Depression in Type 2 Diabetes Mellitus study of 100 patients

Authors
Dr Vivek Saxena[1], Shreshtha Saxena[2]
[1]Peoples College of Medical Sciences and Research Centre, Bhopal, M.P India
[2]Sai Seva Hospital, Sehore, M.P India
*Corresponding Author
Dr Vivek Saxena
Assistant Professor, Department of Medicine
Peoples College of Medical Sciences and Research Centre, Bhanpur, Bhopal, Madhya Pradesh
Email – *drvisa23@gmail.com, Mobile – 9827454569*

Abstract
Introduction- *Diabetes mellitus (DM) is a major public health problem and it is a very common chronic metabolic disorder. There are so many studies which suggest co-morbidity of diabetes with depression and patients with depression have poor disease outcome.*
Aim- *To study co-morbidity of diabetes and depression in outdoor patients.*
Material and Methods- *Total 100 patients were studied. Diagnostic criteria of type 2 Diabetes Mellitus (type 2 DM) recommended by American Diabetes Association (ADA) was used. DSM IV criteria was adopted to diagnose depression. Hamilton score for depression was used to quantify the depressive symptoms. Plasma glucose values were compared in both the groups.*
Results and Conclusion- *Prevalence of depression was higher in diabetic patients. Increasing severity of depression was associated with poor glycemic control.*
Keywords- *Diabetes mellitus, Depression, Outdoor patient department.*

INTRODUCTION

Diabetes mellitus (DM) is a major public health problem and it is very common chronic metabolic disorder. It is estimated that globally some 415 million people, or 8.8% of adults aged 20-79 years have diabetes, and by 2040 some 642 million people, or one adult in ten, will have diabetes[1]. India accounts 16.67 percent of global burden of diabetes that is approximately 69.2million people and this number would be 123.5 million by year 2040[1].

Depression is another prevalent health related problem worldwide. Globally, an estimated 350 million people of all ages suffer from depression. In India Age-standardised disability-adjusted life year (DALY) rates per 100,000 inhabitants is 1400.84[3]. It is more common in elderly with co-morbid chronic illnesses.

There are so many studies which suggest co-relation of diabetes and depression. Patients with diabetes are almost twice as likely to suffer from anxiety and depression as the general population[4]. The prevalence of depression with diabetes varies with type of diabetes and demographic conditions[5].

MATERIAL AND METHODS

This study was conducted in outdoor department patients of a private hospital at district level. Total 100 patients of type 2 diabetes were taken as a sample in one year duration. Diagnostic criteria of type 2 DM recommended by American Diabetes Association (ADA)[6] was used.

1. FPG(Fasting Plasma Glucose) ≥126 mg/dL (7.0 mmol/L)* Fasting is defined as no caloric intake for ≥8 hours
2. 2-hr PG ≥200 mg/dL (11.1 mmol/L) during OGTT (75-g)* Using a glucose load containing the equivalent of 75g anhydrous glucose dissolved in water
3. A1C ≥6.5% (48 mmol/mol)* Performed in a lab using NGSP-certified method and standardized to DCCT assay
4. RandomPG ≥200 mg/dL (11.1 mmol/L) In individuals with symptoms of hyperglycemia or hyperglycemic crisis

*In the absence of unequivocal hyperglycemia results should be confirmed using repeat testing

➢ No clear clinical diagnosis? Immediately repeat the same test using a new blood sample.
➢ Same test with same or similar results? Diagnosis confirmed.
➢ Different tests above diagnostic threshold? Diagnosis confirmed.
➢ Discordant results from two separate tests? Repeat the test with a result above diagnostic cut-point.

DSM IV criteria was adopted to diagnose depression[7]. All patients were evaluated on the basis of detailed history, clinical examination and relevant investigations. Hamilton Depression Rating Scale (HAM-D) was used to quantify the symptoms of depression[8]. Patients of type 1 DM or who have developed chronic complications like CAD (coronary artery disease) and CVA (cerebrovascular accident) and patients with severe anxiety disorder, schizophrenia and mood disorders were excluded from the study.

RESULTS

In our study prevalence of depression in type 2 DM was 40% with mean HAM-D score in patients with major depression was 19.2 and it was 4.01 in non depressed (Table 1)

Table 1

Severity of depression	Number of patients	Mean HAMD score
Major depression	12	19.2
Minor depression	14	12.14
Recurrent depressive disorder	04	16.10
Persistant depressive disorder(Dysthymia)	10	10.02
No depression	60	4.01

Females and elderly diabetics were more prone to develop depression (Table/Figure 2 and 3).

