RESEARCH ARTICLE

Depression, anxiety, and stress levels in patients with type 2 diabetes mellitus

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ABSTRACT

Background: Diabetes is a lifestyle disorder where there is an increase in the blood glucose levels which can be observed. Being diabetic is stressful and being stressful worsens diabetes. Hence, management of stress is most important in diabetic patients. Timely assessment of stress and counseling the patients are highly essential in the management of diabetes. If the stress is ill-managed, it leads to the depression. Depression has to be screened and managed appropriately. Otherwise, it increases the tendency of suicides. **Aims and Objective:** The present study was undertaken to observe the depression, anxiety, and stress levels in diabetic patients. **Materials and Methods:** The study included 30 type 2 diabetic patients and 30 age- and gender-matched healthy participants. The following criteria were used in the selection of cases. To assess the depression, anxiety, and stress levels, DASS 42 scale was used. **Results:** There were significantly higher scores of depression, anxiety, and stress in the diabetics when compared to healthy controls. **Conclusion:** The current study suggests that there are higher levels of depression, anxiety, and stress symptoms in diabetic population when compared with healthy controls. We recommend further detailed studies in this area for better understanding of the association and recommend psychological support in the management plan of diabetes.

KEY WORDS: Diabetes; Stress; Anxiety; Depression

INTRODUCTION

Stress is defined as the body response to any demand made on it. This response has two divisions that are specific response and non-specific response. Specific response is the one which is actual response to the particular stimulus that involves only a particular body system. However, non-specific response is the one which is common to any type of stress and involves different body systems and leads to fight or flight response. This is a favorable response, providing that the stress is physical stress which is acute. This elevation of blood glucose is seen not only in physical stress but also other form of stress such as psychosocial stress which is experienced in routine day lifestyle. Psychosocial stress does not require increase in the blood glucose levels. Moreover, if the individual undergoes this type of stress daily, there will be elevated blood glucose levels. However, chronic stress leads to several deleterious effects. Stimulation of the secretion of different hormones during stress elevates blood glucose levels. Hence, assessment of stress was recommended in clinical practice. Diabetes is a lifestyle disorder where there is an increase in the blood glucose levels which can be observed. It was reported that India is going to be diabetic capital of the world. It affects multiple systems of the body. Being diabetic is stressful and being stressful worsens diabetes. Hence, management of stress is most important in diabetic patients. Timely assessment of stress and counseling the patients are highly essential in the management of diabetes.[1] If the stress

is ill-managed, it leads to the depression. Depression has to be screened and managed appropriately. Otherwise, it increases the tendency of suicides. Earlier studies have reported that depression increases the risk of diabetes.[2,3] Anxiety is reported to impair the metabolic processes and reported to increase the complications in diabetics.[4] Hence, assessment of these psychological parameters should be given pivot importance in the management of diabetes. The present study was undertaken to observe the depression, anxiety, and stress levels in diabetic patients.

MATERIALS AND METHODS

Study Design

This was a case–control study.

Study Participants

The study included 30 type 2 diabetic patients and 30 age- and gender-matched healthy participants. The following criteria were used in the selection of cases.

Inclusion and Exclusion Criteria

Type 2 diabetic patients within 30–50 years of age and those willing to participate in study were included in the study. Those with any severe complications, those following any stress management methods or techniques, and those not willing to not willing to participate were excluded from the study.

Assessment of Depression, Anxiety, and Stress

To assess the depression, anxiety, and stress levels, DASS 42 scale was used. It is divided into three subscales of four-point scale. The higher is the score, the higher is depression, anxiety, and stress.[5]

Data Analysis

Data were analyzed by SPSS 20.0. Unpaired t-test was used to observe the significance of difference between the groups. $P < 0.05$ was considered as statistically significant.

Ethical Consideration

The study was approved by theee Institutional Ethical Committee, and informed consent was obtained from all the participants after explaining the details of the study and ensuring the confidentiality.

RESULTS

Table 1 presents the depression, anxiety, and stress levels of cases and controls. There were significantly higher scores

Table 1: Depression, anxiety, and stress levels of cases and controls			
Parameter	Cases	Controls	*P* value
Depression	22±3	12±4	$P<0.0001$***
Anxiety	15±4.2	8±2.77	$P<0.0001$***
Stress	23±5.32	15±4.11	$P<0.0001$***

Data were presented as mean and SD. ***$P<0.001$ is statistically significant. SD: Standard deviation

of depression, anxiety, and stress in the diabetics when compared to healthy controls [Table 1].

DISCUSSION

Diabetes can be defined as disruption of carbohydrate, fat, and protein metabolism which is due to a decrease in the release of insulin from the pancreas.[2,6] Diabetes is world's most prevalent metabolic disorder and is leading cause of adult blindness.[7-10] As it is well-known, the three classic signs of diabetes are as follows: Increased urinary output, increased thirst sensation, and increased hunger sensation.[11] Deficiency of insulin leads to the development of type 1 diabetes which is also called as juvenile diabetes. This type of diabetes can be managed by insulin injections. In type 2 diabetes, which is also called as maturity-onset diabetes, the insulin was produced from the pancreas in required amounts. However, the target cells will not respond to the insulin. The major problem in diabetes patients cannot be able to use the glucose levels though it is available. Hence, the body depends on the utilization of lipids. This will further lead to complications such as ketoacidosis. Depression is characterized by sadness, loss of interest, low self-esteem, decreased sleep quality, loss of appetite, feelings of tiredness, and impaired concentration.[12] Anxiety is feeling of worry, and nervousness and stress are mental straindue to excessive demands on the body.[13]

The present study was aimed to observe the psychological parameters in diabetic and healthy controls. There were extremely higher levels of depression, anxiety, and stress observed in the diabetic patients when compared with the healthy controls. Earlier studies reported that the patients with higher levels of depression respond less to the treatment of diabetes.[14] Most of the times, the management plan of diabetes does not include the diagnosis of psychological parameters.[15] It was reported that diabetic patients are highly risk for psychiatric diseases such as depression.[13,16-18] Further, it was observed that the psychological diseases such as chronic stress, anxiety, and depression are associated with glycosylated hemoglobin levels and contribute to increase in the complications and decrease the quality of life.[19] Our study results are in accordance with the earlier studies which are reported high prevalence of depression, anxiety, and stress in diabetic patients.[20,21] The present study highlights

the need of the assessment of depression, anxiety, and stress in diabetic patients.

Limitations

The sample size was less in the study, and the study was conducted at one center. Hence, the results cannot be generalized.

CONCLUSION

The current study suggests that there are higher levels of depression, anxiety, and stress symptoms in diabetic population when compared with healthy controls. We recommend further detailed studies in this area for better understanding of the association and recommend psychological support in the management plan of diabetes.

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