KNOWLEDGE OF PATIENT REGARDING MANAGEMENT OF TYPE 2 DIABETES MELLITUS

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ABSTRACT

A study to assess the knowledge of patient regarding management of diabetes mellitus at selected hospitals of Vadodara, 'Objectives of the study: To assess the level knowledge of patient regarding management of diabetes mellitus and to find out the association between the knowledge regarding management of diabetes mellitus with their selected demographic variables. Using simple random sampling technique. The instrument used for data collection was structured knowledge questionnaire. Methods: Institutional based cross sectional study was conducted. A total of 421 patients were chosen using simple random sampling technique. The data was analysed using SPSS software. Result: In this study (96.3 %) patient to have good knowledge and (3.8%) were poor knowledge Conclusion: Gender, age, education, and work experience of patients are associated with the management of diabetes mellitus at P0.05 levels of significance.

Keywords: Knowledge, diabetes mellitus, patient, diabetes mellitus

INTRODUCTION

Diabetes Mellitus (DM) is a clinical syndrome characterized by hyperglycaemia due to an absolute or relative deficiency of insulin. Insulin deficiency may arise in various ways such as destruction of β– cells of the pancreas, an organ responsible for the production of insulin. Insulin deficiency affects the metabolism of carbohydrates, proteins, fats, electrolytes and water leading to major organ function disorders throughout the body. Although the exact cause of the disease is uncertain, genetic and predisposing factors contribute to the onset of the disease. DM has the potential to produce significant morbidity and mortality and is widely regarded as a major public health challenge. DM may be broadly divided into two main groups, each with differences in pathogenesis, clinical appearance, management and treatment. Insulin Dependent Diabetes Mellitus (IDDM) or Type 1 DM, is due to lack of insulin and has a peak incidence at 10-20 years. It is less common and estimated to account for 5 to 10% of all diagnosed cases of DM worldwide. Risk factors for Type 1 DM are less well defined and include autoimmune, genetic and environmental factors. The standard care of Type 1 DM patients include multiple daily injections of insulin, monitoring of blood glucose through finger stick and digital glucometer. Targets for blood glucose should be less than 180 mg after meals for Type 1 diabetics5. Non-Insulin Dependent Diabetes Mellitus (NIDDM) or Type 2 DM is due to presence of factors that oppose the action of insulin and it has a peak incidence at ages 50-70 years and accounts for almost 90 to 95% of all diabetics. Risk factors for Type 2 DM include increased age, physical inactivity, obesity, race and circulation and high risk of recurrent infections which may lead to gangrene9. Family history of the disease. The basic therapies for Type 2 DM include oral medications, and in severe cases the use of insulin, lifestyle modifications such as healthy eating, physical activity and regular monitoring of blood glucose. [1]

The most common symptoms of DM are frequent urination (polyuria) caused by increased filtered level of glucose in the kidney, excessive thirst (polydipsia) as a result of loss of fluids through increased urination and extreme hunger due to the inability to metabolize glucose resulting in increased eating (polyphagia)9. Other symptoms include weight and vision fluctuations, dry skin, numbness in the feet and hands, and poor wound healing caused by poor or loss in circulation and high risk of recurrent infections which may lead to gangrene. [3]

Diabetes is a dangerous, long-term condition that happens when the pancreas fails to generate enough insulin (a hormone that regulates blood glucose) or when the body's insulin is ineffectively used. In the initial and ongoing management of type 2 diabetes, diet, exercise, weight loss, and a healthy lifestyle remain critical. When non-pharmacological approaches fail

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to achieve glycaemic control, one or more oral anti-diabetics (OADs) should be added. When the combined use of OADs and non-pharmacologic treatments fails to achieve glycaemic control, insulin should be introduced.

