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FREQUENCY OF DEPRESSION IN TYPE-2 DIABETIC PATIENTS PRESENTING TO A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Depression has strong negative influence on glycemic control in diabetic patients with worse outcomes. Major portion of evidence linking DM and depression comes from developed countries, and there is insufficiency of research in this regard in developing countries. Aim of this study was to find the prevalence of depression in diabetic patients and its association with diabetic control. **Methodology:** It is a cross-sectional study involving 200 patients with Type 2 Diabetes mellitus above the age of 40 years with HbA1c of < 8% was taken as the controlled group and with HbA1c of ≥ 8% as the uncontrolled group. 'The Hamilton's Depression Scoring' was used to assess their level of depression. Data regarding demographic detail, educational status, marital status, duration of illness, compliance with treatment and financial status etc. was noted. **Results:** We enrolled 200 consecutive patients in our study with male to female ratio of 1:1.8. Among these patients male were 70 (35%) and female 130 (65%). We concluded that maximum strength of Diabetic patients in our study were from 50-59 years age group i.e. 102 (51 %). The academic status of these 200 cases was illiterate (21%), primary education (25%), high school (45%) and higher education (9%). In our study 168 (84%) were married and 118 (59%) were from urban area. We found that element of depression was equal among male (16 out of 70) and female (32 out of 130). Diabetic patients belong to age group 50-59 years were having more depression as compared to other age groups. Patient having more than 5 years duration of disease were more depressive i.e. 34 patients out of 102. Monthly income of the patient 10000-20000 had rich element of depression. **Conclusion:** In this current study we noted that physician should pay attention to pick up sign and symptom of depression while managing diabetes. We found that patient having longer duration of disease, low socioeconomic status and those who belongs to urban area have high depression level. Patient with uncontrolled diabetes were more prone to depression and suicidal tendencies than the controlled diabetics.

KEYWORDS: Type 2 diabetes, compliance, depression, HDRS, complications, socioeconomic status.

INTRODUCTION

Diabetes mellitus is a progressive disease which directly or indirectly effects every organ in the human body. The World Health Organization projected that 300 million people will suffer from diabetes by 2025.[1] Globally, an estimated 43 million diabetics have symptoms of depression.[2] Diabetic patient shows poor glycemic control due to poor compliance with medication especially when they have co-morbid Depression. Ultimately in these patients disease progress rapidly and leads to higher complication rates, increased health care use and increased disability, lost productivity, lower quality of life and increased risk of death.[3] The real burden of diabetes is due to its chronic complications. A study conducted in Pakistan showed that neuropathy is the most common complication comprising 38% of diabetic patients followed by retinopathy 30%, nephropathy 29% and gangrene 21.9%.[7] A study performed on 6,572 Korean Women in 2010 to 2011 which concluded saying that doctors should manage diabetes in consideration to depression, as depressive symptoms were observed in 22.6% of subjects with diabetes.[4] A study available on Arch Intern Med suggests that the relative risk of developing depression is greater in diabetics when compared to non-diabetics.[5] A patient having any progressive chronic disease may have a risk of developing Depression. Diabetes and depression are major public health issues especially in low income countries like Pakistan. Diabetes is known to be affecting 7.6–11% of Pakistani population.[6-7] HbA1c, fasting and postprandial sugars were higher in depressed patients in one study.[8] Diabetes may contribute to depression by two mechanisms: First one is "through its effect on symptoms, like difficulty to concentrate, complication fear and fatigue" and second is "by reduction in inflammatory process, physiological pathways which may leads to reduction in flexibility of neuronal networks and eventually depression.[9]

According to a study it was found that Depression increasing the risk of diabetes has been found to be common among females than males however, the role of anxiety is yet to be fully explained.[10]

Early sign and symptoms of Depression in diabetic patient are usually missed by clinical practitioner, this is may be due to not adequately emphasizing the importance and need to identify and report symptoms of depression and anxiety and sometimes even overlooking them.

METHODOLOGY

It was a cross-sectional study of 6 months duration from June 2018 to November 2018, done at Nishtar Hospital Multan. We enrolled consecutive 200 patients (who were on medical treatment for diabetes for at least 3 years) in this study having Diabetes mellitus type 2, of more than 40 years age. We divided the patients in two groups: The controlled group with HbA1c of < 7.5% and the uncontrolled group having HbA1c of ≥ 7.5%. Informed written consent was obtained from enrolled patients, after explaining the objectives of the study. The personal details of the patients were kept confidential throughout the study. Each participant, who has signed the informed written consent, was interviewed using a structured questionnaire to collect information regarding age, gender, and education, socio economic and marital status of the individual. Disease related parameters like duration of illness, medication being used and symptoms/signs suggestive of diabetes related complications were also documented by thorough history and clinical examination. That questionnaire was also having points related to 'The Hamilton's Depression Scoring'. That how we access the level of depression among these patients. Statistical analysis was performed using SPSS version 20.

Inclusion and exclusion criteria

- Persons above age 40, of either sex, diagnosed with type II Diabetes mellitus were included.
- Patients presenting with acute complications of diabetes mellitus, patients with known history of severe or long term psychiatric illness were excluded from the study.
- Patients with gestational diabetes, pregnant, women in postpartum phase, hematological diseases, cardiac failure, severe renal failure, stroke and other such complications were excluded.
- Patients who were already taking antidepressants or anxiolytics.

