

Depression and anxiety are comorbid conditions in type 2 Diabetes mellitus patients: A preliminary study.

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Abstract:

Background and objectives: Studies have indicated that type 2 Diabetes mellitus (DM) patient suffer from depression and anxiety, but there are no reports from this region. Hence, this study was undertaken from July 2016 to Dec 2017 to assess the prevalence of depression and anxiety symptoms in type 2 DM patients.

Material and method: The study included 748 type 2 DM patients attending the medicine OPD of SCB MCH. The symptoms of depression and anxiety were estimated by the Hospital anxiety and depression rating scale. The Associated risk was calculated by logistic regression analysis glycated hemoglobin was measured by commercial kit adapted to automated chemical chemistry analyzer.

Results: The symptoms of depression and anxiety were present in 32.6% and 51.7% of the type 2 DM, Out of 748 type 2 DM patients. 63.2% were women. The odds ratio at 95% confidence interval of risk factor that are associated depression were urban resident 2.04(1.26 to 3.59) old age 1.04 (1.00 to 1.07); socioeconomic status 2.209(1.33 to 3.67), no previous estimation of gluciated hemoglobin 13.1(1.58 to 101.4), The factors associated with anxiety were urban residence 2.99(1.83 to 5.00), low socioeconomic status 0.2(0.06 to 0.80) Glycated heamoglobin more then 8.85, 2.60(1.1 to 6.4).

Conclusion: Depression and anxiety are prevalent in type 2 DM patients. The factors significantly associated are urban resident low socioeconomic status and increased level of glycated hemoglobin.

Key Words: Anxiety, Depression, Diabetes Mellitus.

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I. Introduction

Type 2 Diabetes mellitus (DM) is a chronic disease associated with hyperglycemia and insulin resistance. According to the international diabetes federation the number of people suffering from DM in 2013 was 65.1 million in India and is projected to increase to 109.0 million in 2035. Affecting the people within 20-79 years of age most of the people affected by this disease are from low and middle income group and will lead to a large burden of disease for the developing countries [1]. The type 2 DM patients are almost twice more likely to suffer from anxiety and depression [2, 3]. Studies by Egede and Zheng suggested that the factors commonly affecting anxiety and depression are female gender, low socioeconomic status, a reduction in health status and poor glycemic control [2, 3]. The motivation for healthy diet, exercise, maintenance of body weight, undergoing regular blood testing and abiding to proper treatment to disease [3]. Hence the present study was undertaken to estimate the prevalence of anxiety and depression in type 2 DM patient and to evaluate the factors associated with it. We also aimed to assess whether there was a correlation between the glycemic control (glycated hemoglobin) and psychological stress.

II. Material And Method:

This study was conducted in the type 2 DM patient attending SCB, Medical College Hospital, Cuttack, during July 2016 to Dec 2017. We included a total number of 748 patients. A questionnaire and standardized interview were completed for each patient the data regarding socioeconomic status, duration of disease, degree of anxiety and depression were collected. The sociodemographic data such as age, sex, and area of residence (urban/rural) marital status, unemployment status and the level of education were recorded.

The glycemic control, data regarding addiction was also recorded. The level of anxiety and depression was assessed using hospital anxiety and depression scale (HAM-D & HAM-A) [4]. This variation has been validated in both family medicine and hospital setting [5]. The HADS estimates the degree of symptoms present in the previous week. A positive correlation exists between HADS and other methods of assessment of depression and anxiety such as Beck's depression inventory, Spielberg's state-trait anxiety inventory, the symptoms check list 90 scale and Montgomery-Asberg depression rating scale [6]. The important features of

HADS is that items that could be contributed by physical illness like fatigue, insomnia, headache dizziness and loss of appetite are included separately in (HADS-A) anxiety and depression (HADS-D). Each question has four response which are scored from zero to three as per severity of the disease condition and is estimated by the sum total score obtained in both HADS-A and HADS-D; which is classified as follows 0-7 is considered normal, 8-10 is mild and 11-21 is severe. The HADS-A score includes core features of anxiety such as worry and tenseness whereas the HADS-D score estimate anhedonia and loss of interest which are signs of depression.

III. Statistical Analysis:

The severity of the condition was classified as mild, moderate and severe as per the HADS score. To analysis data by logistics regression the HADS score was dichotomized such as 0-7 was considered normal and score between 8-21 was consider as the presence of depression or anxiety. This was done as per the study by Zigmond [7]. We used univariate logistics regression analysis to assess the association between anxiety and depression and result are depicted as odds ratio at 95% confidence interval CI. A P-value of <0.05 was consider significant SPSS version 19 was used for Statistical Analysis.

