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TYPE II DIABETES AND PREVALENCE OF DEPRESSION IN PATIENTS ATTENDING PRAKASH INSTITUTE OF MEDICAL SCIENCE AND RESEARCH HOSPITAL

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Conflicts of Interest: Nil

ABSTRACT:

South Asia, Chronic and non-communicable diseases (CNCDs) are leading causes of morbidity and mortality % of Indians is estimated to have Type 2 diabetes. One of the associated comorbidity associated with type 2 diabetes is depression. This comorbidity has been estimated from 11% to 71% of individuals with diabetes, depending on the population studied and the diagnostic method used. As compared to non-diabetic patients with diabetes mellitus (DM) are reported to be about 1.4-3 times as likely to suffer from comorbid depression. It was found that association between diabetes and depression is bidirectional, and depression being a risk factor for the development of DM seems to be stronger. Poor diabetes control is probably stressful enough to induce or worsen depressive symptoms. Depression is also associated with physiological abnormalities, including activation of the hypothalamic-pituitary-adrenal axis, sympathoadrenal system, and pro-inflammatory cytokines, which can induce insulin resistance and contribute to diabetes risk.

MATERIAL AND METHODS: Of the 204 patients only 184 were willing to participate in the study other 20 patients denied to give the written consent and were excluded from the study. All 184 participants were interviewed which involved a questionnaire that collected data on demographic characteristics and depression symptoms. Socioeconomic status was assessed. Depression among the study population was screened by Patient Health Questionnaire (PHQ)-12.We used the 10-item Harvard Department of Psychiatry scale (HANDS) to assess symptoms of major depression over the previous two weeks. Diabetes self-management was assessed. Questions were asked about diet, exercise, self-monitoring of blood glucose (SMBG), foot care, and medication adherence.

RESULTS: Of the total 184 participants 81 (44.02%) were female and 103(55.98%) were male. Mean HANDS score was 6.1±5.7. participants whose education was less than high school were 28 (15.21%), from High school to graduation, 121 (65.76%), post-graduation 35 (19.02%). There were 51 (27.72%) patients on insulin and 133 (72.28%) were not taking insulin and were on oral medications.72 (39.13%) were following their diet strictly while 112 (60.87%) were not following the diet. 59 (32.07%) were doing regular exercise while 125 (67.93%) were not doing the exercise or were irregular. Glucose monitoring was done by 96 (52.17%) while 135 (73.37%) were not monitoring their glucose levels. There were 49 (26.63%) who were consuming high fat food while 135 (73.37%) were restricting themselves from the fatty foods. Overall 89 (48.37 %) study participants were suffering from the depression of which 50 (27.17%) were suffering from moderate and 39 (21.20%) suffering from severe depression. Of the total 103 male 44 (42.72%) were suffering from the depression of which 26 (25.24%) were suffering from moderate and 18(17.48%) suffering from severe depression. Of the total 81 females 45 (55.56%) were suffering from the depression of which 24 (29.63%) were suffering from moderate and 39 (21.20%) suffering from severe depression.

CONCLUSION: There is a strong association between depression and incidence of type 2 diabetes. Incidence of depression was high in females with T2DM as compared to males. Self-care management is a need of hour to control T2DM and thereby control the depression.

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Keywords: T2DM, PHQ, SMBG, HANDS.

Introduction

In both developed and developing countries of the world, including South Asia, Chronic and non communicable diseases (CNCDs) are leading causes of morbidity and mortality [1]. South Asia, Chronic and non communicable diseases (CNCDs) are leading causes of morbidity and mortality % of Indians are estimated to have Type 2 diabetes [2]. Urban (15.5%) prevalence is higher than the rural (2.7%).One of the associated comorbidity associated with type 2 diabetes is depression. This comorbidity has been estimated from 11% to 71% of individuals with diabetes, depending on the population studied and the diagnostic method used [3,4]. The prevalence of major depression in patients with DM is estimated around 12% and milder types of depression or elevated depressive symptoms, reported to be present in 15-35% [5]. As compared to non-diabetic patients with diabetes mellitus (DM) are reported to be about 1.4-3 times as likely to suffer from comorbid depression [6,7].

