Impact Of Patient Counseling And Education Of Diabetic Patients In Improving Their Quality Of Life

Mahvash Iram*[1], Shobha Rani. R.H[1], Nalini Pais[2]

[1] Department of Pharmacy practice, Al-Ameen college of Pharmacy, Bangalore-560027

[2] St.Martha's Hospital, Bangalore-560001

Abstract

Objectives: The current study which is randomized comparative intervention (concurrent control) attempts to study the effect of counseling and education provided by clinical pharmacist regarding the disease and related issues to achieve glycemic control and ultimately better quality of life of Diabetic patients; which was carried out for a period of 6 months in the out-patient medicine department of St.Martha's Hospital, Bangalore.

Materials and Method: A total of 98 (53 intervention, 45 control) patients were randomized into intervention and control group by chit method. Intervention group received counseling and education along with the information leaflet; follow up was done at intervals of 2nd, 4th & 6th month after baseline. Pre-validated questionnaires for KAP & QoL were administered at the baseline and last follow up. In a group of 25 patients HbA1c was recorded at baseline & last follow-up. All the parameters (FBS, PPBS, HbA1c) and scores were compared between intervention & control group post counseling. Significant improvement (P<0.05) was observed in the intervention group in terms of glycemic control and HbA1c values in comparison with the control group.

Results: In the intervention group; Knowledge about the disease improved (P<0.05) along with better compliance to diet, however change in attitude towards need for exercise and regular checkups could not be achieved but significant improvement (p<0.05) in Quality of Life (QoL) was achieved with education and counseling.

Conclusion: The findings revealed that the clinical pharmacist can contribute to the better management of diabetes through patient education and counseling.

Corresponding Author:

Miss. Mahvash Iram

Department of Pharmacy practice, Al-Ameen college of Pharmacy, Bangalore-560027.
Email: mahvashiram@yahoo.co.in

Introduction

Diabetes is a global problem with devastating human, social and economic impact. Today, around 250 million people worldwide are living with Diabetes and by 2025 this total is expected to increase to over 380 million. Current estimates show that worldwide at least, two-thirds live in developing countries. The largest increases in the diabetic population in developing countries are projected to be in the most economically productive age groups.[1] India with its dubious distinction of being called, "the diabetic capital of the world" is presently estimated to have over 30 million individuals affected by this deadly disease. India is ahead of China and USA, which are in second and third place respectively. [2]

Health is defined, not only by the absence of disease, but also by the presence of physical, mental, and social well-being. Quality of life (QoL) issues are crucially important, because they may powerfully predict an individual's capacity to manage his disease and maintain long-term health and well-being. [3-7] Most studies report worse quality of life for people with diabetes compared to the general population, especially regarding physical functioning and well-being.

The increasingly strong interest in evaluating QoL outcomes in clinical research is heartening. To a large degree, this interest reflects the growing recognition that QoL is, in the vast majority of cases, the single most important clinical and research outcome. The true impact of a successful medical intervention can be understood to largely reflect the degree to which said treatment has a positive influence on patients' immediate and/or future well-being. Consequently, medical research and care is slowly becoming more patient-focused, and there is a growing appreciation of the patient's perspective on health, disease, and medical treatments.[8-10]

The educational approach has undergone a change from the traditional, authoritative prescribing to a more informal, interactive type. The patient plays an active role and is able to make decisions, learn practical skills for the treatment and be continuously involved in the day to day management of diabetes. [11] The diabetes education programs should be combined with counseling and psychological intervention if they are to be really effective. Psychological care will enhance educational and medical intervention. Behavior oriented patient education has been shown to be more potent than just elongated lectures.[12] Clinical Pharmacists, being one of the indispensable members of the health care team, have an immense responsibility for counseling and educating these patients in order to imply better patient care and hence aims the project.

Materials And Methods

Study Location

This study was carried out in the out-patient medicine department of St.Martha's Hospital, Bangalore, India, after obtaining the ethical clearance from Institutional Ethical Review board of the hospital. Informed consent was taken from the patients before enrolling them in the study.

Study Population

All male and female outpatients with or without co-morbid conditions, diagnosed with diabetes mellitus in the medicine OPD referred by the treating doctors were included where as Pediatric and pregnant diabetic patients were excluded from the study. A total of 98 patients were included.

Randomization

Patients were randomized into intervention (53 patients) and control group (45 patients) with the aid of chit method, as the patients visited the clinical pharmacist they picked a chit in which it was written as intervention or control and were included in the group which was written in the chit. This method prevented the bias of inclusion. Data and details of patient and patient's condition were collected from the OPD card, lab reports and prescriptions of the patients.

Clinical pharmacist visited the outpatient department and recruited the patients into intervention and control group. Intervention group received counseling and Patient Information Leaflet (PIL) control group did not receive any counseling and PIL. Patient information leaflet (PIL) was validated using an acceptability questionnaire consisting of nine questions. Most acceptable answer was given highest score. Scoring was done in ascending pattern of acceptability.

