



DEPRESSION IN PATIENTS WITH TYPE 2 DIABETES MELLITUS

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ABSTRACT

BACKGROUND: Chronic medical illnesses are often associated with depression. With diabetes being one of the most complex chronic medical conditions, requiring a high degree of patient self-management, studies have shown that the presence of diabetes doubles the risk of comorbid depression and impacts its course and prognosis.

METHODS: In this study, consenting patients attending the diabetes clinic of a medical college hospital were screened for depression using the Patient Depression Questionnaire PHQ-9.

RESULTS: Of the 74 patients included in the study, 51 were male and 23 were female. 51.3% of these patients had moderately severe to severe depression on the PHQ-9. Patients with complications of diabetes had significantly more depression than those without complications. Those patients who were on insulin alone or insulin with oral medication were significantly more depressed than those only on oral medication.

CONCLUSION: Depression is common in diabetes and has significant impact on its course and outcome. Management of diabetes should hence include screening for depression and treatment of the same if detected.

KEYWORDS : Diabetes, Depression, Self-management

INTRODUCTION

Depression is common among patients with chronic medical illnesses. Of all the major medical illnesses, diabetes mellitus may be considered as one of the most demanding, both psychologically and behaviorally as 95% of diabetes management is conducted by the patient. Type 2 diabetes, with onset more common among adults, results initially from resistance to insulin but as individuals age, production of insulin starts declining with many eventually becoming dependent on insulin. The most common causes of this illness are genetic vulnerability coupled with obesity. People with type 2 diabetes are increasing in every country but more than 80% live in low and middle income countries. Among the top 10 countries in the world, India stands second with 72 million people with diabetes in 2017 and this is expected to double to 134 million by 2025.

Diabetes significantly increases the risk of heart disease, cerebrovascular accidents, nephropathy retinal disease, periodontal disease, neuropathy, peripheral vascular disease, infections, lower extremity ulcers and amputations. In the early stages, dietary restriction and exercise are sufficient treatments but in the later stages oral hypoglycemic medications and insulin are usually required for optimal control.

Chronic stress by causing sustained activation of the hypothalamic-pituitary-adrenal axis may lead to obesity related illnesses like diabetes. Depression may also affect glucose control by leading to neuro-hormonal changes in the hypothalamic-pituitary axis. It is associated with increased levels of glucocorticoids, catecholamines and growth hormone, changes in glucose transport function, secretion of inflammatory cytokines. This could lead to insulin resistance and ultimately be causal factors in the development of diabetes as well as complications of diabetes.

Depression earlier in life may increase the development of type 2 diabetes by approximately 60%. Studies have shown that both depressive symptomatology and diagnosed major depressive disorder may precede and increase the risk for development of type 2 diabetes.

Depression may develop at any point in the course of diabetes including at the time of diagnosis, or when a complication develops or when intensification of a treatment regimen is needed, such as starting insulin. It requires a high degree of patient self-management like adherence to the dietary advice, exercise,

adhering to medication regime, checking blood glucose levels regularly, cessation of smoking etc., and depression may markedly interfere with this by reducing energy levels, motivation, concentration and memory, thereby affecting diabetes disease control and influencing treatment course and prognosis.

Depression can mimic and amplify diabetes symptoms thereby adversely affecting somatic symptom burden. It can also lead to additive social and vocational disability in patients with diabetes. In these patients, depression has been associated with reduced levels of trust and satisfaction with care provided.

The total health service utilization and both direct and indirect healthcare costs of patients with diabetes and depression have been shown to be significantly higher than those with diabetes alone. Several studies have shown the high prevalence of depression in the medically ill and its adverse impact on symptom burden, functional impairment and illness self-management

A supportive social network is imperative, as family conflicts regarding tasks like following a new dietary regime or making time for physical activity may also interfere with treatment and disease control.

AIM

To study depressive symptoms in patients with type 2 diabetes.

METHODOLOGY

Study Design

Cross-sectional descriptive study

Sampling

Purposive sampling

Study site

Diabetic speciality clinic of A.C.S. Medical College Hospital

Study subjects

Patients diagnosed with type 2 diabetes, attending the diabetes clinic and consenting for the study were included. They were assessed using the following instruments.

Instruments

A proforma was prepared to collect basic sociodemographic and illness including treatment details. The subjects were then screened

for depression using the Patient Depression Questionnaire (PHQ-9). PHQ-9 is a brief 9 item self-report questionnaire which has been used for screening, diagnosing, monitoring and measuring the severity of depression.

RESULTS OF THE STUDY

The data so obtained was analysed using the SPSS software. A total of 74 patients were included in the study (N=74), of which 23 were males and 51 were females (Table 1). The mean age of the subjects was 56.5 years (Range 34-78 years) (SD10.2). Of the 74 patients, 52 were married, 3 were separated from their spouses while 18 were widows/widowers. 41 had done their primary schooling, 27 had attended secondary and higher secondary school while 6 had college education. 29 were gainfully employed while 45 were homemakers/retired from service/unemployed. 39 patients had had diabetes for less than 5 years (Table 2). 67 patients had developed complications of diabetes like neuropathy, retinopathy, nephropathy, ischemic heart disease etc. 44 had comorbid physical conditions like hypertension, hypothyroidism, COPD etc. 41 patients were on oral medication for diabetes, 5 were on insulin alone , 27 patients were on both and one patient was not on medication at the time of assessment. As per the HbA1c checked in the Diabetes clinic on a regular basis, 52 patients had good control. On the PHQ-9, patients had a mean score of 12.5 (range 0-26) with a SD of 7.5 (Table 3). As per the PHQ-9 scores, 18 patients with diabetes had severe depression (24.3%). 28 patients (51.3%) had moderately severe to severe depression.