Around 171 million people worldwide have diabetes, and 3.8 million people die each year as a result of the disease's consequences. By 2030, it is expected that the number of individuals living with diabetes would have risen to 366 million. In South Africa, prevalence data suggests that Type 2 diabetes affects roughly 5% of the black population and 11% to 15% of the Indian population. However, data on the two kinds of diabetes mellitus in South Africa is incomplete. The likelihood of visual and ocular problems rises with age and disease duration. Gender (males), race, diabetes control, and pregnancy have all been implicated as risk factors for diabetic retinopathy. The ocular symptoms of diabetes mellitus are well-known. Diabetes retinopathy and macular oedema are two of the most common causes of blindness in diabetic people. Non-proliferative diabetic retinopathy is characterised by weaker vessels that leak and cause haemorrhages. [4,5]

Cotton wool spots (micro-infarctions in the nerve cell layer), hard exudates and venous dilatation are also common features of diabetic retinopathy[18-20]. The late phase (proliferative stage) is characterized by retinal detachment which results from retinal traction by scar tissue, often in the wake of haemorrhages after rupture of fragile new vessels (neovascularization) [4,5]

Other visual and ocular complications include higher prevalence of cataracts, secondary glaucoma, tritan colour vision deficiencies and reduced corneal sensitivity *et cetera*. Studies have suggested that up to 25% of all Type 2 diabetics show some degree of diabetic retinopathy when they are first diagnosed and 60-80% of these patients show evidence of diabetic retinopathy after 15 years from the onset of diagnosis. Early detection and treatment of DM may therefore reduce the risk of severe vision loss from diabetic retinopathy. It has been recommended that patients diagnosed with mild to moderate non-proliferative retinopathy require annual eye assessments, and those with severe non-proliferative retinopathy need 3 to 6 month ocular assessments. The proliferative stage requires urgent referral to an ophthalmologist (within two to four weeks) as well as follow up monitoring within 2 to 3 months of the specialist visit. [6]

An investigation into diabetic patients' knowledge of diabetes and its ocular complications in a Western Cape diabetic population (N=98) showed that the minority (42%) of the respondents knew about the existence of two types of diabetes. Although 96% of the respondents felt that it was important to have their eyes checked regularly, only thirty percent stated that they had actually had their eyes checked every year. The results of the study indicated that although the

patients had a basic level of understanding of DM and its potential ocular complications, their daily management of the condition was not adhered to optimally, as they did not fully comprehend the essential need for undergoing comprehensive eye examinations [7].

NEED FOR THE STUDY

A Nation's prosperity lies in the health of its citizens. Healthy people make the nation strong and wealthy. The past few decades have revolutionised the life style of human beings in the whole world. However this age of speed and competition has increased the stresses and strains which man is subjected to. Diabetes is a growing threat to global public health and affects all societies regardless of age, sex, ethnicity or race. The countries with largest number of diabetic people will be in India, China and U.S.A by 2030. (International Diabetes Federation).[8]

World Health Organizations (2016) stated that globally, an estimated 422 million adults are living with diabetes mellitus. The global prevalence of diabetes in the year 2000 was 171,000,000 and it is expected and approximated to be raised to 366,000,000 by 2030.

According to international diabetes federation (2019) 425 million people have diabetes in the world and 82 million people in the SEA (South East Asia) Region; by 2045 this will be rise to 151 million. There were over 72,946,400 cases of diabetes in India in 2017.

International Diabetes Federations estimated that India currently represents 49 percent of the world's diabetes burden, with an estimated 72 million cases in 2017, a figure expected to almost double to 134 million by 2025.

Times of India reports that one among the nine diabetic patients in the world is an Indian. By 2025, it is estimated that every fifth diabetic patient in the world will be an Indian. Diabetes is one of the most economically burdensome chronic diseases of our time [9].

METHODS

The research was carried out on a sample of 421 hospitals in Vadodara. For data collection, we used a simple random sampling technique. The data gathering instrument was a structured knowledge questionnaire. The information gathered was tallied and examined in terms of the study's objectives and inferential statistics.

