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Review Article

The Relationship Between Diabetes and Depression

Sumon Rahman Chowdhury[1*]
Shangkar Barua[2]
Abu Hena Mostafa Kamal[3]

[1]Department of Diabetes - Endocrinology and Metabolism
Chittagong Diabetic General Hospital
Chittagong, Bangladesh.

[2]Department of Pharmacology
Cox's Bazar Medical College
Cox's Bazar, Bangladesh.

[3]Department of Biochemistry
University of Science and Technology Chittagong (USTC)
Chittagong, Bangladesh.

*Correspondence to:

Dr. Sumon Rahman Chowdhury
Senior Medical Officer
Department of Diabetes, Endocrinology and Metabolism
Chittagong Diabetic General Hospital
Chittagong, Bangladesh.
Mobile : +88 01670 393031
Email : sumonrahman79@yahoo.com

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Abstract

Evidence of a bidirectional relationship between depression and diabetes has recently been documented in large prospective studies. Comorbid depression is associated with an increased risk of poor glycemic control, diabetes complications and mortality. Moreover, incident diabetes has also been found to be risk factors for subsequent development of depressive episodes. Furthermore, in a recent systematic review, depression is associated with the subsequent development of T2DM by up to 37% as it causes central obesity, increased release of circulating corticosteroid hormone (which antagonizes the action of insulin) and insulin resistance that is a more common etiological pathway for the development of T2DM. Subsequently, the presence of depression with diabetes has a severe impact for self-care management and long term outcome which includes long term disturbance of mood. Therefore, the purpose of this review is to explain the bidirectional relationship between diabetes and depression and explore the management options that are advocated to enhance the Diabetes self-management education and improve the quality of life for diabetic patients with depression.

Key words: Diabetes; Depression; Management.

INTRODUCTION

Life in this century suffering from diabetes mellitus has become an integral part for many people of the world. Not only can genetic predisposition but also the environmental factors and the lifestyle we lead in this era can also cause diabetes. It is a life long illness. That means once a diabetic always a diabetic.

Previously diabetes was considered like any other physical illness and as a result it did not focus any attention on human mind or psychology. We did not take into consideration the psychological impact like depression might cause to people specially young and adolescent groups of diabetic patients who are being diagnosed as diabetic. Human emotion is always a part of human psychology. It could be considered as a cause or consequence of type 2 diabetes. Stress in life which might cause emotional uplift and distress in human beings can cause diabetes. It was first recognized by Dr. Thomas Willis, a British physician who claimed that- "extreme sorrow" of human life can cause diabetes mellitus. Researchers recently have turned their attention to the emotional consequences of diabetic illness. It has been recognized that any gross emotional problem in diabetics influence the outcome of the disease.

Depression is increasing in many populations and according to the WHO it will be the second major cause of disability by the year 2020 and it is three times more common in diabetics compared to the general population[1]. Depression is more common in patients with diabetes mellitus and the prevalence of depression is increased in adults with type 1 diabetes and the depressed patient generally presents with very

poor glycemic control[2]. Therefore they are more predisposed to develop a relatively severe diabetic retinopathy than the patients without psychiatric disorders with diabetes[3]. Depression is related with a 60% increased risk of development of type 2 diabetes and furthermore, type 2 diabetes is also linked with only modest increased risk of depression[4]. Furthermore in a meta-analysis by M.P. Crosgrove it was found that the depression is associated with the subsequent development of T2DM as it causes central obesity, increased release of circulating corticosteroid hormone (Which antagonizes the action of insulin) and insulin resistance that is a more common etiological pathway for the development of T2DM[5]. So, mental stress like major depressive disorder, frustration etc. plays an important role in precipitating acute catastrophe in many non-communicable disease like T2DM, CAD etc[6].

According to the IDF atlas 2006, both diabetes and depression are associated with high rates of complication and death and increased health care costs[7]. In one of the few published studies of comorbid depression in the developing world, carried out in Bangladesh, Asghar et al reported that nearly one third (29% males, 30% females) of those with diabetes had clinically significant levels of depression, compared with only 6% of males and 15% of females without diabetes[8].

SEARCH STRATEGY

Available studies and abstracts were identified through Pub Med and Medline data bases (From 1993-2016) and Cochrane data bases. Key search terms were diabetes and depression. All available studies and abstracts describing the relationship between diabetes and depression were included. The reference list of review articles were also searched.

DISCUSSION

Effects of Depression on the Care of Diabetes

The presence of depression with diabetes has a severe impact for self care management and long term outcome which includes long term disturbance of mood. Clinical depression is defined by the lack of interest, reduced confidence, and lack of energy, sleep disturbance and changes in eating patterns[1]. But very few patients and their relatives can recognize this depression. There is an English proverb “what mind dose not know, eyes cannot see” it is invariably true in diabetic patients. In any general hospital outdoor service, very few diabetic patients are being referred to specialist psychiatrist. In a study by Harris et al, 1998 found that one in every four diabetic patients suffers from frequent problems with depression, anxiety or eating disorders and these conditions were well responded to psychological treatment, and in many cases, release of depression was connected with improvement of glycemic control[9].

