RESEARCH ARTICLE

Study on Role of Clinical Pharmacist in counselling of Diabetic Patients

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ABSTRACT

Background: Diabetes Mellitus (DM) is one of the major causes of illness and disability across the world. Patient knowledge, Attitude, Practice (KAP) of the diabetes is an important aspect and it has direct effect on quality of life(QOL).The main objective of the study is to assess the impact of clinical pharmacist provided patient counseling in diabetes patients in a tertiary care teaching hospital.

Methodology: A prospective interventional study was conducted in general medicine department for six months. About one hundred and twenty patients were enrolled and counseled from day of admission to day discharge through oral counselling, patient information leaflet & pictorial aid. Suitably designed KAP questionnaire based on disease condition was administered and responses were coded at baseline and after counselling. The collected data were analyzed by using SPSS 19.OV.1BM software.

Results: The study participants had a mean (SD) age of 53.96 ± 13.25.The mean$\pm$SD of post counselling knowledge score was 11.58 ± 1.96, Attitude 4.64 ± 0.85, Practice 4.71 ± 1.32, with maximum possible score for knowledge, Attitude, Practice being 14.5 and 3 respectively.

Conclusion: At the end of the, study the score of post counselling on Knowledge, Attitude and Practice were significantly improved ($P < 0.001$).Hence this study conclude that patient counselling by clinical pharmacist can play a vital role in imparting education to the diabetic patients.

Key Words: Diabetes Mellitus, Knowledge, Attitude, Practice, Patient Counseling, Clinical Pharmacist, QOL

INTRODUCTION

Diabetes

Diabetes mellitus is a clinical syndrome characterized by hyperglycaemia caused by absolute or relative deficiency of insulin.[1] Diabetes is fast gaining the status of a potential epidemic in India with more than 62 million diabetic individuals currently diagnosed with the disease. In 2000, India (31.7 million) topped the world with the highest number of people with diabetes mellitus. It is predicted that by 2030 diabetes mellitus may afflict up to 79.4 million individuals in India. The aetiology of diabetes in India is multifactorial and includes genetic factors coupled with environmental influences such as obesity associated with rising living standards, steady urban migration, and lifestyle changes.[2] Twenty to forty percent of patients with type 1 DM present with diabetic ketoacidosis after several days of polyuria, polydipsia, polyphagia, and weight loss. Lethargy, polyuria, nocturia, and polydypsia can be seen at diagnosis in type 2 diabetes, but significant weight loss at diagnosis is less common.[3] Diabetes is a chronic illness that requires a combination of pharmacological and non-pharmacological measures for better control. Patient adherence to medication and life style modifications plays an important role in diabetes management.[4]

Medical nutrition therapy is recommended for all persons with DM.Aerobic exercise improves insulin resistance and glycemic control in the majority of individuals, and reduces cardiovascular risk factors, contributes to weight loss or maintenance, and improves well-being.Until 1995, only two options for pharmacologic treatment were available for patients with diabetes; sulfonylureas (for type 2 DM only) and insulin (for type 1 or 2).Currently,

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six classes of oral agents are approved for the treatment of type 2 diabetes: α-glucosidase inhibitors, biguanides, meglitinides, peroxisome proliferator-activated receptor γ-agonists (which are also commonly identified as thiazolidinediones [TZDs] or glitazones), DPP-IV inhibitors, and sulfonylureas.[5]

Patient Counselling

Patient counselling is defined as "the process of providing information advice and assistance to help patients use their medications appropriately." The information and advice is given by the Pharmacist directly to the patient or to the patient's representative, and may also include information about the patient's illness and recommended lifestyle changes. The information is usually given verbally, but may be supplemented with written material.

Communication skills are key parameters which greatly influence the patient counselling. Pharmacist must use proper communication skills during the counselling for effective counselling. This plays important role in medication adherence of the patient.

