10 years in Pakistan:-

a. Over 6 million people will die from a chronic disease.

b. Deaths from infectious diseases, maternal and perinatal conditions and nutritional deficiencies combined will decrease by 12%.

c. Deaths from chronic disease will increase by 27%- most markedly by diabetes, which will increase by 51%.

d. Pakistan is projected to lose 31 billion US dollers over the next 10 years due to the deaths from diabetes, stroke and heart disease[12].

Level of awareness and availability of professional dietetic services has shown potential for better management of diabetes or its

complications. Diabetic patients have a lot of misconceptions and myths about diet control and this poses a need to dispel their myths and save the nation a lot of budget which can be utilized in other deficient sectors. The mounting number of diabetic individuals especially in the younger population owing to the increasingly sedentary lifestyle and junk food eating habits has posed an immense need that the problem must be dealt with iron hands now.

METHODOLOGY

It was a descriptive cross sectional study carried out in tertiary care hospitals of Rawalpindi from August, 2013 till January, 2014. Using WHO sample size calculator, the sample size was calculated to be approximately 131 (with Confidence Level (CL) of 95%, Anticipated population proportion (p) of 0.68 and Absolute precision (d) of 0.08). Convenience sampling technique was used. Clinically diagnosed diabetes mellitus patients by a consultant and those who were able to show the diabetes medication were included in the study. Any patient unwilling or failing to show the diabetes medicine was excluded from the study. Data was collected by the researcher using pre-tested mixed questionnaire. Participants were asked about 12 questions regarding knowledge, attitude and practice. Participants giving 8 or more correct responses related to diabetes mellitus were considered having sufficient knowledge, positive attitude and good practice. Ethical Committee approval was taken and from every patient informed verbal consent was taken.

Data was entered and analyzed using Statistical package for Social Sciences (SPSS) version 20. Qualitative variables like knowledge, attitude, practice etc are presented in the form of frequencies and percentages. Descriptive statistics was used to calculate mean and standard deviation for quantitative variables like age. Chi square test of significance was applied to find association between the demographic variables and practice of self-care.

RESULTS

A total of 135 patients were enrolled in the study, with a mean age of 55.16 ± 10.47 years. There were 92 (68.1 %) males and 43 (31.9%) females. Regarding education levels, about 18 (13.3%) were illiterate, 26 (19.3%) were under matriculate, 34 (25.2%) had matriculation completed, 38 (28.1%) were graduates and 19 (14.1%) were postgraduates.

When income in rupees per month was inquired, 12 (8.9%) were having 3000 Rs, 4 (3.0%) participants having 3000-5000 Rs, 15 (11.1%) having 5000-10000 Rs , 28 (20.7%) having 10000-20000 Rs, 34 (25.2%) having 20000-30000 Rs and 42 (31.1%) were having more than 30000 Rs.

Forty four (32.6%) participants were diagnosed with diabetes from 1-3 years, 62 (45.9%) were diagnosed since last 4- 10 years and 29 (21.5%) having it for more than 10 years. (Table).

They were asked if they know that they should regularly check their blood sugar levels checked, 133 (98.5%) replied yes and only 2 (1.5%) said no they don't think so. When asked that do they know that healthy diet prevent diabetes, 104 (77%) said yes they know while 30 (22.2 %) said they don't know. Participants were asked if they think that weight control prevents diabetes incidence, 78 (57.8%) said yes but 57 (42.2%) said no they don't think it prevents diabetes mellitus. When asked about regular exercise that does this reduces chances of diabetes, 69 (51.1%) said yes it does while 66 (48.9%) said no it does not. Knowledge regarding smoking association with diabetes was asked and only 13 (9.6%) replied that yes smoking is associated with diabetes but a very large percentage, 122 (90.4%) said that smoking is not associated with occurrence of diabetes mellitus.

