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Original Research Article

Correlation of Self Care Practices and Glycaemic Control in Patients with Type 2 Diabetes Mellitus

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Abstract: Poor self care practices of diabetes can lead to progression of disease and related complications. The main aim in present study was done to evaluate self care practices and attitude of diabetic patients towards the disease. The present study was done from Oct 2015 to Dec 2015 including 100 type 2 diabetes mellitus (T2DM) patients. Their self care practices and attitude towards the disease were investigated using preapproved questionnaire. In results the Mean age of study population was 53.84±9.49 years with 54% men and 46% women. There was a significant relationship between self care practices like seeing diabetes educator, more clinical visits, routine retina and kidney examination and attitude towards the diabetes are directly associated with glycaemic control ($p<0.05$). Patients performing periodic feet, retina, heart and kidney examination and SMBG were having similar glycaemic control ($p>0.05$). in conclusion Self care practices like seeing diabetes educator, more clinical visits, routine retina and routine kidney examination along with attitude towards the diabetes can help the patients to improve the disease and delay the associated complication.
Keywords: self care practices, attitude of patients, glycaemic control.

INTRODUCTION

Diabetes mellitus (DM) is a rapidly spreading disease which needs special attention from health care department. Though there are great advancements in the treatment of DM in past few years, it is still a major reason for morbidity and mortality. DM has a great impact on patients' quality of life (QOL), their working style and also demands huge health costs from the family [1].

Condition is worst in developing countries like Africa and India because of late diagnosis and limited access to diabetes care [2]. Management of DM requires sound self-care practices along with optimal glucose control to prevent complications [2].

If adequate self-care practices are not followed by diabetic patients, therapy goals will be difficult to achieve. Glycaemic control is totally in the hands of diabetic patients [3, 4]. The present study was done to evaluate self care practices and attitudes of patients towards the disease.

MATERIALS AND METHODS

The present study was done for 3 months from Oct 2015 to Dec 2015 in Department of Medicine, Mayo Institute of Medical Sciences, Gadia, and Barabanki, UP to evaluate the self care practices (SCP) and correlate it with glycaemic control in patient with Type 2 DM.

Written informed consent was taken from all the included patients. The objective and protocol of the present study were also detailed to all the 100 patients. Also all the included patients were ensured confidentiality. Adult patients (age ≥30 years); having Type 2 DM of varying duration and willing to give informed consent were included in the study.

A questionnaire of 15 multiple choice and yes or no type questions on self care practices was used to investigate the SCP of all the patients of T2DM. The designed questionnaire was first administered to 5 randomly selected patients in a pilot study to ensure the validity and suitability of content, clarity and flow of questions. Required correction and flow was changed based on pilot study. The language used for preparing the questionnaire was English but before using it, was translated from English to Hindi and was administered to each patient in face to face interviews to collect the data. Relationship between self care practices and glycaemic control was evaluated by dividing patients in to three groups; Good control (HbA1c <7%), acceptable

control (HbA1c between 7-8%) and poor control (HbA1c >8%).

All the data were analyzed using IBM SPSS-ver.20 software. One way Analysis of variance (ANOVA) was used to determine the level of significance. Pearson chi square test was done to evaluate the KAP. P values <0.05 was considered to be significant.