Steps of patient counselling:

As counselling is a two-way communication process, it is must to have interaction between pharmacist and patient for effective patient .There are four steps involved in the process of namely: Preparing for the session, Opening the session, content and Closing the session. Patient counselling is very essential parameter of clinical pharmacy practice. This enhances patients understanding of their illness and treatment. Counselling may also improve the patients' adherence and subsequently therapeutic outcome.[6]The role of pharmacist has changed dramatically over the past three decades. The clinical pharmacy grew with the concept of pharmaceutical care, the responsible provision of drug therapy for the purpose of achieving definite outcomes which improve the patients' quality of life.Patient counselling is an important means for achieving pharmaceutical care.[7]

Diabetes is a chronic, incurable condition that has considerable impact on the life of each individual patient. Patient involvement is paramount for the successful care of diabetes. The principal task of the health care team is to give each patient knowledge, self- confidence and support.Studies have confirmed that the complications of diabetes can be reduced by proper control of blood glucose. The proper control is dependent on the patient's adherence to medications, life style modifications, frequent monitoring of blood glucose, etc and can be influenced by proper education and counselling of the patient.[8]

OBJECTIVES

The present study was conducted to assess the Knowledge, Practice and Attitude of patients towards Diabetes mellitus and its management.

METHODOLOGY

It was a prospective interventional study carried out for a period of six months from November 2015 to April 2016 in Navodaya Medical College Hospital & Research Centre, Raichur, a thousand bedded tertiary care teaching hospital. A total of 120 patients were randomly enrolled in the study on their visit to hospital.

Inclusion Criteria

- Patients admitted in General Medicine department.
- Patients with h/o of Diabetes mellitus, with or without co morbidities and prescribed with anti-diabetic drugs.
- Patients of both sex and aged between 18 - 80 years.
- Presence of signs and symptoms which are suspected to have diabetes.
- Patients who are willing to give consent to participate in this study.

Exclusion Criteria

- Patients who are not willing to or unable to give consent to participate in the study.
- Pregnant women and pediatric patients with h/o DM.
- Patients visiting OPD.
- Patients admitted in the ICU and casualty department.

Study Procedure

A separate data entry form for incorporating inpatient details was designed. The study was approved Institutional Ethics Committee (IEC) of NMCH & RC. The study was explained to the patients and their consent was obtained. KAP was assessed using KAP questionnaire.

KAP questionnaire was suitably designed and administered at baseline and at the final follow-up to all the study patients to assess awareness regarding the diabetes and its management. The questionnaire covered three areas: knowledge,

attitude, and practice. There were a total of 26 questions, with 14 questions related to knowledge about diabetes, 5 questions to assess the attitude of the patient towards the disease, and 6 questions regarding practices (which reflect how the patients put their knowledge and attitude into action) and the last question to assess the effectiveness of patient.

Statistical analysis

1. Data entered in MS Excel sheet.
2. Data analysis was done by using SPSS 19.OV.1BM.
3. Analysis Report:

   a. Qualitative data was expressed in ± proportions / %.
   b. Quantitative data was expressed in ±mean and SD.

4. Comparison of mean score between pre and post for knowledge attitude and practice was done by using paired 't' test and p value >0.05 and >0.001 was considered as significant and highly significant respectively.

RESULTS

A total number of 120 diabetic patients were enrolled in the study. Seventy (58%) were male and fifty (41.7%) were women. Majority of them were; between 60-69 years (28.3%), with type 2 diabetes (95%), on oral hypoglycemic (60%) and having family history of diabetes (57.5%). Of the 120 patients, 61.7% had received no formal education and for all educational levels, men had a higher overall percentage than women. Oral hypoglycemic agents were used by 72 patients to manage their disease followed by insulin use (20.8%). However fifteen subjects were using both oral hypoglycemic agents and insulin while only eight (6.7%) followed the controlled diet to maintain their blood sugar level. The detailed demographic details of the enrolled patients are depicted in the Table No.1.

Assessment of patient counselling using KAP questionnaire

As there is no cure for DM, the key instrument is to educating the people about diabetes. Patient education was found to be key variable in assessing the knowledge, attitude and practice of disease in patients. It has been observed that most of the individuals do not have correct and complete information about DM and its control. Patient counselling has become a corner stone for pharmaceutical care and improves patient quality of life.