RESULT

Table 1 shows that 146 (34.6 percent) patients in the age group 20-25 years, 130 (30.9 percent) patients in the age group 26-30 years, 71 (16.9%) patients in the age group 31-35 years, and 74 (17.6%) patients in the age group 36-40 years. Minimum number of male patients 168 (39.9%) and maximum number of female patients 253 (60.1%) and 305 (72.4%) were married maximum and 17 (4.0%) were minimum number of widows and maximum number were nursing profession 139 (39.4%), minimum number of pharmacists 51 (12.1%) and maximum number of patients with a degree 240 (57.0%), minimum number of patients with a master's degree 13 (3.1%) and maximum number of patients with a master's degree were general hospitals with a minimum of 13 patients (3.1%), a maximum of 179 patients with work experience of 4 years or more (42.5%), and a minimum of 63 patients with work experience of 1-2 years (6.3%). (15.0%). Patients accounted for 13 percent of the total, with 179 percent having 4 years or more of job experience and 63 percent having 1-2 years of work experience (15.0 %).

The mean pre-test knowledge score (96.3%) for good knowledge higher than poor knowledge score (3.8%) The patient regarding management of diabetes mellitus was significantly higher at 0.05 levels of significant of paired 't' test.

The purpose of research hypothesis H1 was to determine the significance of the difference in pre-test knowledge scores. At the 0.05 level of significance, it was considerably greater than the pre-test knowledge score.

Figure 1: Knowledge of patient regarding management of diabetes mellitus

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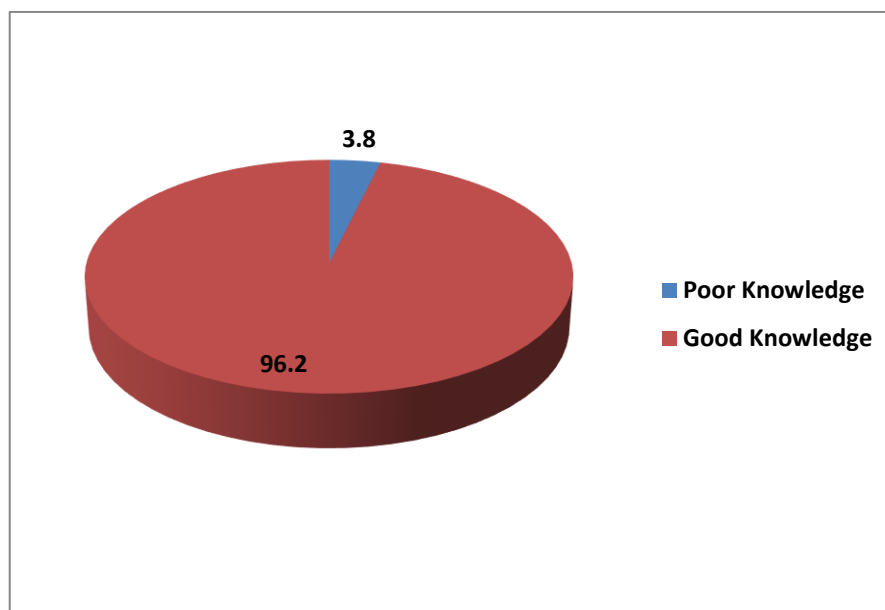
Table. 1: Socio-Demographic characteristics of the participants (N=421)

Characteristics	Gender	Frequency	Percent
Gender	Male	168	39.9
	Female	253	60.1
	Total	**421**	**100.0**
Age	20-25	146	34.7
	26-30	130	30.9
	31-35	71	16.9
	36-40	74	17.6
	Total	**421**	**100.0**
Marital status	single	99	23.5
	married	305	72.4
	widowed	17	4.0
	Total	**421**	**100.0**
Profession	Nursing	132	31.4
	Medical doctor	106	25.2
	Midwifery	105	24.9
	Medical laboratory	27	6.4
	pharmacist	51	12.1
	Total	**421**	**100.0**
Education	Diploma	168	39.9
	Degree	240	57.0
	Master and above	13	3.1
	Total	**421**	**100.0**
Type of hospital	Health centre	168	39.9
	General hospital	240	57.0
	Health post	13	3.1
	Total	**421**	**100.0**
Work experience	1-2 years	63	15.0
	2-3 years	64	15.2
	3-4 years	115	27.3
	4 years and above	179	42.5
	Total	**421**	**100.0**