Tools Used For The Study

A pre validated KAP [13] Questionnaire which contained 22 items and divided into two sections one of knowledge, another of attitude & Practice; was administered to evaluate the patient's knowledge about the disease & medications. A pre validated QoL Questionnaire [14] (SF-20) containing 20 items and divided into six different quality domains was administered to assess the quality of life at baseline & final follow up.

The patients' fasting and post prandial blood sugar levels and other details were recorded in a suitably designed data collection form from their OPD cards and lab report at baseline and each follow up. Glycosylated hemoglobin (HbA1c) was recorded in 25 patients from intervention and control group at baseline and final follow up. After enrolment patients in the intervention group were educated about diabetes mellitus, its management, complications, life style modifications, importance of adhering to medications, frequent monitoring of blood glucose levels, emphasis was given on diet & physical activities with the help of one to one interview and information leaflet which contained tips about the disease, regarding the diet, exercise and other lifestyle modifications to be followed. Patients in the control group received the leaflet at the end of the study. The Data was analyzed by SPSS software using Independent't' test for statistical interpretation.

Results

During the study period 98 patients were included as per inclusion criteria. 53 patients were in the intervention group and 45 in control group. Two groups were matched and found no significant different with reference to Education, Age, Gender & Occupation.

Table 1 Demographic Profile

Demographic Details	Intervention Group (n)	Control Group (n)
Gender		
Males	19 (35.8%)	20 (44.4%)
Females	34 (64.2%)	25 (55.6%)
Age		
50-59 yrs	19(35.8%)	19(42.2%)
Duration of Disease		
1-5 yrs	24(45.3%)	21(46.7%)
Family History Of DM	49(92.5%)	41(91.1%)
Co-Morbid Hypertension	19 (35.8%)	23(51.2%)
Occupation		
House Wife	26 (49.1%)	21 (46.7%)
Retired	5 (9.4%)	7 (15.6%)
Self Employed	5 (9.4%)	4 (8.9%)
Service (Pvt)	13 (24.5%)	9 (20.0%)
Service (Govt)	3 (5.7%)	3(6.7%)
Others	1 (1.9%)	1(2.2%)

The demographic details of the patients are depicted in Table 1 and Table 2 shows the medication details respectively.

Table 2 Treatment Details

Medications	Intervention N (53)	Control N (45)
Insulin	4 (7.5%)	3 (6.6%)
Insulin + Oral Hypoglycemic Agent (OHA)	11 (20.7%)	9 (20.0%)
Single OHA	19 (35.8%)	6 (13.3%)
Comb of OHA's	29 (54.7%)	27 (60.0%)

There was no significant difference between intervention and control group at the baseline values of fasting blood sugar (FBS) and post prandial blood sugar (PPBS), II and III follow up values were significantly better (<0.05) with intervention, whereas control group showed no improvement which is depicted in Table 3.

Glycosylated hemoglobin (HbA1c) is the internetionally accepted test for glycemic control, hence was tested on a group of 25 subjects (16 intervention & 9 control). Small number was taken due to financial constraints. Table 3, shows a significant reduction in the HbA1c of intervention group. Fidnigns demonstrate that the domains of KAP & QoL improved significantly after the intervention. Detaisl are shown in Table 4 & 5.

Discussion

This study evaluated the impact of counseling and education on diabetic patients, results indicated significant differences in the knowledge & quality of life of the subjects enrolled in the intervention group in comparison with control group.

Table 3 Mean Fasting blood sugar levels, Mean post prandial blood sugar levels and Mean HbA1c levels at different follow ups

Test	Type	Intervention	Control
FBS	*Follow up I*	168.5 mg/dl	185.2 mg/dl
	Follow up II	155.1 mg/dl	225.7 mg/dl
	Follow up III	151.1 mg/dl	190.5 mg/dl
	Baseline	196.8 mg/dl	188.6 mg/dl
PPBS	*Follow up I*	252.3 mg/dl	285.2 mg/dl
	Follow up II	263.7 mg/dl	281.9 mg/dl
	Follow up III	227.4 mg/dl	284.1 mg/dl
	Baseline	290.2 mg/dl	282.1 mg/dl
HbA1c	*n*	16	9
	Follow up (6th month)	9.25	11.53
	Baseline (0 month)	11.1	11.28

* n - Number of patients

Table 4 Comparison of post intervention knowledge & attitude scores by domains between intervention and control groups

Domain	Values	Intervention	Control
Domain of Knowledge	Mean	12.91	6.82
	SD	±1.63	±2.54
	P	0.000	
Domain of Attitude and Practice	Mean	4.36	1.62
	SD	±0.81	±0.81
	P	0.000	

