Research Article

Prevalence of depressive symptoms in patients of diabetes mellitus

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ABSTRACT

Objective: To assess the depressive symptoms in patients of diabetes mellitus presenting at DHQ Hospital Vehari
Materials & Methods: This cross sectional study consisted on 196 diabetics selected from DHQ Hospital Vehari from April 2017 to October 2017. Depressive symptoms were assessed in selected patients by using DSM-IV criteria for Depression.
Results: In present study mean age was 53.35 ± 6.71 years in our study with majority of the patients 97 (49.49%) were between 51 to 65 years of age.Out of the 196 patients, 89 (45.41%) were male and 107 (54.59%) were females with male to female ratio of 1:1.2. Majority of patients 54.41% belonged to upper socioeconomic status. Depression was found in 47 (23.98%) patients, whereas there were 149 (76.02%) patients having no depression.
Conclusion: Our study concluded that prevalence of depression in type 2 diabetes mellitus patients was much higher and have shown positive association with extremes of ages and duration of disease.

Keywords: Hyperglycemia, depression, complications, socioeconomic status.

INTRODUCTION

Diabetes mellitus, or simply diabetes, is a group of metabolic diseases in which a person has high blood sugar, either because the pancreas has stopped producing insulin or does not produce enough insulin, or because cells do not respond to the insulin that is produced. This high blood sugar produces the classical symptoms of polyuria (frequent urination), polydipsia (increased thirst) and polyphagia (increased hunger).[1]There is currently no cure for diabetes. The condition, however, can be managed so that patients can live a relatively normal life. Treatment of diabetes focuses on two goals: keeping blood glucose within normal range and preventing the development of long-term complications. The major long-term complications relate to damage to blood vessels. Diabetes doubles the risk of cardiovascular disease.[2] The main "macrovascular" diseases (related to atherosclerosis of larger arteries) are ischemic heart disease (angina and myocardial infarction), stroke and peripheral vascular disease.Diabetes also damages the capillaries (causes microangiopathy).[3]

Individuals with diabetes have a two-fold increased risk for depression, affecting approximately one in every five diabetic patients.[4] Hyperglycemia and insulin resistance may contribute to depression by two mechanisms: 1) through its impact on symptoms, such as fatigue and difficulty concentrating, complications, and fear of complications and 2) through physiological pathways, including inflammatory processes, and reductions in neurotrophic function, which in turn may lead to reduced plasticity of neuronal networks and subsequently depression.[5]Moreover, depression can have a negative impact on various aspects of diabetic care. For example, depression

was found to increase the incidence of both macrovascular and microvascular complications, decrease compliance with medications and healthy lifestyle measures as diet and exercise, increase health care use and expenditures, decrease quality of life, and more important increasing the risk of cardiovascular mortality, which is the leading cause of death in these patients.[6-7]

Depression decreases physical healththrough a combination of biologicaland psychological mechanisms.Psychological distress leads toneurohormonal and immunologicchanges in the body that, in turn, leadto increased susceptibility to disease.In addition, a depressed mood mayinterfere with a patient's physicalrecovery. Patients who are depressed areless likely to seek treatment and morelikely to be noncompliant with treatmentregimens than patients who are notdepressed.[8] Therefore, patients withboth diabetes mellitus and depressionare more susceptible to disease as aresult of each of these diagnoses, andthey are more likely to either not seektreatment or be noncompliant with treatment regimens for both body and mind.Though literature was available but there was marked variability of rate of depression in diabetic patients in national and international literature, so we conducted this study to reassess it in our setupand this would in turn increase the awareness of physicians, family and patients about the importance of co-morbid depression in diabetics, and this would help increasing the quality of management of these patients in our area.

MATERIAL AND METHODS

This cross sectional study consisted on 196 diabetics selected from DHQ Hospital Vehari from April 2017 to October 2017.Patients with past history of mood disorders, psychotic disorders, anxiety disorders and personality disorders, pregnant lady, patients with history of any other systemic disease, patients with history of drug addiction and patients with history of depression prior to the onset of diabetes mellitus were excluded from the study. All the selected patients were assessed for depression by using DSM-IV criteria for Depression. Findings were noted pre-desingedproformaalongwith demographic profile of all the patients. Depression was assessed by using DSM-IV criteria for depressive disorder. Diabetes mellitus was defined as: Patient of type two diabetes mellitus on oral hypoglycemic treatment for last 5 years with good control having HbA1c less than 8%.

Data was entered and analyzed with SPSS version 18. Mean and standard deviation was calculated for numerical data like age and duration of diabetes. Frequencies and Percentages were calculated for categorical data like gender and frequency of depression (yes/no). To minimize the effect of confounders, stratification was done for age, gender, family income and duration of diabetes. Chi square test was applied to see the effect of these on primary outcome. P value ≤ 0.05 was taken as significant.

