Original Research Article

Impact of treatment of depression on quality of life among diabetic patients with depression

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Abstract

Background: Depression is one of the commonest neuropsychiatric disorders in patients with diabetes mellitus (DM). Diabetes with depression is associated with a low quality of life (QoL). Complications in DM and depression still remain poorly identified and inadequately treated. But treatment of depression among DM patients is almost totally ignored and the QoL is poor.

Materials and methods: A prospective observational study was conducted on 100 type 2 Diabetes mellitus patients diagnosed with clinical depression (ICD-10) at a tertiary care hospital. They were treated for depression along with DM medications and followed up till 6 months was assessed by WHO Quality Of Life (WHOQOL) – BREF scales.

Results: There was a statistically significant improvement in overall WHO QOL scale from 5.96±1.23 at baseline to 6.71±1.15 at 6 months (P value < 0.001). Among various domain, the mean Physical health domain was 17.72±2.281 at baseline, which has improved to 25.56±3.367 at 6 months follow up and the mean Psychological domain score was 16.32±2.174 at baseline and has improved to 22.64±2.343 at 6 months follow up.

Conclusion: QoL is a domain of major importance and it affected in patients with DM and depression. Treatment of depression in DM patients is almost ignored. In the current study, treating

depression in DM patients enhanced the quality of life (P value < 0.001). Hence diagnosis and treatment of depression in these patients is particularly important in order to reduce complications and improve quality of life.

Key words

Diabetes Mellitus, Depression, Quality Of Life (QoL), WHOQOL–BREF scale.

Introduction

Diabetes mellitus (DM) is a major health care problem affecting worldwide, accompanied by both short term complications like hypoglycaemia and long term complications like cardiovascular disease, neuropathy, nephropathy and retinopathy etc. However it is less known that DM increases the risk for depression [1]. Individuals with diabetes have a two-fold increased risk for depression, affecting approximately one in every five diabetes patients [2]. Depression is one of the commonest neuropsychiatric disorders in patients with diabetes mellitus (DM) and is associated with a low quality of life. Co-morbid DM and depression remains poorly identified and inadequately treated [3]. The prevalence of major depression in patients with DM is estimated at around 12% (ranging from 8-18%), while milder types of depression or elevated depressive symptoms, in general, are reported to be present in 15-35% [4]. Depression in diabetes is persistent and/or recurrent. Depression can also worsen glycemic control in diabetes, with higher risk to develop complications and adverse outcomes. Improving depressive symptoms has been reported to be associated with improved glycemic control [5]. Thus the coexistence of depression and diabetes may result in serious negative impact on both lifestyle and quality of life of the affected individual.

In recent times, Quality of Life has been recognized as an important treatment outcome for many chronic diseases like DM. The overall treatment goal is not only to improve glycaemic control and prevention of complications, but to preserve a good quality of life (QoL). Several studies have shown that the quality of life in diabetes is decreased as compared to individuals without diabetes [6, 7]. Underlying Depression may be an important determinant of quality of life of diabetic patients, as reported by many recent reviews and has been identified as an independent detriment even after controlling for potential confounders [8]. Quality of life scores have a strong correlation with severity of depression [9]. Hence diagnosis and effective treatment of depression may have tremendous positive impact on treatment outcomes and quality of life of the affected person.

But psychological well-being, including depression is considered as the most ignored aspect of diabetes care in India. Clinicians often give more emphasis on pharmacological management and life style modification intervention, without due consideration to psychological aspects and quality of life. Lack of adequate number of studies documenting the positive impact of management of depression can be considered as one of the major reasons for this phenomenon. Hence the current study has been conducted with an objective to assess the impact of treatment of depression on quality of life of type 2 diabetes patients with depression.

Materials and methods

The study was a prospective observational study which included patients aged more than 18 years with a diagnosis of type 2 Diabetes mellitus, clinically diagnosed with depression as per ICD-10 criteria. All the study participants were recruited from Diabetic clinic from the Department of General Medicine in a tertiary care teaching hospital in south India. Patients with acute medical conditions such as acute febrile illness, stroke, myocardial infarction, diabetic ketoacidosis etc. were excluded from the study.

A total of 100 participants satisfying the inclusion and exclusion criteria were recruited consecutively till the sample size is reached. After obtaining the informed written consent, all the participants were evaluated by thorough history, clinical examination, anthropometric parameters and appropriate investigations. All these parameters were documented in a structured proforma. Quality of life was assessed by WHO Quality Of Life (WHO-QOL) – BREF instrument, which is a structured and validated tool to assess quality of life.