It was found that association between diabetes and depression is bidirectional, and depression being a risk factor for the development of DM seems to be stronger. The relative risk for developing T2DM in depressed patients is reported as high as 1.6 [8]. Depressive symptoms seem to be slightly more prevalent in Type 2 Diabetes mellitus (T2DM) compared to Type 1 Diabetes mellitus T1DM [9]. Depression is associated with poor health behaviours like smoking, physical inactivity, excess caloric intake that increase risk of type 2 diabetes [10]. Poor diabetes control is probably stressful enough to induce or worsen depressive symptoms. Depression is also associated with physiological abnormalities, including activation of the hypothalamic-pituitary-adrenal axis, sympathoadrenal system, and pro-inflammatory cytokines, which can induce insulin resistance and contribute to diabetes risk [11]. Moreover depression has a more potent role among patients who are prescribed insulin. The need for insulin represents a psychological threat related to injection performance anxiety, needle phobia, fear of hypoglycaemia and worries about diabetes severity and progression [12].

MATERIAL AND METHODS

This prospective study was conducted in the Dept. of Medicine in association with department of Psychiatry at Prakash Institute of Medical Science & Research Urun-Islampur, Maharashtra, India. For this study we included the 204 patients who were suffering from T2DM and on regular follow-ups with the medicine department. Written informed consent was obtained from all the participants. Of the 204 patients only 184 were willing to participate in the study other 20 patients denied to give the written consent and were excluded from the study. All 184 participants were interviewed which involved a questionnaire that collected data on demographic characteristics and depression symptoms. Socioeconomic status was assessed. Type 1 diabetes or diabetes before age 18 years were excluded from the study. Patients with other comorbid conditions like cancer, HIV, any liver disease or any other debilitating illnesses were excluded from the study. Clinical data were collected from notes, medical records, claims and administrative records.

Depression among the study population was screened by Patient Health Questionnaire (PHQ)-12.We used the 10-item Harvard Department of Psychiatry scale (HANDS) to assess symptoms of major depression over the previous two weeks. Scale is scored from 0-30 with a score of 9 or greater having a sensitivity of at least 95% and specificity between 60%-94% for major depression [13]. Diabetes self-management was assessed. Questions were asked about diet, exercise, self-monitoring of blood glucose (SMBG), foot care, and medication adherence.

Data analysis was done and statistics were calculated for all study variables. Linear regression models were in the study used to determine if baseline depression symptom severity. All data were analysed using SPSS software 21.0 version.

RESULTS

In present study a total of 184 participants were included who were diagnosed with T2DM.

Table 1: Characteristics of the patients

Demographics and clinical variables of the patients (N = 184)	Mean± SD/n (%)
HANDS Total Score	6.1±5.7
Sex	
Female	81 (44.02%)
Male	103 (55.98%)
Education	
Less than high school	28 (15.21%)
High school to graduation	121 (65.76%)
Post graduation	35 (19.02%)
Age (years)	61.5±14.5
Duration diabetes (years)	7.4±8.5
HbA1C	7.89 ±1.5
Insulin	
Yes	51 (27.72%)
No	133 (72.28%)

Of the total 184 participants 81 (44.02%) were female and 103(55.98%) were male. Mean HANDS score was 6.1±5.7. participants whose education was less than high school were 28 (15.21%), from High school to graduation, 121 (65.76%), post-graduation35 (19.02%). There were 51 (27.72%) patients on insulin and 133 (72.28%) were not taking insulin and were on oral medications.

Using a PHQ-12we classified participants as having probable depression or not. In our study insulin was directly associated with the diabetes duration. Baseline depressive symptom severity as a predictor of follow-up self-care was examined.

Table 2: self-care in diabetes

Self-care measures	Taken (n=184, %)	Not taken (n=184)
Diet	72 (39.13%)	112 (60.87%)
Exercise	59 (32.07%)	125 (67.93%)
Glucose monitoring	96 (52.17%)	88 (47.83%)
High fat food	49 (26.63%)	135 (73.37%)

Of the total 184 participants 72 (39.13%) were following their diet strictly while 112 (60.87%) were not following the diet. 59 (32.07%) were doing regular exercise while 125 (67.93%) were not doing the exercise or were irregular. Glucose monitoring was done by 96 (52.17%) while 135 (73.37%) were not monitoring their glucose levels. There were 49 (26.63%) who were consuming high fat food while 135 (73.37%) were restricting themselves from the fatty foods.