The knowledge, attitude and practice about DM was assessed at baseline and after counselling with structured KAP questionnaire containing 26 questions related to disease, causative factors, medications and life style modifications.(Table No.2,3,4).At the end of the study, the score of post counseling on Knowledge, Attitude And Practice were significantly improved (P <0.001).(Table No. 5)

Table No.1Demographic characteristics of diabetic patients

Characteristic	Number of participants	Percentage (%)
Age (in years)		
<40	13	10.8
40-49	32	26.7
50-59	23	19.2
60-69	34	28.3
≥70	18	18
Gender		
Male	70	58.3
Female	50	41.7
Educational level		
Illiterate	74	61.7
Literate	46	38.3
Family history		
Yes	51	42.5
No	69	57.5
Duration of diabetes		
<1	37	30.8
1-4	54	45
5-9	16	13.3
≥10	13	10.8
Type of medications using		
Oral hypoglycemics	72	60
Insulin injection	25	20.8
Both insulin and oral drugs	15	12.5
No medication, just diet	8	6.7

Table No. 2 Response towards Knowledge Questions

S. NO	KAP Questionnaire	Pre counselling		Post counselling		Total No. of patients	P - Value
		Yes(%)	No(%)	Yes(%)	No(%)		
1	Do you know diabetes is a disease?	104 (86.6)	16 (13.3)	120 (100)	0	120	
2	How many types are there?	10 (8.3)	110 (91.6)	96 (80)	24 (20)	120	
3	What is the level of blood sugar in diabetes?	44 (36.6)	76 (63.3)	100 (83.3)	20 (16.6)	120	
4	Is there positive family history for the development of diabetes?	63 (52.5)	57 (47.5)	97 (80.8)	23 (19.1)	120	
5	Is the infection major cause of diabetes?	15 (12.5)	105 (87.5)	64 (53.3)	56 (46.6)	120	
6	What are the symptoms of diabetes?	79 (65.8)	41 (34.1)	116 (96.6)	4 (3.3)	120	
7	Which is the most accurate method of blood sugar estimation?	18 (15)	102 (85)	83 (69.1)	37 (30.8)	120	
8	What happen if diabetes is not treated?	29 (24.1)	91 (75.8)	107 (89.1)	13 (10.8)	120	<0.0001
9	Which life style modification required for the diabetes?	69 (57.5)	51 (42.5)	119 (99.1)	1 (0.8)	120	
10	Why urine examination is important in diabetes?	26 (21.6)	94 (78.3)	96 (80)	24 (20)	120	
11	Which diet is restricted in diabetes?	102 (85)	18 (15)	120 (100)	0	120	
12	Is exercise having beneficial role in diabetes?	48 (40)	72 (60)	102 (85)	18 (15)	120	
13	What is insulin?	16 (13.3)	104 (86.6)	86 (71.66)	34 (28.3)	120	
14	What are the complications of diabetes?	10 (8.3)	110 (91.6)	105 (87.5)	15 (12.5)	120	

Table No. 3 Response towards Attitude Questions

S. NO	KAP Questionnaire	Pre counselling		Post counselling		Total No. of patients	P - Value
		Yes(%)	No(%)	Yes(%)	No(%)		
15	Should we follow a controlled and planned diet to prevent diabetes?	65 (54.1)	55 (45.8)	112 (93.3)	8 (6.6)	120	
16	Do you think checking of your blood sugar level is important?	81 (67.5)	39 (32.5)	111 (92.5)	9 (7.5)	120	<0.0001
17	Should we keep in touch with physician regularly?	77 (64.1)	43 (35.8)	110 (91.6)	10 (8.3)	120	
18	Do you think regular medication is important in diabetes?	94 (78.3)	26 (21.6)	117 (97.5)	3 (2.5)	120	
19	Should we exercise regularly for healthy life?	71 (59.1)	49 (40.8)	110 (91.6)	10 (8.3)	120	

