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Original Article

Significance of Patient Counseling on Attitude and Practice Behavior in Patients with Diabetes Mellitus

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ABSTRACT

The aim of the study was to determine the impact of patient education on attitude and practice in patients with diabetes mellitus in a tertiary care teaching hospital. It was a prospective, interventional study carried out in the outpatient general medicine department. Patients were block randomly assigned into intervention group and control group based on the inclusion and exclusion criteria. A total of 97 diabetic patients consented and participated in the study. Three follow up were made from baseline to the final follow up visit. Patient information leaflet and medication counselling was provided to the intervention group at each follow up and to the control group at the final follow up. At the final follow up we have observed a significant difference in mean FBS, RBS, PPBS between intervention group and control group [(FBS: P=0.049), (RBS: P= 0.024), (PPBS: P=0.010)].There was also a significant increase in mean attitude score between intervention group and control group at final follow up (p=0.004) [Attitude factor 1] and (p=0.015) [Attitude factor 3].The study results represent the role of clinical pharmacist in medication counselling play a vital position in patients with diabetes mellitus to achieve a sustained glycemic control and improved quality of life.

Key words: Patient counseling, Diabetes mellitus, Attitude and practice.

1. INTRODUCTION

Diabetes mellitus (DM) has a wide range of manifestations which includes hyperglycemia as a prime biochemical abnormality. It includes a diverse group of disorders that are secondary to various genetic predispositions and precipitating factors[1].DM leads to various complications such as ischemic heart disease, stroke, peripheral vascular diseases, neuropathy, nephropathy, retinopathy, hyperlipidemia, foot ulcers, and infections. These complications adversely affect the quality of life for all diabetic patients. So people with DM who wish to live normal lives need to have good attitude and practiceregarding their illness and the management of

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DM[2].It is well known that drug therapy can besafe and effective when patients are well informed about their medications and its use. It is the responsibility of pharmacists to counsel patients before dispensing medications[3]. Proper guidance and providing education to the patients will show significant improvement in diabetes management. This study reveals the improvement in the attitude and practice of patients and the role of clinical pharmacist associated with it.

2. MATERIALS AND METHODS

This study was carried out in the medicine unit of a 1000 bedded private tertiary care teaching hospital. It was a block randomized prospective interventional study conducted for a period of six months. Institutional Ethics Committee approval was obtained before commencing the study. The data was collected from the out-patients above 18 years of age. A suitable data collection form was designed to collect and document the data. Informed consent was obtained from all the patients who willingly participated in the study. Data collection form included the demographic details of the patient, information regarding the disease, drug therapy, duration of therapy andblood glucose level (Levels of fasting blood glucose, and post-prandial blood glucose were monitoredin every follow ups).The revised Diabetes Attitude Scale (DAS) developed by Michigan Diabetes Research and Training Centre (MDRTC) and diabetes practice questionnaire was appliedafter receiving theagreement from the developers.Data were analyzed using SPSS software version16.0 and Microsoft office

The Revised Diabetes Attitude Scale:

We selected three factors from a total of seven factors as per the need of the study. The factors included are

1) Attitude towards patient compliance, which consists of 6 questions (Attitude factor 1),

2) Blood glucose control and complications, which consists of 3 questions (Attitude factor 2)

3) Impact of diabetes on lives which consists of 6 questions (Attitude factor 3). Each question within the factors was provided a scoring scale ranging from 1 to 5 in the ascending order (i.e. higher scores denote better attitude). The total score of all answers within the factors reflected an individual's attitudes of the diabetic patients.

Diabetes Practice Questionnaire: The questionnaire consists of 7 questions. Each question in the questionnaire was provided with a score scale ranging from 1 to 5 in the ascending order (i.e. higher scores denote better attitude).

3. RESULTS

A total of 100 patients were enrolled in the initial phase of the study. Among the total participants 97 patients successfully completed the study and the

remaining 3 patients lost their follow up due to unknown reasons. Among the participants 47 are males and 50 are females. The patients were assigned into two different groups by block randomization method. We allotted 49 patients in the intervention group and 48 patients in the control group. (Table 1)

Table 1: Categorization of the study participants

Sl. No	Group	No of patients	%
1	Interventional group	49	50.51
2	Control group	48	49.48
Total		97	100

We categorized the patients depends on the age groups to find the highest prevalence. We noticed that the patients aged between 60-69 years shows highest number of diabetics (32.99%) than other age groups.(Table 2)