RESULTS

We enrolled 200 consecutive patients in our study with male to female ratio of 1:1.8. Among these patients male were 70 (35%) and female 130 (65%). We concluded that maximum strength of Diabetic patients in our study were from 50-59 years age group i.e. 102 (51 %). The academic status of these 200 cases was illiterate (21%), primary education (25%), high school (45%) and higher education (9%). In our study 168 (84%) were married and 118 (59%) were from urban area. We found that element of depression was equal among male (16 out of 70) and female (32 out of 130). Diabetic patients belong to age group 50-59 years were having more depression as compared to other age groups. Patient having more than 5 years duration of disease were more depressive i.e. 34 patients out of 102. Monthly income of the patient 10000-20000 had rich element of depression.

Table 1: demographic details.

Category	Frequency	Percentage
Age group		
40 to 49	40	20%
50 to 59	102	51%
60 and above	58	29%
Sex		
Female	130	65%
Male	70	35%
Education		
Illiterate	42	21%
Primary	50	25%
High school	90	45%
Diploma and above	18	9%
Locality		
Urban	118	59%
Rural	82	41%
Marital status		
Currently Married	168	84%
Single/Widow/widower & divorced	32	16%

Table 2: Frequency of Depression according to Age groups.

Age (years)	Depression		
	Yes	No	Total
40-49	5 (2.5%)	35 (17.5%)	**40 (20%)**
50-59	28 (14%)	74 (37%)	**102 (51%)**
60 and above	15 (7.5%)	43 (21.5%)	**58 (29%)**
Total	**48 (24%)**	**152 (76%)**	**200 (100%)**

Table 3: Frequency of Depression according to Gender.

Gender	Depression		
	Yes	No	Total
Female	32 (16%)	98 (49%)	**130 (65%)**
Male	16 (8%)	54 (22%)	**70 (35%)**
Total	**48 (24%)**	**152 (76%)**	**200 (100%)**

Table 4: Frequency of Depression according to duration of disease.

Duration of disease	Depression		
	Yes	No	Total
≤5 years	14 (7%)	58 (29%)	**72 (36%)**
>5 years	34 (17%)	94 (47%)	**128 (64%)**
Total	**48 (24%)**	**152 (76%)**	**200 (100%)**

Table 5: Frequency of Depression according to monthly income of patients.

Monthly income	Depression		
	Yes	No	Total
<10000	7 (3.5%)	36 (18%)	**43 (21.5%)**
10000-20000	22 (11%)	58 (29%)	**80 (40%)**
>20000	19 (9.5%)	54 (27%)	**73 (36.5%)**
Total	**48 (24%)**	**152 (76%)**	**200 (100%)**

DISCUSSION

In every chronic disease depression plays an important role in disease progression and worse outcomes. Depression makes the patient feel hopeless regarding survival.[11] The factors that influence relationship of chronic disease and Depression can be external like gender, educational status and type of occupation or internal such as altered inflammatory status and level of serotonin.[4] Evidence indicates that inflammation is independently linked to both pathogenesis and progression of type 2 DM and depression and also both these conditions might share a common inflammatory mechanism. The reduced brain size in hippocampus and amygdala observed in diabetics might indicate that type 2 DM provides a strong biological risk for depression[2]. Chronic diseases often needs treatment for remaining whole life with proper compliance, but if depression encountered that patient it will adversely affects treatment compliance. Same is the case in diabetes, Depression leads to poor glycemic control which in turn increase complications that leads to further depression and that how vicious cycle starts. We conducted this study to see frequency of Depression among Diabetic patient presented to our hospital. In this current study we found that frequency of depression was 24%. In literature, rate of depression in diabetic patient ranges from 12-28%.[10] In a study done by Mathew CS et al.[16] had found depression in 38.8% diabetic patients. In another study done by Blather Y *et al.*[3] showed only 16% of type 2 diabetics with depression. While in another study by Ravel A et al[6] resulted 41%, very much high as compared to our study. Khamseh et al.[17] reported highest rate of depression among all the studies i.e. 71.8%. Age range in our study was 40 years and above and we found majority of Depression in patient of 50-59 years age group. Balhara.[12] YPS et al and Mathew CS et al.[13] in their studies had found mean age of 54 years respectively which is very much comparable to our study. On the other hand, Das R et al[14] and James BO et al.[8] reported much lower mean age i.e. 46 & 45 years respectively in their studies compared to our study. In this study we noted a female predominance with male to female ratio of 1:1.8 as also observed in many previous studies.[15] We observed higher frequency of depression among female due to society burden and lack of family support. Depression and anxiety are some of the many co-morbid conditions, which have been consistently associated with, type 2 DM. We observed

that due to overflow of patient in Public sector hospitals, co-morbidity like Depression is often overlooked by the physician while treating Diabetic patient.

CONCLUSION

In this current study we noted that physician should pay attention to pick up sign and symptom of depression while managing diabetes. We found that patient having longer duration of disease, low socioeconomic status and those who belongs to urban area have high depression level. Patient with uncontrolled diabetes were more prone to depression and suicidal tendencies than the controlled diabetics.

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