Table: 2 Assess knowledge of Patient regarding management towards diabetes mellitus

(N=421)

S.No	Knowledge-Related Statements	Mean	Std. Dev.
1	Diabetes mellitus is increase in level ?	1.75	0.432
2	Diabetes mellitus affects the following except?	1.80	0.404
3	Early sign of Diabetes mellitus	1.80	0.404
4	Glucose testing could be performed ?	1.82	0.383
5	Which of the following food increases blood sugar significantly ?	1.82	0.383
6	Which of the following has your health care team?	1.80	0.404
7	What is the ideal range for blood glucose levels in a person with diabetes should aim for?	1.82	0.385
8	How often people with diabetes should exercise or physically active?	1.82	0.385
9	What foot problems are people with diabetes at risk for?	1.82	0.385
10	Minimum duration of exercise to be performed daily	1.77	0.420
11	The following are complications of diabetes mellitus	1.75	0.433
12	What foot problems are people with diabetes at risk for?	1.75	0.433

Table 3: Bivariable and Multivariable regression analysis of factors associated with assess knowledge of diabetic mellitus patient

Sl.No.	Gender	CHR(95%CL)	AHR(95%CL)
Gender	Male	0.088(0.020-0.391)	0.039(0.007-0.216) *
	Female	1	1
Age	20-25	2.828(0.943-8.481)	2.401(1.212-4.756)*
	26-30	15.636(1.915-127.678)	7.080(2.944-17.029)
	31-35	8.485(1.033-6.102)	3.528(1.438-8.651)*
	36-40	1	1
Marital status	Single	1	1
	Married	1.523(0.837-2.772)	
Profession	Nursing	4.057(1.130-14.566)	
	Medical doctor	1.241(0.474-3.247)	
	Midwifery	0.342(0.139-0.840)	
	Medical laboratory	4.136(0.482-35.533	
	pharmacist	1	1
Education	Diploma	1	1
	Degree	0.680(0.382-1.212)	2.324(1.321-3.456)*
	Master and above	2197.5(0.000)	3.528(1.438-8.651)*
Type of hospital	Health Centers	0.528(0.213-1.342)	
	General hospital	1.0455(0.321-2.432)	
	Health Clinics	1	1
Work experience	1-2 years	0.683(0.328-1.424)	0.243(0.052-1.129) *
	2-3 years	1.066(0.471-2.410)	0.172(0.032-1.219)
	3-4 years	1.679(0.798-3.534)	2.708(0.434-16.897)
	4 years and above	1	1

Abbreviations: CI, confidence interval; ***P-Value<0.05**

DISCUSSION

The discussion is focused with objectives and hypothesis of the study to evaluate the knowledge of patient regarding management of diabetes mellitus at selected hospitals in Vadodara city. Similar findings were found in a study conducted by Shukla S in Mangalore where most of the adolescents (70%) belonged to PUC, majority (92%) were Hindu, majority of the parents (90%) were working in private sector where as only (8%) were working as government employee. Similarly 82% of students belonged to nuclear family and 18% belonged to joint family. 22% of them had income between Rs. 5001-10,000, 45% below Rs. 5,000 and around 38% got the information from mass media

(Ananda Kudari, Sumangala B R 2021) In their Study results revealed that knowledge of four (13.33%) diabetic patients was poor, 26 (86.66%) patients had average knowledge and none of the patients had good knowledge regarding diabetes mellitus. None of the demographic variables of the diabetes patients were found to be associated with the knowledge regarding diabetes mellitus and comparing that this study reveals majority of knowledge is higher than the previous study.mean pre-test knowledge score (96.3%) for good knowledge higher than poor knowledge score (3.8%) The patient regarding management of diabetes mellitus was significantly higher at 0.05 levels of significant of paired 't' test.

CONCLUSION

According to the conclusions of the survey, good knowledge scored better than weak knowledge (96.3 %) (3.8 %).

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