Table 2: Age wise distribution

Sl. No	Age	No of patients	%
1	20-29	0	0.00
2	30-39	3	3.09
3	40-49	20	20.61
4	50-59	27	27.83
5	60-69	32	32.99
6	70	15	15.46
Total		97	100

Information's regarding the patient's level of education was collected to identify the literates among the population. We categorized the level of education as graduates, high school, primary school and illiterates. We have noticed 63.98% of the patients had education at least at primary school level.(Table 3)

Table 3: Educational status among enrolled patients

Sl. No	Level	No of patients	%
1	Graduate	3	3.09
2	High school	25	25.77
3	Primary school	62	63.86
4	Illiterate	7	7.21
Total		97	100

Occupational status was categorized as per the need of the study to understand their working capacities. 35.05% of study participants were identified as house wives, 34.03% as farmers and 20.62% as self employed. (Table 4)

Table 4: Occupational status among enrolled patients

Sl. No	Occupation	No of patients	%
1	Farmer	33	34.03
2	Self employed	20	20.62
3	Retired employee	2	2.06
4	House wife	34	35.05
5	Unemployed	8	8.25
Total		97	100

We have identified the custom of using tobacco and alcohol among the participants. 13.40% had the habit of alcoholism and 14.43% had the habit of smoking.(Table 5)

Table 5: Smoking and alcoholism among the participants

Sl. No	Status	No of patients	%
1	Non-smokers	84	86.59
2	Smokers	13	13.40
3	Non-alcoholics	83	85.56
4	Alcoholics	14	14.43

In an attempt to identify the duration of illness among the study participants we observed that 50.51% of patients had the duration of diabetics from 1-5 years. This information gives an idea that majority of the patients were recently identified for having the disease and there is an urgent need of interventions for their betterment of attitude and practices.(Table 6)

Table 6: Duration of diabetes among the participants

Sl. No	Diabetes in years	No of patients	%
1	1-5	49	50.51
2	6-10	34	35.05
3	11-15	10	10.30
4	16-20	2	2.06
5	>21	2	2.06

We have recorded the FBS, RBS and PPBS levels for comparative study on the test and control group from baseline to the final follow up to assess the glycaemia control in response to counselling.

At the base line follow up there was no difference in mean FBS, RBS, and PPBS between intervention group and control group. [(FBS: P=0.977 which is >0.05), (RBS: P=0.695 which is >0.05), (PPBS: P=0.673 which is >0.05)].

During the first follow up there was no difference in mean FBS, RBS, and PPBS between intervention group and control group. [(FBS: P=0.729 which is >0.05), (RBS: P= 0.802 which is >0.05), (PPBS: P= 0.200 which is >0.05)].

At the second follow up there was no difference in mean FBS and RBS but PPBS Showed variations between intervention group and control group [(FBS: P=0.492 which is >0.05), (RBS: P= 0.176 which is >0.05), (PPBS: P=0.037 which is <0.05)].

During the final follow up we have noticed a significant difference in mean FBS, RBS, PPBS between intervention group and control group [(FBS: P=0.049 which is <0.05), (RBS: P= 0.024 which is <0.05), (PPBS: P=0.010 which is <0.05)].

The above results show that counselling has an impact on the blood glucose control. We observed, both the groups achieved good diabetic control but the patients who has received proper education and counselling (intervention group) achieved better glycaemia control than the group who did not receive education and counselling (control group).In the final follow up we noticed a significant reduction in the mean blood glucose level in intervention group but not in the control group.(Table 7)

Table 7: The blood glucose level

Follow ups	Blood glucose test	Group	Mean	Standard deviation	t	p
Baseline	FBS	Intervention	172.71	70.564	.029	0.977
		Control	172.15	63.994		
	RBS	Intervention	220.33	83.653	.395	0.695
		Control	233.53	102.552		

	PPBS	Intervention	243.58	108.485	.426	0.673
		Control	256.53	85.478		
First follow up	FBS	Intervention	169.39	44.351	.349	0.729
		Control	175.21	74.196		
	RBS	Intervention	232.67	82.663	.254	0.802
		Control	240.24	85.626		
	PPBS	Intervention	240.33	94.037	1.303	0.200
		Control	277.00	88.519		
Second follow up	FBS	Intervention	165.89	49.757	.692	0.492
		Control	177.50	70.766		
	RBS	Intervention	186.29	79.126	1.392	0.176
		Control	226.36	73.052		
	PPBS	Intervention	231.84	83.774	2.146	*0.037
		Control	286.14	89.637		
Final follow up	FBS	Intervention	148.78	38.525	2.013	*0.049
		Control	180.04	70.094		
	RBS	Intervention	185.80	61.588	2.385	*0.024
		Control	255.06	95.308		
	PPBS	Intervention	221.57	80.250	2.719	*0.010
		Control	290.05	82.431		

*Significant <0.05

Attitude and Practice Score result:

Attitude factor I:

There was no difference in mean attitude score between intervention group and control group at baseline (p=0.496, which is <0.05) but there was a difference in mean attitude score between intervention group and control group at final follow up (p=0.004, which is <0.05).