Table 1 Gender

Sex	N=74
Males	23
Females	51

Table 2 Duration of diabetes

Duration of diabetes	No. of patients(N=74)
< or = 5 years	39
6-10 years	20
> 10 years	15

Table 4 b Comparison between those with and without diabetes complications

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
Phq 9	Equal variances assumed	10.080	.002	2.821	72	.006	8.126	2.880	2.384	13.868
	Equal variances not assumed			5.947	18.901	.000	8.126	1.366	5.265	10.987

Table 5a Group statistics

	Medication	N	Mean	Std. Deviation	Std. Error Mean
PHQ 9	ORAL ONLY	41	10.78	7.418	1.158
	WITH INSULIN	32	14.94	7.264	1.284

Table 5b Comparison on medication

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower		Upper
PHQ 9	Equal variances assumed	.041	.840	-2.397	71	.019	-4.157	1.734	-7.615	-.699
	Equal variances not assumed			-2.404	67.396	.019	-4.157	1.729	-7.609	-.705

DISCUSSION

In this study female patients scored higher on the PHQ 9 compared to males. This is consistent with the findings from other studies which have shown that there is a higher prevalence of depression in women with diabetes than men (10%–33% vs 8%–14%) but there is a stronger association between diabetes and depression in men. Meta-analysis of controlled studies have shown that in the group with major depression and diabetes compared to those with diabetes alone were younger, more likely to be female, were less educated, had longer duration of diabetes and had higher HbA1C

Table 3 PHQ SCORES

Severity of depression	PHQ scores	No. of patients(N=74)
Minimal	Score of 1-4	12
Mild	Score of 5-9	19
Moderate	Score of 10-14	14
Moderately severe	Score of 15-19	10
Severe	Score of 20-27	18
Nil	Score of 0	1

Female patients (mean = 12.96) had more depression compared to males (mean = 11.47) though the difference was not significant on the Levene's test and t – test. Married patients had lower depressive scores (mean=11.5) compared to those who were divorced/separated or whose spouses were no more (mean=14.86) though the difference was not significant. Though not significant, those with primary school education (mean=13.48) had higher depressive scores than those with higher education levels (mean=11.27). Only a marginal difference was found in the depressive scores between those patients who were employed (mean=12.31) and those who were not (mean=12.62). Patients with duration of illness more than 5 years had higher depressive scores (mean=13.4) compared to those with less than 5 years of illness (mean=11.7) though not significant. There was a significant difference between those with complications of diabetes and those without any such complications (Table 4a,4b) but there was no significant difference as far as co-morbid physical conditions were concerned . Also a significant difference in depression scores was noted between those patients who were only on oral medication and those who were on insulin or both (Table 5a,5b). Those patients with good control as per HbA1c levels had lower depressive scores (mean=11.63) compared to those with poor control (14.54).

Table 4a Group statistics

	Complications	N	Mean	Std. Deviation	Std. Error Mean
PHQ 9	WITH COMPLICATIONS	67	13.27	7.531	.920
	WITHOUT COMPLICATIONS	7	5.14	2.673	1.010

indicating poorer control. Results of this study also showed that those with primary school education had higher depressive scores compared to those with higher education, those with longer duration of diabetes had higher scores and those patients with poor control had higher depressive scores.

Researchers have shown that there is a direct association of depression with an increased risk of diabetic complications, especially retinopathy and macrovascular complications, possibly as a result of poor adherence to self-care regimes and studies have

shown the effect of depression on adherence to various self-care regimes (medication compliance, exercise, diet, regular glucose monitoring). In this study too the patients with more complications of diabetes had significantly higher depressive scores. Patients who were on insulin with or without oral medications for diabetes had significantly higher depressive scores than those on oral hypoglycemic agents alone, probably indicating that these patients may have diabetes control and/or more complications necessitating the need for insulin.

CONCLUSION

Screening for depressive symptoms in patients with diabetes, both in the primary and speciality care settings are still not a regular feature in the management of diabetes in our country though a 12% prevalence of major depression has been reported in diabetic patients. Both prospective and cross-sectional studies have shown that the presence of diabetes doubles the risk of comorbid depression, making its recognition and treatment in diabetic patients clinically relevant.

Screening for psychosocial stressors and depression can be considered at the time of initial diagnosis, during regular review visits to the clinician, during hospitalization or development of a diabetes complication, or when discussing problems regarding glucose control or adherence to lifestyle changes and medication.

Conventional management of depression with psychotherapy and pharmacotherapy is effective with the regimen being tailored to the individual patient with maintenance therapy being offered for those with relapses.

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