Participants were asked regarding treatment options and multiple responses were observed. Fifty six (41.5%) were in opinion of drugs being treatment of diabetes, 100 (74.1%) knew insulin as a treatment option, regular exercise also was known as a treatment option by 42 (31.1%),

heathy diet, controlling weight, quitting smoking was considered as treatment options by 37 (27.4%), 43 (31.9%) and 10 (7.4%) of the participants. Good knowledge regarding diabetes mellitus was observed in 82 (60.7%) of the participants while 53 (39.3%) were having poor knowledge.

Participant's attitude was assessed regarding dietary patterns and multiple responses were

three diets in 15 (11.1 %), 135 (100%) and 90 (66.7%) respectively. They were asked about the effect of healthy diet on diabetes; 17 (12.6%) participants said it cures diabetes mellitus, 105 (77.8%) said it controls, 7(5.2%) said it has no effect and 6 (4.4%) said they don't know. About avoiding sugar alone can control diabetes was perceived by 44 (32.6%) of the participants. Thirty five (25.9%) participants also believed that once

Table: Association of demographic variables with practice of self-care among diabetes mellitus (n=135).

Variables	Frequencies (%)	*p*-value
Age (Mean ± SD)	55.16 ± 10.47	0.764
Gender		
Male	92 (68.1)	0.063
Female	43 (31.9)	
Education Status		
Illiterate	18 (13.3)	
Under matric	26 (19.3)	
Matriculation	34 (25.2)	0.892
Graduation	38 (28.1)	
Post-Graduation	19 (14.1)	
Income (rupees per month)		
< 3000	12 (8.9)	
3000-5000	4 (3)	
5000-10,000	15 (11.1)	
10,000-20,000	28 (20.7)	
20,000-30,000	34 (25.2)	0.202
> 30,000	42 (31.1)	
Diagnosed with diabetes mellitus since how many years		
1-3	44 (32.6)	0.723
4-10	62 (45.9)	
>10	29 (21.5)	
Knowledge		
Good	82 (60.7)	0.642
Poor	53(39.3)	
Attitude		
Positive	51 (37.8)	0.289
Negative	84 (62.2)	
Practice		
Good	20.7)	
Poor	107 (79.3)	0.661

observed. They were asked if diabetic patient should have protein rich, sugar free or fat free diet and participants were in agreement for above

diabetes mellitus is controlled by insulin, dietary restrictions are no longer required. Positive

attitude was observed in 51 (37.8 %) participants while negative attitude in 84 (62.2%).

Patients were asked regarding their habit of skipping a meal or snack deliberately to cut short calorie or fat intake, 120 (4.8%) said that they always practice skipping meal, 70 (51.9%) skip meal off and on and 45 (33.3%) had never done this. Participants were asked regarding their dietary intake and multiple responses were observed. Patients using low caloric diet were only 39 (28.9%), 45.2% use reduced fat or fat free products, 55 (40.7%) always used sugar free products and 19 (14.1%) always used a written diet plan to manage their daily dietary intake. When asked about how often do they check their blood sugar levels; 45 (33.3%) said occasionally, 48 (35.6%) 3-5 times per months, 20 (14.8%) 1-2 times a week, 6 (4.4%) 3-6 times a week, 11 (8.1%) once a day, 2 (1.5%) twice daily. About 3 (2.3%) said they have not been told by anyone to check their blood sugar. Good practice was observed in only 28 (20.7%) while poor practice was seen in 107 (79.3%) of the participants.

DISCUSSION

Diabetes is an important cause of morbidity and mortality all over the world. Because of lack of awareness about diabetes, most patients with diabetes suffer from its complications[13]. Many patients don't know about diabetes to an extent which is needed to improve their daily practices regarding the disease. Nearly all of the patients enrolled in the study knew that they should keep their glucose level in check which was surely a positive finding, attributed to the good health education of the patients by the diabetic clinic being run by Maj Gen Hamid Shafeeq in the Military Hospital, Rawalpindi. Surprisingly many of the patients knew about the prevention of the disease and said that healthy diet, weight control and regular exercise, all afford protection against the disease. Most of them knew that lifelong prevention was the key to control the disease, however, a number of them said that diet restrictions weren't needed once the sugar is controlled. A study showed that a planned

educational intervention in type-1 diabetics, who even received monthly supplies of insulin free of charge, did not improve the key aspects of the practice component, even though the knowledge and attitude improved[14].