Table No. 4 Response towards Practice Questions

S. NO	KAP Questionnaire	Pre counselling		Post counselling		Total No. of patients	P - Value
		Yes(%)	No(%)	Yes(%)	No(%)		
20	When was your blood pressure checked last?	115 (95.8)	5 (4.1)	117 (97.5)	3 (2.5)	120	
21	When was your last visit with your physician?	106 (88.3)	14 (11.6)	113 (94.1)	7 (5.8)	120	
22	When was your last urine examination done?	90 (75)	30 (25)	98 (81.6)	22 (18.3)	120	<0.0001
23	When did you have your last lipids checked?	53 (44.1)	67 (55.8)	72 (60)	48 (40)	120	
24	When was your blood sugar level checked last?	109 (90.8)	11 (9.1)	118 (98.3)	2 (1.6)	120	
25	When did you have gone for exercise last?	48 (40)	72 (60)	67 (55.8)	53 (44.1)	120	
26	Was the patient counselling provided by clinical pharmacist helpful to improve your quality of life?			120 (100)		120	

Table No.5 Baseline and final values of Knowledge, Attitude and Practice

Variables		N	Mean	Std. Deviation	t	df	p	Inference
Knowledge	Pre	120	5.50	2.87	-27.453	119	0.0001	Highly significant
	Post	120	11.58	1.96			(<0.001)	
Attitude	Pre	120	3.28	1.56	-10.250	119	0.0001	Highly significant
	Post	120	4.64	.85			(<0.001)	
Practices	Pre	120	4.25	1.45	-5.376	119	0.0001	Highly significant
	Post	120	4.71	1.32			(<0.001)	

DISCUSSION

Our study found that the prevalence of diabetes was more in males (58.3%) than in females (41.7%) as in which is supported by Bolluetal study.[9]Most of them were uneducated (61.7%) as in similar finding have been reported by Zeyana S. etal.[10] About 57.5% patients reported a positive family history of DM which is similar to the study carried out in Muscat region of sultanate of Oman by Zeyana S. etal.[10,11]One more study conducted in Erode by Malathy R etal showed negative family history of DM. Among the males, 40.8% were smokers and 29.2% were alcoholics which is supported by Ramanath etal study.[12]The study found that although 45% of patients presented with DM from 1 to 4 years.[11,12]The American Diabetic Association has advised that education on self-management is essential to provide the person with Diabetes with the knowledge and skill that is needed to perform self-care manage crisis and make lifestyle changes. The KAP questionnaire used in this study was developed to assess the perception of the patients about their disease and to assess the change in the perception after pharmacist counselling.The changes in the average KAP scores of each group (pre and post counselling) were statistically analysed. The baseline values of Knowledge, Attitude and Practices score were 5.50 ± 2.87, 3.28 ± 1.56 and 4.25 ± 1.45 and it was significantly improved up to 11.58 ± 1.96, 4.64 ± 0.85 and 4.71 ± 1.3 after counselling. The KAP score of post counselling patients were highly significantly improved ($p < 0.001$) after clinical pharmacist counselling. After counselling patients has received extensive education regarding their disease management, medication importance, dietary and lifestyle modifications necessary to control their disease, showed a significant improvement in KAP score.

CONCLUSION

We conclude from the present study that, Knowledge, Attitude and Practice scores has been increased from before counselling to after.The score of post Knowledge, Attitude and Practice were significantly improved (P <0.001).We strongly feel that there is a need to design and develop individualized diabetes educational program that could help in diabetes management and improvement of quality of life.

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CONFLICT OF INTEREST

Authors declared there is no conflict of interest.

ABBREVIATION USED

DM	Diabetes Mellitus
DPP-IV	Dipeptidyl peptidase - 4
ICU	Intensive Care Unit
IEC	Institutional Ethics Committe
KAP	Knowledge Attitude Practice
MS	Microsoft
NMCH	Navodaya Medical College Hospital
OBG	ObstetricAnd Gynaecology
OPD	Out patient department
QOL	Quality of Life
RC	Research Centre
SD	Standard Deviation
SPSS	Statstical Package For Social Science
TZD	Thiazolidinediones

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