RESULTS

Table 1: Distribution of Responses of the patients to the practice questions

Quality Variable	Variable Items	Glycaemic control			Total*	P
		Good	Acceptable	Poor		
Seeing diabetes educator	None	7 (23.3)	10 (33.33)	13 (43.33)	30	<0.05
	Once	13 (20.63)	29 (46.03)	21 (33.33)	63	
	Twice	2 (28.57)	3 (42.84)	2 (28.57)	7	
Clinical visit	≥ 3	16 (22.22)	33 (45.83)	23 (31.94)	72	<0.05
	≤ 2	2 (11.11)	8 (44.44)	8 (44.44)	18	
Periodic feet examination	Can't recall	8 (20.51)	16 (41.02)	15 (38.46)	39	NS
	No	7 (17.94)	17 (43.58)	15 (38.46)	39	
	Yes	6 (28.57)	9 (42.85)	6 (28.57)	21	
Periodic retina examination	Can't recall	4 (16.66)	12 (50)	8 (33.33)	24	NS
	No	4 (21.05)	7 (36.84)	8 (42.10)	19	
	Yes	13 (23.21)	23 (41.07)	20 (35.71)	56	
Last retinal examination	≤ a year	13 (23.21)	21 (37.5)	22 (39.28)	56	<0.05
	> 1 – 2 years	1 (20)	3 (60)	1 (20)	5	
	> 2 years	0 (0)	0 (0)	1 (100)	1	
	Can't recall	7 (18.42)	17 (44.73)	14 (36.84)	38	
Periodic heart examination	Can't recall	5 (21.73)	8 (34.78)	10 (43.47)	23	NS
	No	3 (17.64)	8 (47.05)	6 (35.29)	17	
	Yes	14 (23.33)	26 (43.33)	20 (33.33)	60	
Last heart examination	≤ a year	14 (25.45)	23 (41.18)	18 (32.72)	55	NS
	> 1 – 2 years	0 (0)	2 (66.66)	1 (33.34)	3	
	> 2 years	0 (0)	1 (50)	1 (50)	2	
	Can't recall	8 (20)	16 (40)	16 (40)	40	
Periodic kidney examination	Can't recall	2 (14.28)	6 (42.85)	6 (42.85)	14	NS
	No	1 (8.33)	4 (33.33)	7 (58.33)	12	
	Yes	19 (25.67)	32 (43.24)	23 (31.08)	74	
Last kidney examination	≤ a year	16 (24.61)	26 (40)	23 (35.38)	65	<0.05
	> 1 – 2 years	1 (20)	3 (60)	1 (20)	5	
	> 2 years	1 (100)	0 (0)	0 (0)	1	
	Can't recall	4 (14.28)	12 (42.85)	12 (42.85)	28	
Diabetes effect on work	No effect	11 (26.19)	15 (35.71)	16 (38.09)	42	<0.05
	Absenteeism/↓ability	6 (10.71)	27 (48.21)	23 (41.07)	56	
	Total inability	2 (100)	0 (0)	00 (0)	2	
Attitude & care of DM	Negative	5 (20)	2 (8)	18 (72)	25	<0.05
	Positive	16 (21.33)	36 (48)	23 (30.66)	75	
Patients SMBG	Always check	1 (8.33)	8 (66.66)	3 (25)	12	NS
	Often check	4 (44.44)	2 (22.22)	3 (33.33)	9	
	Sometimes check	7 (17.07)	18 (43.90)	16 (39.02)	41	
	Never check	10 (26.31)	13 (34.21)	15 (39.47)	38	
Barrier to SMBG	Too expensive	4 (23.53)	6 (35.29)	7 (41.17)	17	NS
	Too painful	3 (27.27)	3 (27.27)	5 (45.45)	11	
	Not really needed	14 (21.21)	26 (39.39)	26 (39.39)	66	
	How to read results	1 (16.67)	5 (83.33)	0 (0)	6	

Data is expressed as no of patients (%), BG; Blood Glucose, SMBG; self monitoring of blood glucose. P<0.05 was considered significant, * total number of patients, Good; HbA1c <7%, Acceptable; HbA1c between 7-8% and Poor; HbA1c>8%.

A total of 100 T2DM patients were enrolled in the present study. Fifty four (54%) were men and forty-six (46%) were women. Mean age, weight, height and BMI were 53.84±9.49 years, 69.23±12.27 kgs, and 159.29±8.26 cm and 27.31±2.48 kg/m2 respectively. Fasting blood glucose and post prandial blood glucose was done for 64 and 90 patients respectively and a mean value of 131.58±50.63 mg/dl and 199.69±82.68 mg/dl was observed respectively. Mean HbA1c and creatinine in study population was 7.85±1.8% and 1.01±0.39 unit respectively. All the patients were married (100%). Most of the patients (63%) were having age more than 50 years.

Eleven (11%) patients have received no formal education whereas 53% patients were graduates or have done post graduation. Fourteen (14%) and 21% of the patients were having primary or secondary level education respectively. Out of 100 patients, 73% were from the urban area and 27% were belonging to rural area. Most of the patients were housewives followed by 17% patients who had government jobs, 14% had private jobs and 9% were doing business. Sixty eight (68%) patients were earning more than 10000 per months whereas 32% of the patients were having monthly income of less than 10000 rupees.