Table 3: Prevalence of depression in T2DM

	Moderate depression	Severe depression	Total
Male (n= 103)	26 (25.24%)	18 (17.48%)	44 (42.72%)
Female (n=81)	24 (29.63%)	21 (25.93%)	45 (55.56%)
Total (n=184)	50 (27.17%)	39 (21.20%)	89 (48.37 %)

Overall 89 (48.37 %) study participants were suffering from the depression of which 50 (27.17%) were suffering from moderate and 39 (21.20%) suffering from severe depression. Of the total 103 male 44 (42.72%) were suffering from the depression of which 26 (25.24%) were suffering from moderate and 18(17.48%) suffering from severe depression. Of the total 81 females 45 (55.56%) were suffering from the depression of which 24 (29.63%) were suffering from moderate and 39 (21.20%) suffering from severe depression.

DISCUSSION

In India depression among type 2 diabetes patients is a scarcely researched topic. In a meta-analysis of qualitative research reported that there is a feeling of unhappiness and distress among the type 2 diabetes patients at the unpleasant transformation of their lives [14].In one of the study it was reported that most of the nurses often ignored the questions on mental health screening [15]. Almost 95 percent of diabetes management lies in the hands of the individual [16] and since depression negatively influences diabetes self-care activities and outcomes identifying depressive symptoms in these patients becomes even more important. Most of the diabetes patients depend on their care givers for their management, therefore an understanding of the day to day challenges faced by them would help in addressing their specific needs [17].

In our study 89 (48.37 %) study participants were suffering from the depression which was in

accordance with the study in Mangalore, south India in which they found the overall prevalence of 45.2 % depression in T2DM patients [18].in a study by Lloyd CE et al [19] reported 28 % of the diabetic patients having either moderate or severe levels of depression or anxiety or both. In our study 27.17% were having moderate depression and 21.20% were having severe depression. As compared to male diabetic patients women were suffering more from depression. In males overall 42.72% were suffering from depression while in female group 55.56 % were suffering from depression. Also the percentages of moderate and severe depression amongst females were more as compared to male participants. Whitte more R et al [20] in their study reported a depressed mood in approximately 44 percent of the women patients. A cross sectional study in Nepal reported a 40.3 % prevalence of depression among diabetes patients [21]. Raval et al [22] reported a 41 % prevalence of depression among type 2 diabetes patients in a tertiary care centre. Advancing age is usually associated with depression and in T2DM it is more [23]. In our study most of the patients were elderly hence they were more prone to depression.

Around 30 to 50% patients were taking self-care like glucose monitoring; exercise and diet other were reluctant to do so. Because of this these patients were having poor glycemic control and poor glycaemic control may result in depression and vice versa depression may result in poor glycaemic control [9].

CONCLUSION

There is a strong association between depression and incidence of type 2 diabetes, but only a weak relation between diabetes and risk of depression. This was a hospital-based study and no statistical sampling was applied so more population based extensive studies are to carried out to confirm the incidences. Incidence of depression was high in females with T2DM as compared to males. Self-care management is a need of hour to control T2DM and thereby control the depression.