All the participants were started on appropriate antidepressant therapy by a qualified psychiatrist, after due consideration of the patient's clinical condition and contra indications, as per the institutional protocol. All the subjects were followed up after 2 weeks from the onset of intervention. Further follow-ups were done at the end of 1st, 3rd and 6th month of intervention. During follow up, all the participants were assessed by clinical examination and WHO Quality Of Life (WHO-QOL) – BREF scales.

The study was conducted after obtaining approval from Institutional Human Ethics Committee. Informed written consent was obtained from all the participants, after explaining the risk and benefits. Confidentiality of study participants was maintained throughout the study.

Quality of life assessed by WHO-QOL BREF questionnaire was considered as primary outcome variable. Descriptive analysis was carried out by mean and standard deviation for quantitative variables, frequency and proportion for categorical variables. The change in various components of WHO QUALITY OF LIFE SCORE was calculated by paired T-test. P value < 0.05 was considered statistically significant. IBM SPSS version 22 was used for statistical analysis [10].

Results

A total of 100 subjects were included in the study. The mean age of the study population was 52.61±11.32 years.

Among the study participants, highest proportion (51%) of the subjects, were aged between 51 to 70 years, followed by 38% of the subjects in 31 to 50-year age group. There were 5% of subjects under the age 30 or below, and 6% of the subjects were aged 71 or above. The proportion of males and females was 61% and 39% respectively in study population.

The study participants were evenly distributed across different levels of educational background. There were 21% of illiterates. The proportion of people educated till primary school, middle school and high school were 16%, 20% and 34% respectively. Only 9% were educated till graduation or above (**Table - 1**).

Table - 1: Age and gender distribution of the study population (N=100).

Socio demographic profile	Number (N)	%
Age group		
up to 30	5	5.0
31 to 50	38	38.0
51 to 70	51	51.0
71 and above	6	6.0
Gender		
Male	61	61.00%
Female	39	39.00%
Education		
Illiterate	21	21.00%
Primary School	16	16.00%
Middle School	20	20.00%
High School	34	34.00%
Graduate and above	9	9.00%
Economic Status		
Upper class	12	12.00%
Middle (upper middle and lower middle)	74	74.00%
Lower (upper lower and lower lower)	14	14.00%

Table - 2: Diabetes mellitus treatment modality and co-morbid conditions in the study population (N=100).

Clinical variables	Number (N)	Percentage (%)
Type of treatment		
Oral hypoglycemic agents (OHA)	89	89.00%
OHA and Insulin	11	11.00%
Co morbid Condition		
Hypertension	13	13.00%
Hypothyroidism	10	10.00%
No co morbidity	77	77.00%

Table - 3: Comparison of WHO QOL score before and after intervention in people with depression (N=100).

WHO QOL domains	Baseline score	6 months score	P value
Physical health	17.72±2.281	25.56±3.367	0.001
Psychological	16.32±2.174	22.64±2.343	0.001
Social relationship	9.61±2.07	9.58±2.08	0.181
Environment	29.28±3.85	29.38±3.86	0.167
Overall score	5.96±1.23	6.71±1.15	<0.001

Among the study participants, 89 % were on oral anti-hypoglycaemic agents and 11% subjects were on both OHA and Insulin. Other Co morbidities like Hypertension and Hypothyroidism were present in 13% and 10% respectively. In 77.00% of the subjects, no co morbidities were seen. The mean duration of diabetes mellitus was 9.593 ± 7.524 years in study population (**Table - 2**).

The mean quality of life score has shown improvement from baseline in Physical health and Psychological domains. The mean Physical health was 17.72±2.281 at baseline, which has improved to 25.56±3.367 at 6 months follow up. The mean Psychological score was 16.32±2.174 at baseline and has improved to 22.64±2.343 at 6 months follow up. Both the differences were statistically significant implying that treatment enhanced the quality of life (P value < 0.001). There was a statistically significant improvement in overall WHO QOL of life score from 5.96±1.23 at baseline to 6.71±1.15 at 6 months (P value < 0.001) (**Table - 3**).

Discussion

Psychological wellbeing and quality of life are being increasingly recognized as equally important treatment outcomes to achieve in addition to achieving glycemic control and chronic micro and macro vascular complications in people with type 2 diabetes mellitus. Many studies in the past have documented strong association of various psychological conditions like depression, anxiety etc. with diabetes mellitus. Also, the association between diabetes mellitus and poor quality of life has been well documented [8]. There is high probability that the depression, which is reported be more common in diabetic population to be a strong determinant of poor quality of life among diabetic patients. Studies documenting the change in the quality of life, before and after treatment of depression may provide strong scientific evidence regarding the role of depression in quality of life.