A comparative study of knowledge, attitude and practices of diabetic patients cared for at a teaching hospital free of charges and those cared for at private clinics and charged for it showed that although knowledge was quite good but there existed a wide gap between knowledge and practice[15]. According to a study conducted in Egypt, it is the 9th country with prevalence of diabetes. Diabetes management depends very much on the persons owns ability to control it and knowledge regarding its prevention and management is one of the key components of diabetes control[16]. In our study the knowledge was more than fifty percent but when compared with practice, it was not sufficient to control the emerging and prevalent threat.

The attitude of the patients towards a sugar free diet was positive in nearly everyone but not for fat free diet which poses the diabetic individuals to having hyperlipidemias and consequently cardiovascular disease in the long run. A study was conducted regarding self-care role in diabetes management in India. It concluded that to control diabetes associated morbidity and mortality, we need to increase self-care behaviors in many domains that is healthy eating, food selection, physical exercise, appropriate medications, blood glucose monitoring. Although many socio demographic, economic, heath care services factors affect self-care behaviors and attitudes but role of clinicians is very critical in promoting self-care and has to be highlighted. In this study, we only focused on diabetic patient so further studies regarding assessment and impact of clinician's role is required to be assessed[17].

It was important to find out that more than half of the patients knew that they should have a sweet thing as soon as possible if they ever had hypoglycemia. It was surprising to know that,

though a small number, some patients said that they would have insulin or the prescribed drugs if they ever had hypoglycemia, which can be disastrous for the patient. There is usually a lack of compliance with the guidelines on the part of the diabetic subject, which also indicates the deficiencies in the physician's knowledge, implementation techniques and attitude problems[18]. As far as treatment of the disease is concerned, generally speaking, a gap exists in the knowledge of the patients that insulin is the only method of treatment of the disease while other modalities are not. Similar findings were suggested by a study about Qatari diabetic patients with type II diabetes mellitus that there were significant differences of knowledge and attitude between educational levels. However failure to foresee the long term complications of the disease such as polyneuropathy, retinopathy and nephropathy, leads to a poor practice amongst the patients regarding their meals, taking medication and modifying doses when necessary[19].

Diabetes is a life-long disorder and 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[20].

CONCLUSION

Knowledge regarding self-care was sound among the diabetic patients but there existed a wide gap between knowledge and practice. Attitude was positive in the educated class but deficient in the illiterates. Healthy Dietary patterns were satisfactory among the study participants.

RECOMMENDATIONS

A diabetic clinic focusing especially on self-care can be planned in every hospital and also at primary health care centre. Diet plans can be issued to the patients in local language. Patients must be counselled well about the hypoglycaemic and hyperglycaemic episodes, nature of their disease and its long term complications. Family members and close relatives can be educated and involved in the process to increasing self-care and healthy diet.