REFERENCES

1. Lozano R, Naghavi M, Foreman K et al. Global and regional mortality from 235 causes of death for 20 age groups in 1990 and 2010: a systematic analysis for the Global Burden of Disease Study 2010. Lancet. 2012;380(9859): 2095–2128
2. Ramachandran A, Snehalatha C, Kapur A, Vijay V, Mohan V, Das AK, Rao PV, Yajnik CS, Prasanna Kumar KM, Nair JD, Diabetes Epidemiology Study Group in India (DESI).High prevalence of diabetes and impaired glucose tolerance in India: National Urban Diabetes Survey.Diabetologia. 2001 Sep; 44(9):1094-101.
3. Ciechanowski P, Katon W, Russo J. Depression and diabetes: impact of depressive symptoms on adherence, function, and costs. Arch Intern Med. 2000;160(21):3278–3285
4. Egede LE, Ellis C. Diabetes and depression: global perspectives. Diabetes Res Clin Pract. 2010;87(3):302–312
5. Andreoulakis E, Hyphantis T, Kandylis D, Iacovides A. Depression in diabetes mellitus: a comprehensive review. Hippokratia. 2012;16(3):205-214.
6. Lin EH, Von Korff M, Alonso J, Angermeyer MC, Anthony J, Bromet E, Bruffaerts R, Gasquet I, de Girolamo G, Gureje O, Haro JM, Karam E, Lara C, Lee S, Levinson D, Ormel JH, Posada-Villa J, Scott K, Watanabe M, Williams D. Mental disorders among persons with diabetes--results from the World Mental Health Surveys.J Psychosom Res. 2008 Dec; 65(6):571-80.
7. Fisher L, Skaff MM, Mullan JT, Arean P, Glasgow R, Masharani U. A longitudinal study of affective and anxiety disorders, depressive affect and diabetes distress in adults with Type 2 diabetes.Diabet Med. 2008 Sep; 25(9):1096-101.
8. Mezuk B, Eaton WW, Albrecht S, Golden SH. Depression and type 2 diabetes over the lifespan: a meta-analysis.Diabetes Care. 2008 Dec; 31(12):2383-90.
9. Anderson RJ, Freedland KE, Clouse RE, Lustman PJ, et al. The prevalence of comorbid depression in adults with diabetes. A meta-analysis. Diabetes Care. 2001;24:1069–1078.
10. Strine TW, Mokdad AH, Dube SR, Balluz LS, Gonzalez O, Berry JT, Manderscheid R, Kroenke K. The association of depression and anxiety with obesity and unhealthy behaviors

among community-dwelling US adults.Gen Hosp Psychiatry. 2008 Mar-Apr; 30(2):127-37.
11. Golden SH. A review of the evidence for a neuroendocrine link between stress, depression and diabetes mellitus.Curr Diabetes Rev. 2007 Nov; 3(4):252-9.
12. Polonsky WH, Fisher L, Guzman S, Villa-Caballero L, Edelman SV. Psychological insulin resistance in patients with type 2 diabetes: the scope of the problem.Diabetes Care. 2005 Oct; 28(10):2543-5.
13. Baer L, Jacobs DG, Meszler-Reizes J, Blais M, Fava M, Kessler R, Magruder K, Murphy J, Kopans B, Cukor P, Leahy L, O'Laughlen J. Development of a brief screening instrument: the HANDS.Psychother Psychosom. 2000; 69(1):35-41.
14. Jean D, Giacomini M, Vanstone M, Brundisini F. Patient experiences of depression and anxiety with chronic disease: A Systematic review and qualitative meta-synthesis. Ontario Health Technology Assessment Series. 2013;13(16):1–33
15. . Maxwell M, Harris F, Carina Hibberd C. et al. A qualitative study of primary care professionals' views of case finding for depression in patients with diabetes or coronary heart disease in the UK. BMC Family Practice. 2013;14(46)
16. Anderson RM. Is the problem of compliance all in our heads? Diabetes Educator. 1985;11
17. Anaforoglu I, Ramazanogulları I, Algun E, Kutanis R. Depression, anxiety and quality of life of family caregivers of patients with type 2 diabetes. Med Princ Pract. 2012;21:360–5.
18. Joseph N, Unnikrishnan B, Raghavendra Babu YP, Kotian MS, Nelliyanil M. Proportion of depression and its determinants among type 2 diabetes mellitus patients in various tertiary care hospitals in Mangalore city of South India. Indian J Endocrinol Metab. 2013;17(4):681–8.
19. Lloyd CE, Dyer PH, Barnett AH. Prevalence of symptoms of depression and anxiety in a diabetes clinic population. Diabetes Med. 2000;17(3):198-202.
20. Whittemore R, Melkus GD, Grey M. Self-report of depressed mood and depression in women with type 2 diabetes. Issues Ment Health Nurs. 2004;25(3):243- 60.
21. Niraula K, Kohrt BA, Flora MS et al. Prevalence of depression and associated risk factors among persons with type-2 diabetes mellitus without a prior psychiatric history: a cross-sectional study in clinical settings in urban Nepal. BMC Psychiatry. 2013;13(309).
22. Raval A, Dhanaraj E, Bhansali A, Grover S, Tiwari P. Prevalence & determinants of depression in type 2 diabetes patients in a tertiary care centre. Indian J Med Res. 2010;132:195-200.
23. Katon WJ, Simon G, Russo J, Von Korff M, Lin EH, Ludman E, et al. Quality of depression care in a population-based sample of patients with diabetes and major depression. Med Care 2004; 42 : 1222-9.