Attitude factor 2:

There was no difference in mean attitude score between intervention group and control group at baseline as well as the final follow up [p=0.758 which is >0.05(baseline),p=0.848 which is >0.05 (final follow up)].

Attitude factor 3:

There was no difference in mean attitude score between intervention group and control group at baseline (p=0.619, which is >0.05) but in final follow up there was a difference in mean attitude score between intervention group and control group (p=0.015, which is <0.05).

Practice result:

There was no difference in mean practice score between intervention group and control group at baseline (p=0.511,which is >0.05) but in the final follow up there was a difference in mean practice score between intervention group and control (p=<0.001, which is <0.05).(Table 8)

Table 8: Result of independent 't' test on Attitude and Practice scores

Domain	Follow ups	Category	Mean	Standard deviation	t	p
Attitude Factor-1	Baseline	Intervention group	21.80	3.117	0.683	0.496
		Control group	21.36	3.324		
	Final follow up	Intervention group	23.33	2.664	2.928	0.004*
		Control group	21.58	3.181		
Attitude Factor-2	Baseline	Intervention group	13.88	2.561	0.308	0.758
		Control group	14.04	2.626		
	Final follow up	Intervention group	14.20	2.525	0.192	0.848
		Control group	14.10	2.611		
Attitude Factor-3	Baseline	Intervention group	16.46	3.189	0.499	0.619

		Control group	16.78	3.228		
	Final follow up	Intervention group	15.41	2.979	2.486	0.015*
		Control group	16.96	3.162		
Practice	Baseline	Intervention group	14.78	2.427	0.660	0.511
		Control group	15.08	2.108		
	Final follow up	Intervention group	18.94	2.410	5.335	0.001*
		Control group	16.33	2.400		

*Significant <0.05

4. DISCUSSION

We have observed a maximum number of patients in the productive age range of 60-69 years (32.99%). These results could be a piece of evidence that age is one of the risk factor for the development of DM.

Data on the educational status of the patients helped us to understand their level of literacy. Unfortunately, in our study population majority of the patients had primary school education only. This may be one of the reasons for obtaining low baseline scores in both groups. It was also noticed that majority of the patients were in the unemployed category.

On assessing the FBS, RBS and PPBS levels between the test and control group we observed, both the groups achieved diabetic control but the patients who has received proper education and counselling (intervention group) achieved better glycaemic control than the group who did not receive education and counselling (control group).This result is similar to the relevant study reports on attitude and practice[4,5]. The patients who had self-awareness about the disease by having knowledge on diabetes and regularly involving in self-care practices achieved better glycaemic control.[6]

In Attitude score analysiswe observed that there was no significant difference between control and interventional groupduring the baseline study. Similarly, a studycarried out by using the same tooltells that, diabetics do not have the appropriate attitude towards their condition during baseline study[7]. After providing proper counseling we have observed an improvement in attitude score. This may be due to the improvement in knowledge of the disease that could have changed them in misinterpretation of the illness. The practices of the patients in the intervention group were tremendously improved after counselling, where as practice scores remained more or less same in the control group. A study also reports that there is no improvement in the attitude and practice even after providing proper counselling[8].

5. CONCLUSION

The study was concluded based on the revised Diabetes Attitude Scale (DAS) and diabetes practice questionnaire scores between the intervention and control group. The improved attitude and practice scores reveal the effectiveness of the patient counselling provided by the clinical pharmacist. The intervention group, that underwent the disease education and counselling from the study pharmacist have shown better glycaemic control than the control group that received only the primary care offered by the physician in the baseline stage of the study. We conclude that better improvements and changes in good attitude and practice among diabetics can be improved only through education and training programmes. Because of the physician's busy schedule, patients may not adequately interact with them regarding non-pharmacological measures of glycemic control. Therefore, it is imperative that clinical pharmacists can play a vital role in providing counselling and education programmes for better patient care and for better quality of life.

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