In the current study, the quality of life among diabetic patients with co-morbid depression was evaluated by WHOQOL-BREF questionnaire, following treatment of depression. The overall WHOQOL score had shown statistically significant improvement after the treatment of

depression (5.96±1.23 at baseline vs 6.71±1.15 after treatment, p<0.001). There are multiple studies in the past, which have reported similar findings. Nicolau J, et al. [11] in their study also observed that treating depressive symptoms with medical therapy in T2DM is associated with improvements in QoL and depression by using the Spanish version of the SF-36 Health Survey. Since different studies have assessed quality of life using various scoring scales, direct cross comparison of scores across studies is not possible and logical. Derakhshanpour F, et al. [12] in their study observed that the mean quality of life in diabetic patients was 50.7 ± 14 as assessed by WHOQOL-BREF questionnaire, which was very higher than our study. But their study setting was different as they had an objective to compare scores in depressed and non depressed diabetic subjects. Mishra SR, et al. [13] in their study also observed that depression affects quality of life using the Nepali version of WHO-BREF for face to face interviews and they observed mean PHQ-9 score of 6.15 ± 5.01.

In our study, the mean quality of life score has shown improvement from baseline in Physical health and Psychological domains after treatment. Baumeister H, et al. [14] in their study observed that Psychological and pharmacological interventions had a moderate and clinically significant effect on depression outcomes in diabetes patients but QoL did not improve significantly. Similarly Nicolau J, et al. [11] also observed that treating depressive symptoms with medical therapy in T2DM is associated with improvements in QoL and depression. In our study, the highest QOL mean score was reported at baseline in Environmental domain (29.28±3.85) followed by Physical health (17.72±2.28), Psychological (16.32±2.17) and Social domains (9.61±2.07). But Derakhshanpour F, et al. [12] in their study observed the highest QOL mean score was reported in social relationship domain (90.5 ± 14.4) followed by Physical health (58.3 ± 22.8), Environment domain (43.4 ± 21.5) and Psychological health (36.8 ± 21.1). Similarly Mishra SR, et al. [13] in their study also

observed that the highest QOL mean score was reported in social relationship domain (57.32 ± 11.83), followed by environment domain (54.71 ± 7.74), psychological health (53.25 ± 10.32) and physical health (50.74 ± 11.83). Akena D, et al. [3] in their study observed that depressed participants perceived their overall quality of life as poor and scored poorer on the physical, psychological and environmental [OR=0.97, (CI 0.95–0.99)] QOL domains compared to DM subjects without depression using WHO-QOL scale.

Even though depressive symptoms severe enough to warrant treatment in depression are found in 1 of 4 patients with diabetes, adequate treatment of this comorbidity is lacking [15]. Because the majority of patients with diabetes and MDD are treated in the primary care setting [16], suitable intervention in this treatment environment is essential. The Pathways Study [16], a population-based epidemiologic investigation, demonstrated significant improvements in quality of life in group with treatment for depression during a 12-month period than patients receiving usual care [16]. Similarly in our study also, treatment enhanced the quality of life (P value < 0.001).

Recognition and treatment of depression in Type 2 DM are important because of its association with hyperglycemia, diabetic complications and poor quality of life (QoL) [11]. Despite high rates of comorbid major depression in patients with diabetes mellitus, the affective component of this disease combination is often inadequately treated in the primary care setting [17]. Depression can also affect physical outcomes such as myocardial infarction, life expectancy in cancer patients, and infections. QoL is a domain of major importance in patients with DM. Poor QoL has been associated with depression in Type 2 DM. Hence, diagnosis and treatment of depression in these patients is particularly important in order to reduce complications and improve quality of life [2, 8].

Our study has few strengths and limitations. To our knowledge, this is the first study to assess the impact of treatment of depression on QOL among diabetes subjects. We used WHO-BREF which has been widely used across cultures and regions, and is a validated tool for measuring health-related QOL worldwide. But our study was limited to a single healthcare center and hence these results cannot be generalizable to other populations. Also, we did not collect any data to assess the patients' compliance to their ongoing therapy. We recommend further studies to investigate the impact of treatment of depression on QOL in larger T2DM populations. Therefore, public health policy makers and program planners should focus on early diagnosis and prompt treatment of depression in people with diabetes as part of their routine primary care.

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