Observations:

The demography data of the study populationsshow that most of the type 2 DM patients were female (61.8%) married (76.2%). These patients were not under any medication for anxiety or depression. The mean age was 35.9 ± 10.7 years for females and the men in the study group belonged 48.6 ± 10.9 years of age out of the total 748 patients only 7.6% had done a previous glycated hemoglobin Test and 14.9% had good glycemic control (HBAC<6.5%) and 30% were taking insulin for management of the blood glucose level.

In this study we observed a mean HADS score of 8.49 ± 3.19 , with a median of 8 was observed for anxiety. Similarly the HADS score for depression was 6.29 ± 2.29 with a median of 6. We observed the symptoms of depression in 33.98% of the study population and 57.9% had the symptoms of anxiety. The prevalence of anxiety was more common in female patients 35.9% as compare to the male 12.9% marked depression was found in 10.59% of the study population with a gender distribution of 14.1% in females and 6.9% in male. Out of the total 748 patients in this study 26% had symptoms of both anxiety and depression.

The multivariate analysis showed that in male patients depression was significantly associated with higher glycated hemoglobin ≥ 9.0 [3.79 (1.1 to 14.5)] and insulin therapy [2.3(1.1 to 5.0)]. In the female patients depression was associated significantly with urban residence [2.12(1.3 to 3.6)], low socioeconomic status [2.19(1.29 to 3.7)] and no prior estimations of glycated hemoglobin [12.5(1.6 to 100.4)].

We observed that anxiety was associated in male type 2 DM patients with low socioeconomic status [odds ratio 0.2 (as 95% CI; 0.05 to 0.8)] glycated hemoglobin of 7 to 8.9% [2.79(1.14 to 7.01)] and glycated hemoglobin level $\geq 9\%$ was associated at an odds ratio of [2.59(1.82 to 6.4)].at 95% CI. In the female patient anxiety was associated with urban residence [2.9(1.82 to 4.9)].

IV. Discussion:

In our study we tried to estimate the prevalence of depression and anxiety in type 2 DM patients. We observed a great degree of prevalence of depression and anxiety than the previous studies in Caucasian populations [8, 9]. Many other studies [10, 11] have reported an increased prevalence of depression associated DM patients in developing conscious such as Pakistan 43.5% and 57.9% had anxiety, which are similar to our study [12]. Our study is also in concordance with a recent review article, which showed that 45.9% of type 2 DM patients have depression in South Africa and around 15 – 20% affected in Nigeria [13]. This high prevalence of anxiety and depression can be due to gender inequality unemployment and socioeconomic status.

We observed that socioeconomic status also affects the prevalence of anxiety and depression in DM patients. We found that female patients in low SES are twice more likely to be affected with depression. This finding in similar to various studies which observed that the risk for developing depression was more in low SES DM patients [14, 15]. Anxiety was associated with higher SES. The factors commonly associated with depression are unemployment, low SES, decreased education level [16] studies have implicated that depression is most other observed in patients in low family income, unemployed, dependent on others, living alone and decreased social support [17]. It has also been observed that individuals in lower Socioeconomic Status suffer from disproportional burden and complication of various diseases as compare to those in higher SES.

Our study observes than urban residence was independently associated with depression and anxiety in female patients. A similar study conducted in Pakistan also observed an increased prevalence of mental disorders to be associated with urban residence [18].

Our Study Had Few Limitations: -

- (1) The symptoms of depression and anxiety recorded only on one occasion and did not estimate the longtime effect of DM on anxiety and depression.

- (2) Since the study populations were not selected in a randomized manner, we can't generalize the observations to the entire population.
- (3) The HADS score mainly evaluates the melancholic depression symptoms of the previous week and not a longer duration.

V. Conclusion:

In conclusion our study has similar observations as those conducted in higher income groups in developed countries [19]. This increased prevalence of depression and anxiety is an extra burden along with type 2 DM the health services. This study also suggests the need to create better facilities to ease the burden of mental disorder associated in DM, especially in urban areas. We suggested regular screening and evaluations of depression and anxiety along with glycemic control should be done in type 2 DM patients.

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Nil

Conflicts Of Interests:

There is no Conflicts of Interests.

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