* n - Number of patients
Independent 't' test applied for statistical results

Diabetes presents a substantial socioeconomic and quality-of-life burden, mainly as a consequence of its chronic complications. Despite unequivocal data that chronic complications can be prevented or delayed by improved glycemic control and treatment of concomitant cardiovascular risk factors, a large proportion of individuals with diabetes develop these complications. [15] One reason for the poor outcomes in individuals with diabetes is the lack of patient's participation in the treatment of the disease. Patient involvement is a key success factor in the treatment of diabetes that demands motivation, knowledge, and compliance to a difficult and complex lifetime regimen.[16]

Managing chronic disease requires behavioral changes along with lifestyle modifications, which holds good for diabetic patients also who inorder to manage the disease effectively needs to have an immense knowledge and understanding about the same. A total of 98 patients were enrolled of which 54.08% patients were designated into

Table 5 Comparison of post intervention QOL scores by domains between intervention and control groups

Item	Group number	n	Mean	SD	P
Role function	intervention*	53	3.64	±0.56	0.000
	Control	45	2.53	±0.87	
Physical pain	intervention*	53	2.34	±0.48	0.001
	Control	45	1.93	±0.69	
Physical functioning	intervention	53	9.40	±0.66	0.128
	Control	45	8.69	±3.28	
Social well being	intervention*	53	2.58	±0.60	0.000
	Control	45	3.78	±0.95	
Mental health	intervention*	53	19.38	±1.57	0.000
	Control	45	16.91	±2.68	
Health perception	intervention*	53	9.62	±1.56	0.036
	Control	45	8.80	±2.25	

* n - Number of patients Independent 't' test applied for statistical results

intervention group and 45.91% patients into control group. Female gender comprised the majority in both the groups. The literacy rate in the intervention group as seen in most of the patients was preliminary, poor literacy rates authenticates the fact that the knowledge about the disease and its management will be poor and hence counseling provided by the clinical pharmacist proves to have a great impact on their further well-being, this is also proved with the study carried out by Emel Ozer et al [17]

Patients suffered from various co-morbidities such as IHD, CKD, Respiratory problems etc among which hypertension was commonest and which increases the risk of cardiovascular complications. At this stage management of the disease becomes very crucial in order to maintain a balance and hence the required support can be provided by counseling and education.

The KAP questionnaire used contained the questions regarding their knowledge about disease and ways they adopt to manage it. There was an incredible improvement in the KAP of intervention group post counseling; however their attitude towards the physical functioning did not improve much which was attributed to

the socio-economic reasons.

It was noted during the study that almost all the patients were unaware about hypoglycemia and its management irrespective of being educated. Even the patients who had a strong family history of disease were unaware. Educating such patients was most important as it is the major implication that has to be considered during the therapy.

QoL questionnaire (SF-20) was used to assess the quality of life of the patients' pre and post counseling in comparison with the control group. This questionnaire was classified into six different domains viz; role functioning, physical pain, social well being, mental health, health perception, physical functioning. A noted improvement in the QoL was observed where the subjects were counseled. The overall well being and quality of life with respect to all the domains improved except physical functioning.

The glycemic control of the subjects was measured in terms of fasting and post prandial blood sugar levels. HbA1c was measured in a group of 25 patients due to financial constraints. A statistically significant (<0.05) betterment was observed in the blood glucose levels and HbA1c in the intervention group. At the final follow up the intervention group subjects had a total improvement in terms of both glycemic control and QoL.

Counseling improved the motivation of individual to improve physical status but if the physical disability is due to disease like IHD, neuropathy or CKD then it did not change. In cases where counseling did not help much, it may be attributed to different factors which play a significant role such as; socio economic status, which limit changes in lifestyle, though there was a increase in knowledge, an improvement in their attitude over 6 months did not allow them to change their lifestyle. Short duration of counseling and counseling in the later stages of disease and in case of patients with early onset also could possibly be one of the factors for the counseling to be ineffective in some patients.

Treatment of diabetes can be summarized as, balance between intake, compliance with the drugs and increased utilization of calories with exercise. It is considered ideal to have all three but if at least the first two are achieved, it is seen that the patient's sugar levels improved.

The reduction in the mean blood sugar levels and mean HbA1c in the intervention group justifies the above statement. Hence with increase in the knowledge of patients about the disease and its treatment through pharmacist's counseling, better control of diabetes can be achieved.

Limitation

One of the major limitaion of our study was follow up of the patients. In Indian scenario compliance to therapy and regular visit to hospital is not a practice, hence periodical follow up was a problem.Convincing the patients to increase the physical activity also was tideous which is even reflected in the result.

Conclusion

Study concludes by stating that statistically significant difference in the QOL of patients was observed in Intervention group after patient counseling and education. Knowledge about the disease improved along with better compliance to diet. However change in attitude towards need for exercise and regular checkups could not be achieved. Better Quality of Life and glycemic control of diabetic patients was achieved with education and counseling provided by the clinical pharmacist. Overall, it can be concluded that the clinical pharmacist can contribute to better management of diabetes through patient education and counseling.

Acknowledgements

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Conflict of interest:

All the authors have no conflict of interest