In present study, fundus was done for 33% of the patients. Out of 27 patients whose ECG was done, 7% had normal ECG whereas one patients had LVH and one had CAD. Sixty seven (67%) patients were diagnosed with T2DM incidentally whereas 33% were diagnosed based on symptoms of T2DM. Most of the patients (32%) were having diabetes duration of more than 10 years followed by 30% patients who had diabetes duration between 1-5 years. Twenty four (24%) were having diabetes duration between 6-10 years and only 14% patients had diabetes duration of less than one year.

Most of the patients (55%) were not having any family history whereas 37% were having first degree relative family history and 8% had second degree relative with diabetes. Analysis of glycaemic control among diabetes patients showed that 48% had acceptable control (HbA1c 7–8%) whereas 38% of the patients had poor glycaemic control (HbA1c >8%). Only 14% patients had good control (HbA1c < 7%) of diabetes.

DISCUSSION:

The present study had found that patient's educational level (53%) was linked to patient's knowledge regarding self care practices. Different studies had also reported the similar findings [5, 6]. A possible reason for this is that patients who had higher level of education have a higher chance of receiving knowledge from the various sources (media, books and internet). Addition to this, such patients may have less hesitation to describe the problem to treating physician and have a good grasping power too regarding self care practices.

For many patients, the physician function as a centre of care, that means whatever a physician communicates to patients, they accept that as a best and irrevocable. Hence, patients education in the clinic plays a very important tool in controlling their diabetes [7]. Knowledge provided by a physician to his diabetic patients (like number of times a patient should do SMBG, retina, heart and kidney examination frequency and importance of diabetes educator) plays a very important role in diabetes management. In present study, patients visiting clinic less than two times a year had poor control as compared to patients visiting more than two/three times a year ($p<0.05$). These findings correlate with the study done by Jackson *et al.*[7].

In present study no association was found with patients' periodic feet, retina, heart and kidney examination with glycaemic control ($p>0.05$). Also there was no association of patients who have done last heart examination with glycaemic control. Patients with poor control underwent frequent renal and retinal examinations ($p<0.05$). In present study most of the patients (56%) said diabetes had resulted in to absenteeism or decrease in their ability to work, out of that 41.07% had poor glycaemic control whereas approx 48% had HbA1c level in acceptable range. Forty two percent patients observed no effect on their daily work.

Patients who had never done SMBG or sometime did, had poor glycaemic control as compared to patients who often check their blood glucose level ($p<0.05$). Study done by Jackson *et al.;* also reported the importance of SMBG and patients achieving good glycaemic control [7]. Hence SMBG as often as possible should be emphasized by the physician. But a survey done by Tengblad *et al.;* had concluded that the use of SMBG was not linked with improved glycaemic control with type 2 diabetes in primary care [8]. Hailu E *et al.;* had also reported similar findings [9].

Attitude towards the diabetes was also presented to affect the glycaemic control. In present study, cohort with negative attitude towards DM and DM care had significantly higher HbA1c as compared to cohort with positive attitude towards DM and DM care. Adibe *et al.;* also reported a low trait of being serious towards the diabetes as an important factor that can affect the management of diabetes [5].

Negative attitude may also result in to unconscious rejection of warning, or this may also manifest a lack of knowledge regarding what diabetes

can do to their health.[10] On the other hand a positive attitude towards the diabetes is likely to push the patients to look for the knowledge related to disease. Diabetes educators and the treating physician have an important role in changing inappropriate beliefs and attitude of patients with diabetes. In present study, most of the patients went to see a diabetes educator at least once in their whole diabetes tenure but out of these patients, most of them had poor glycaemic control as compared to patients who had gone to see diabetes educator twice ($p<0.05$). Hence it becomes the responsibility of family, friends and other support members to change the attitude of the patients and increase the knowledge of self care.

CONCLUSION

Self care practices like seeing diabetes educator at least twice a year, more clinical visits, routine retina and kidney examination and attitude towards the diabetes care are directly associated with glycaemic control of a diabetic patient.

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