Table 2

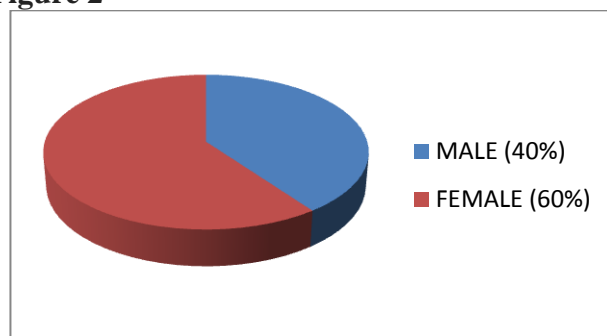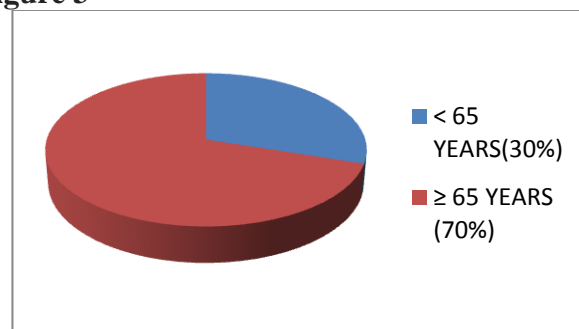| Gender	Number of depressed patients
Male	16
Female	24

Figure 2

MALE (40%)
FEMALE (60%)

Table 3

Age	Number of depressed patients
<65	12
≥65	28

Figure 3

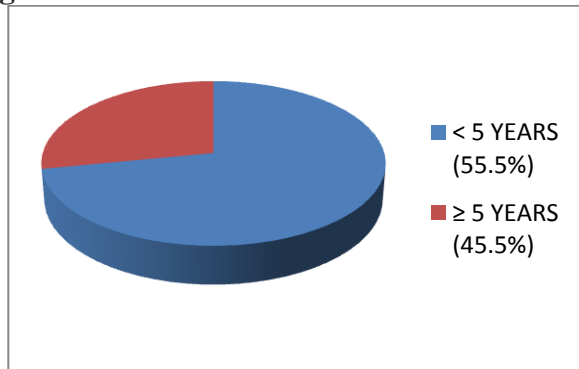< 65 YEARS(30%)
≥ 65 YEARS (70%)

Depression was prevalent in those who were having diabetes for more than five years (Table/Figure 4).

Table 4

Duration of diabetes	Number of depressed patients
<5 years	17
≥5 years	23

Figure 4

Majority of the patients were with minor depression (15%), while persistant and recurrent depression was present in 9% and 5% of patients respectively.

DISCUSSION

Correlation of diabetes and depression has been studied by so many research groups. In our study depression was prevalent in 40 percent of type 2 DM patients. There are few more studies which showed almost same prevalence[9]. Although results of some studies are different from us. The study of diabetic patients with depression in Jordon reported prevalence of 19.7 percent[10], while prevalence was 14.7 percent in a study done in rural community in Pakistan[11]. Another study showed prevalence of moderate to severe depression and anxiety in 28 percent studied diabetic population[12].This difference of prevalence in various studies is probably due to the different scales which have been used to quantify the symptoms of depression, like some studies used Beck Depression Inventory - II (BDI- II) scales, other used Hamilton Depression Rating (HAM-D), Personal Health Questionnaire 8 (PHQ 8) scale.

We found females (60%) are more prone to get into depression than males (40%) when co existing diabetes is there. Similar results were reported in a meta analysis of 42 published studies[13]. Lloyd CE et al. reported that moderate to severe depression developed more in men than women[12].

This is a well known fact that depression is more common in elderly even when there is no coexisting illness. The possibility to develop depression is higher in elderly when they suffer with any chronic medical condition like diabetes as in our study. This co morbidity has strongly established in many studies[14,15]. In our study we also found depression was more in elderly (≥ 65 years) diabetics (70%). The causes of increase prevalence of diabetes in elderly are both physical (aging, complications of diabetes, other chronic illnesses) and psychological as they deal with many things like retirement, may be loss of spouse, isolation and even fear of death.

Duration of diabetes is another important factor. We reported 57.5% patients were depressed who had diabetes of more than 5 years as compared to 42.5% whose duration of diabetes was less than 5 years. This is consistent with the findings of some studies[16].

Some limitations and pitfalls are also there in our study like sample size is small to establish the fact, duration of diabetes was dependent on memory of the patients and HAM-D scale has limited use to diagnosing major depression[17].

CONCLUSION

Prevalence of depression in diabetics is much more higher as compared to normal individuals. The health care providers must be advocated to keep an eye on these conditions and all diabetics must be assessed for depressive symptoms. Although studies with large sample size are needed to establish the causal relationship between diabetes and depression.

DECLARATION

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