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Depression In Type 2 Diabetes Mellitus : A Cross-Sectional Study In Tertiary Care Teaching Hospital In India.

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Abstract

Introduction: In our country, number of patients of diabetes is increasing every year, so of depression. The emotional consequences of diabetes have been scrutinized in a number of studies and varying results about the association of depression with type 2 diabetes mellitus have been found. While depression may contribute to poor diabetes-related outcomes, diabetes and its complications may also contribute to poor depression outcomes. Both conditions may have common underlying biological and behavioural mechanisms, such as genetic susceptibility and common pathophysiological mechanism.

AIM-To assess the prevalence and the factors associated with depression among the patients with type II diabetes mellitus.

Materials and Methods: Single centre, descriptive, cross-sectional study conducted in tertiary care teaching hospital in india for a period of 8 months. 586 type II diabetes patients aged between 30 and 70 years were included. Patients taking mood elevator drugs ,suffering from mental illness, gestational diabetes and type 1 diabetes were excluded from the study. Physicians Health Questionnaire-9 (PHQ-9) with a score of ≥ 5 was used to make the diagnosis of depression.

RESULTS- Prevalence of depression among the diabetic patients found to be 49.48%. Many factors have been found to be associated with increased prevalence of depression among diabetic patients such as age, female gender, house wife, high BMI, diabetes duration, diabetes related complications, comorbid conditions and poor glycaemic control with poor follow-up.

Conclusion: By managing both depression and diabetes concurrently, better outcome in patients and increase in overall quality of life can be achieved. Early detection and treatment of depression by effectively screening all diabetic patients for depression would help to bring down the severity of depression among these patients.

Key Words: Type 2 diabetes mellitus,depression, quality of life .

INTRODUCTION

According to the International Diabetes Federation “diabetes is one of the largest global health emergencies of the 21st century”¹. The World Health Organization (WHO) predicts that more than 360 million people worldwide will have diabetes by 2030².Diabetes is increasing in every country, but eighty percent of people with diabetes live in low income and around half of those are undiagnosed³. Depression is a common and very serious medical disease with a lifetime prevalence ranging from approximately 11% in low-income countries to

15% in high-income countries⁴. On the other hand, depression may increase the risk of developing type 2 diabetes with 60%^{5,6}.

There has been increased attention given to how psychological issues affecting Diabetes Mellitus (DM) self-management, as well as the psychological consequences of having the diabetes. Being diagnosed with diabetes is a major life stress. It requires a large number of physical and mental accommodations. The individual must learn about a complex system of dietary and medical

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interventions with lifestyle modification. This can consume a lot of energy of individual. As a result of this they go through the typical stages of mourning which include denial, anger, depression and acceptance⁷.

It seems that there is a bidirectional association between diabetes and depression, a complex relation that might share biological mechanisms, whose understanding could provide a better treatment and improve the outcomes for these pathologies^{7,8}. The aim of this study is to determine the prevalence of depression and the factors associated with it among patient with diabetes mellitus.

The objectives are to determine the prevalence of depression among patient with diabetes mellitus and to identify factors associated with depression among patients with type 2 diabetes mellitus.

METHODS

This was an Institution based cross-sectional study design was used to assess associated factors of depression among type 2 diabetic outpatients. The study was conducted from July, 2016 to march 2017. Patients -All type 2 diabetes out-patients on

follow up treatment in diabetes clinic.

Subjects and Selection-T2 DM patients aged between 30 and 70 years were included in our study. We chose a structured questionnaire PHQ-9. The Inclusion Criteria were Individuals diagnosed as Type-2 Diabetes Mellitus and Age between 30 to 70 years. The exclusion criteria were Individuals with type 1 diabetes mellitus, Patients taking mood elevator drugs ,suffering from mental illness,gestational diabetes and type 1 diabetes, All data was entered and analyzed using Statistical Programfor Social Sciences (SPSS) version 12. 0 (SPSS Inc.2003).

RESULTS

In our study the prevalence of depression among the diabetic patients was 49.48% .

Among the various clinical parameters we found a significant association ($p < .01$) for patients with gender, occupation, income, BMI, duration of diabetes, complication of diabetes, uncontrolled blood sugar of more than 200 mgs/dl.