CONFLICT OF INTEREST

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

REFERENCES

1. Iliyas-Shah-Ansari. Public Health and Community Medicine, 7th ed, 744, Medical Division, Urdu Bazar, Hashmi Trust Building, Karachi, Pakistan: Time Publishers; 2005,p. 607-8.
2. Kumar and Clark's Clinical Medicine, 4th ed, 1326, Edinburgh, London, Philadelphia, Toronto, Sydney, Tokyo: W.B. Saunders publishers;1998, p. 959
3. American Diabetes Association. Diagnosis and classification of diabetes mellitus. Diabetes care. 2013 (1); 36 (Supplement 1):S67-74.
4. WHO Report, Preventing Chronic diseases; a vital investment. (Cited on Sept. 2013) Available from http://www. who. int/ chp/chronic_disease_report/en/.
5. Ahmed MU, Seriwala HM, Danish SH, Khan AM, Hussain M, Husain M, et al.. Knowledge, Attitude, and Self Care Practices Amongst Patients With Type 2 Diabetes in Pakistan. Glob J Health Sci. 2015 (3); 8(7): 1. http://dx. doi.org /10.5539 /gjhs.v8n7p1.
6. Nazir SU, Hassali MA, Saleem F, Bashir S, Aljadhey H. Disease related knowledge, medication adherence and glycaemic control among patients with type 2 diabetes mellitus in Pakistan. Primary care diabetes. 2015; 10(2); 135- 41. http://dx.doi.org/10.1016/j.pcd.2015.09.004
7. Siddiqui FJ, Avan BI, Mahmud S, Nanan DJ, Jabbar A, Assam PN. Uncontrolled diabetes mellitus: Prevalence and risk factors among people with type 2 diabetes mellitus in an Urban District of Karachi, Pakistan. Diabetes research and clinical practice. 2015; 107(1): 148- 56. http: //dx. doi. org/10. 1016/j. diabres. 2014. 09. 025.
8. Aziz S, Noorulain W, Zaidi UE, Hossain K, Siddiqui IA. Prevalence of overweight and obesity among children and adolescents of affluent schools in Karachi. J Pak Med Assoc. 2009; 59(1): 35-8.
9. Hussain A, Ali I. Diabetes mellitus in Pakistan: A major public health concern. Arch Pharma Pract. 2016; 7(1): 30-3
10. Savoca M, Miller C. Food selection and eating patterns: themes found among people with type 2 diabetes mellitus. JNutr Educ Behav. 2001; 33(4): 224- 33. http: //dx. doi. org/10. 1016/S1499-4046(06)60035-3.
11. Bohanny W, Wu SF, Liu CY, Yeh SH, Tsay SL, Wang TJ. Health literacy, self□efficacy, and self□care behaviors in patients with type 2 diabetes mellitus. J Am Acad Nurse Prac. 2013; 25(9): 495-502.
12. World Health Organization. Preventing chronic diseases: a vital investment: WHO global report. Geneva: World Health Organization; 2005. (Accessed June 2013). 2012 Sep:1-3. Availableat http://www. who. int/chp /chronic_ disease_r eport/en/

13. Wild S, Roglic G, Green A, Sicree R, King H. Global prevalence of diabetes estimates for the year 2000 and projections for 2030. Diabetes care. 2004 1; 27(5): 1047-53

14. Vimalavathini1, Agarwal SM, Gitanjali B. Educational program for patients with type-1 diabetes mellitus receiving free monthly supplies of insulin improves knowledge and attitude, but not adherence; Int J Diabetes Dev Ctries. 2008; 28(3): 86-90.

15. Sivagnanam G1, Namasivayam K, Rajasekaran M, Thirumalaikolundusubramanian P, Ravindranath C. A comparative study of the knowledge, beliefs, and practices of diabetic patients cared for at a teaching hospital (free service) and those cared for by private practitioners (paid service); Ann N Y Acad Sci. 2002; 958((1):416-9

16. Abdo NM, Mohamed ME. Effectiveness of health education program for type 2 diabetes mellitus patients attending Zagazig University Diabetes Clinic, Egypt. J Egypt Public Health Assoc. 2010; 85(3-4): 113-30.

17. Shrivastava SR, Shrivastava PS, Ramasamy J. Role of self-care in management of diabetes mellitus. J Diabetes Metab Disord. 2013; 12(1): 1.

18. Mira J, Llinas G, Gil V, Lorenzo S, Palazón I, Orozco D. The variability in the care for diabetic and hypertensive patients as a function of the styles of a physician's practice. Aten Primaria. 1999; 23(2): 73-81.

19. Kheir N, Greer W, Yousif A, Al Geed H, Al Okkah R. Knowledge, attitude and practices of Qatari patients with type 2 diabetes mellitus. Int J Pharm Pract.. 2011; 19(3): 185- 91.

20. Shera A, Jawad F, Basit A. Diabetes related knowledge, attitude and practices of family physicians in Pakistan. J Pak Med Assoc. 2002; 52(10): 465-70.

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