RESULTS

Age range in this study was from 18 to 65 years with mean age of 53.35 ± 6.71 years. Depression was found in 47 (23.98%) patients, whereas there were 149 (76.02%) patients having no depression as shown in Figure 1. Patients were divided into 3 age group i.e. are age group 18-35 years, age group 36-50 years and age group 51-65 years. Depression was found in 6 (18.18%) patients of age group 18-35 years, 15 (22.73%) patients of age group 36-50 years and 26 (26.80%) patients of age group 51-65 years. Statistically insignificant association of age group with depression was noted with p value 0.580. (Table 1)Total 21 (23.60%) patients found with depression and 26 (24.30%) found with depression. (Table 2)

Association of depression with socio-economic status was assessed. Patients were divided into 3 groups according to their socio-economic status i.e. Rs. <10000, Rs. 10000-20000 and Rs. >20000. Depression was noted in 11 (25.0%) patients having income Rs. <10000, in 16 (25.40%) patients having income Rs. 10000-20000 and 20 (22.47%) patients having income Rs. >20000 but

statistically insignificant association between depression and socio-economic status was noted with p value 0.902. (Table 3)Two groups was made according to duration of DM i.e ≤3 years group and >3 years group. Depression rate was 13 (17.33%) in ≤3 years group and 34 (28.10%) in >3 years group. Insignificant association between duration of DM and depression was noted with p value 0.086. (Table 4)
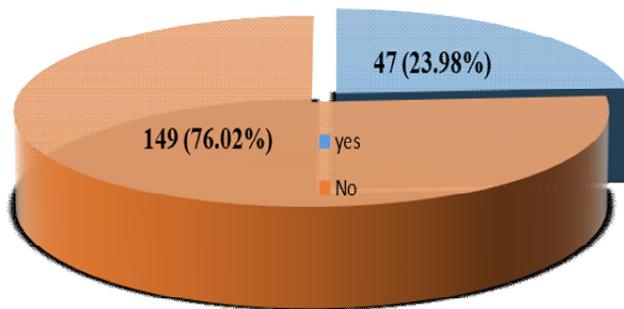
Figure 1 Frequency of depression

149 (76.02%)   47 (23.98%)   ■ yes   ■ No

Table 1 Stratification of age groups with respect to depression.

Age (years)	Depression		p-value
	Yes	No	
18-35	06 (18.18%)	27 (81.82%)	
36-50	15 (22.73%)	51 (77.27%)	0.580

51-65	26 (26.80%)	71 (73.20%)	

Table 2 Stratification of Gender with respect to Depression

Gender	Depression		p-value
	Yes	No	
Male	21 (23.60%)	68 (76.40%)	
Female	26 (24.30%)	81 (75.70%)	0.909

Table 3 Stratification of socioeconomic status with respect to depression

Socioeconomic status	Depression		p-value
	Yes	No	
<10000	11 (25.0%)	33 (75.0%)	
10000-20000	16 (25.40%)	47 (74.60%)	0.902
>20000	20 (22.47%)	69 (77.53%)	

Table 4 Stratification of duration of disease with respect to Depression

Duration of disease	Depression		p-value
	Yes	No	
≤3 years	13 (17.33%)	62 (82.67%)	
>3 years	34 (28.10%)	87 (71.90%)	0.086

DISCUSSION

We have conducted this study to determine the frequency of depression among patients of diabetes mellitus. Age range in our study was from 18 to 65 years with mean age of 53.35 ± 6.71years with majority of the patients 97 (49.49%) were between 51 to 65 years of age. Balhara YPS et al[9] and Mathew CS et al[10] in their studies had found mean age of 54 and 54 years respectively which is very much comparable to our study. On the other hand, Das R et al[11] and James BO et al[12] reported much lower mean age i.e. 46 & 45 years respectively in their studies compared to our study. In the present study, we have found a female predominance (54.59% were females and 45.41% were males with ratio of 1:1.2) as was also observed in many previous studies.[9-12]

Patients suffering from diabetes mellitus are also at a higher risk of being diagnosed with depression compared to normal population. This prevalence of depression among subjects with diabetes mellitus ranges from 12% to 28% in various studies.[13]In a study done by Mathew CS et al[10] had found depression in 38.8% patients with type 2 diabetes mellitus with 25% had mild depression, 12.5% had moderate depression, and 1.3% had severe depression. In our study, we have found depression in 47 (23.98%) patients with type 2 diabetes mellitus. A recent study from north India by Blahara Y et al[14] found only 16% of type 2 diabetic patients having depression. While in another study also done in India by Raval A et al[15], this prevalence was found to be much higher i.e. 41%, compared to our study.

A study carried out in Pakistan by Zahid et al[16] in 2008 found a more modest depression prevalence (14.7%) among patients with diabetes in a rural area in Pakistan while much higher prevalence of depression (44%) was seen among type 2 diabetic

patients in Pakistan in a recent study by Khawja AK et al[17] in 2010.

Das R et al[11] in his study reported prevalence of major depressive disorder as 46.15% of type 2 diabetic patients. However, Khamsehet al[18] found major depression in 71.8% of a sample of 206 Iranian patients with type 1 and type 2 diabetes.

CONCLUSION

This study concluded that prevalence of depression in type 2 diabetic patients was very high and strong association was found between prevalence of depression and extremes of ages and duration of disease. So, we recommend that proper evaluation of the co-morbid depression in diabetics should be done, so proper counseling and psychotherapy of these particular patients could be done in order to improve their quality of life and reduce the morbidity.

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