Table -1 below enumerates all the above factors and the level of depression among the patient. Further Figures1.1 to 1.10 are graphical depiction of above data

TABLE-1 SHOWING FACTORS AND THE LEVEL OF DEPRESSION AMONG THE PATIENT

Demographic factors	DEPRESSIO N PRESENT	DEPRESSION- ABSENT	CHI-SQUARE VALUE	P- VALUE
	290	296		
Gender				
Male(n=310)	133(42.90%)	177(57.09%)	11.4168	0.000728
Female(n=276)	157(56.88%)	119(43.11%)		
Age				
30-40yrs(n=226)	106(46.90%)	120(53.09%)	0.9837	0.32128
41-70yrs(n=360)	184(51.11%)	176(48.88%)		
Religion				
Hindu(n=270)	133(49.25%)	137(50.74%)	16.4118	0.000934
Muslim (n=216)	102(47.22%)	114(52.77%)		
Christian(n=24)	5(20.83%)	19(79.16%)		
Sikhs/sindhi (n=76)	50(65.78%)	26(34.21%)		
Education				
Illiterate(n=230)	104(45.21%)	126(54.78%)	2.7623	0.96509
Educated(n=356)	186(52.24%)	170(47.75%)		

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Occupation Service(n=170) Private job(n=110) Farmer(n=154) Bussiness(n=152)	102(60%) 60(54.54%) 46(29.87%) 82(53.94%)	68(40%) 50(45.45%) 108(70.12%) 70(46.05%)	33.5596	0.00001
Income <10000rs(n=350) >10000rs(n=236)	203(58.0%) 87(36.86%)	147(42.0%) 149(63.13%)	25.1893	0.00001
Body mass index <25 (n=240) > 25 (n=346)	91(37.91%) 199(57.51%)	149(62.08%) 147(42.48%)	21.7725	0.00001
Diabetes duration <5 years (n=223) 5 to 10yrs(n=199) > 10 yrs(n=164)	136(60.98%) 68(34.17%) 86(52.43%)	87(39.01%) 131(65.82%) 78(47.56%)	31.0436	0.00001
Co-morbid illness present(n=310) absent(n=276)	167(53.83%) 123(44.56%)	143(46.12%) 153(55.43%)	5.058	0.024512
Diabetic complications present(n=138) absent(n=448)	97(70.28%) 193(43.08%)	41(29.71%) 255(56.91%)	31.2468	0.00001
Controlled diabetes yes(n=370) no(n=216)	140(37.83%) 150(69.44%)	230(62.16%) 66(30.55%)	54.5028	0.00001

In our study the prevalence of depression among the diabetic patients was 49.5% and based on scores we graded them no depression (50.51%), mild to moderate depression(42.32%) and severe depression (7.16%).

TABLE 2- DISTRIBUTION OF THE PATIENTS BASED ON THEIR LEVELS OF DEPRESSION

Level of depression	FREQUENCY N=586	PERCENTAGE %
No depression (0 – 10)	296	50.51%
Mild to moderate depression (5 – 19)	248	42.32 %
Severe depression (20 – 27)	42	7.16 %
Total	586	100%

DISCUSSION

Depression being one of the major psychiatric disorders would have a negative effects towards the quality of life, treatment outcome and medication adherence of patients with diabetes In our study the prevalence of depression in diabetic patient was 49.48%. The result of our study is higher than study done by Ali et al (27.05%)⁹, Jameel Nasser et

al (33.3%)¹⁰, Al Ghamdi AA (34%)¹¹, Waleed M Sweileh et al(40%)¹²,Subhash Das et al(41%)¹³. In a study done by in a Ranjan Das et al in urban areas of Kolkata, 46.15% met criteria for depression¹⁴.

The depression prevalence in different studies could be due to difference in sociodemographic characteristics, ethnicity, geographical area and

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life style of individuals. In our study depression was associated with females, lower income, BMI, presence of complications, duration of diabetes, uncontrolled blood sugar and similar findings were observed by Amit Raval et al¹⁴, Waleed M Sweileh et al¹² and Jameel Nasser et al¹⁰. We found a significant correlation between earning. Individuals with low earning face the twin burdens of paying for health care, which in India is largely out-of-pocket, and meeting the needs of their children. In our study statistically significant association was found between fasting blood sugar levels and depression. Increasing FBS levels were observed in depressed individuals when compared with non-depressed individuals. Similar findings were observed in a study done by Bajaj et al¹⁶. About 43.5% of the study participants experienced somewhat difficulty in carrying out daily activities as per the PHQ-9 questionnaire. This could have led to poor compliance to medication which could have led to poor outcome of the disease. Similar findings were observed in study done by Habtewold et al in Ethiopia⁹. Diabetic complications were found to be strongly associated with increasing depression severity. Similar findings were observed in a study done by Joseph et al in Mangalore³⁰. DM is a chronic physical disorder that requires lifestyle alterations and medication adherence for its successful treatment and better quality of life.

CONCLUSION

The prevalence of depression among the study patient was found to be 49.48%. Depression was found to be higher in female gender, higher age, and lower socioeconomic status. Presence of complications, duration of treatment was found to be significantly associated with depression. Although majority of depressed patients were unrecognized and untreated. Better outcome in patients overall care and quality of life will be achieved by managing both the depression and diabetes concurrently. Regular assessment of Diabetics for depression is required for wellbeing of diabetic patients. Integrated approach by physician and psychiatrists for effective management of diabetes and counselling of patients will help in preventing the depression.

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