When the diagnosis of diabetes is first made, the patient and their family start getting different tips, words of caution, various do’s and don’ts and even a variety of treatment options from friends, relatives and neighbors. Most of the time their tips are misleading like stop eating potatoes, rice and fruits. You can get kidney damage, gangrene or blindness, modern treatment is full of side effects, go for herbal. It has the cure, never take insulin and so on[10]. These confusing tips lead the patient and their family members very confused and in despair. The initial shock of diagnosis of diabetes followed by such confusing and misleading tips further escalates the depression. At first the patients are in shock and anger after hearing the diagnosis of diabetes and this combined with fear of injections and the undeclared fear of future complications of diabetes further escalates to the issue of denial and frustration. A few weeks later usually the realization among them kicks in that diabetes is for life and not just a temporary disease that can be cured. This type of depression seems to affect adolescence diabetic patients and tend to make them very worried and feel insecure about the future complications of diabetes. They then either wonder from one corner to another hoping for some easy escape or become a rebel revolting against basic norms of management of this chronic disease called diabetes. Quite a few freshly diagnosed adolescents plays the role of “Denial” a defense mechanism of human mind where he/she denies having diabetes and tries to behave as a non diabetic adolescent experimenting reckless party life where food and drink is no restriction. Undoubtedly it is a psychological blow to the self-esteem of the diabetic patients especially to the young diabetics[11]. It might cause psychic trauma and a distortion to self-image after being diagnosed as diabetes. It might also cause anger and profound distress and the same time can produce lots of guilty feelings about him/her considering this illness is a curse given on to him/her as a punishment from God. Furthermore, it also may generate lots of false belief regarding the illness thinking it is a consequence of infection and other non-diabetic people may try to avoid his association or food sharing[7].

Peer pressure sometime is also a problem for the adolescent diabetic patient. The altered life style recommended by the physician is not usually relevant to that of non-diabetic peers (Healthy peers). Chronic disease like diabetes and its daily regimen usually imposes on patients a negative implication for peer relationship, which may be an impending source of regular conflicts with the other members of peer group. They are found to keep secrets about having diabetes because of fear of losing friends. Several studies have shown that the influence from peers and friends are an important source of emotional support to the adolescent diabetic patient, furthermore it was associated with the well being of the patient suffering from chronic illness like diabetes[12,13].

There are three detrimental things that have been found in adolescent diabetic patients and these are emotional disturbance, depression and fear of hypoglycemic attacks[14]. Usually when they are told about the disease first time when diagnosed, they feel worried and unhappy also. At the same time they are depressed for their future life. Therefore the treatment should be a combination of group therapy, individual and family counseling, education and pharmacotherapy (By anti depressants if depression is accompanied with diabetes)[15].

A study by B. Lernmark et al on 62 type 1 diabetic patients (Aged 9-18 years) found that depression affects both adaptation and metabolic control. That is depressed patients showed poor adaptation, low self esteem and poor glycemic control. Furthermore, in this study it was found that adaptation to this chronic disease was closely related with the psychological well-being and capability of the patient to deal with diabetes. Patients with depressive illness should be identified early in order to offer effective treatment on their emotional difficulties, and to increase support for their adaptation to diabetes which ultimately results in better outcomes[2].

Adolescents with chronic illness are constantly and regularly struggling with their independence and at the same time a chronic illness such as diabetes keeps them dependent in respect to physical, emotional and financial restraints on their to families and this is a very crucial period for them. Chronic illness causes permanent and massive changes in a patient's life style for the prevention of debilitating and life threatening complications that always requires continuous adaptation. Its daily treatment regiment requires massive behavioral demands like the need to take scheduled medications, diet, regular physical exercise, frequent visits to the doctor and to monitor their blood glucose regularly. All these things they have to perform during schooling, eating out, sports, working, holidays etc. Hence a good compliance is needed to perform all these routine work in every occasion. Various studies have showed that approx. 50% of the adolescent usually do not obey the recommended care with term situations[13]. Adolescent diabetic patients with poor glycemic control should pay more attention by providers to improve quality of life as they are usually less likely to reach treatment goals. In many studies it is found that by the virtue of behavioral therapy like Coping Skills Training (CST) improves metabolic and psychological outcomes in a large representative group of adolescents with type 1 diabetes[16].

Coping is defined as changes in cognitive and behavioral effects to deal with specific external or internal or both demands that are appraised as taxing to or expending the resource of an individual[17]. Furthermore it has been proved in several studies that CST as well as continuing parental (Family) support and guidance appears to help adolescents for successful achievement of glycemic control in at least one year follow-up[16].

Family support is a very important and crucial factor for the compliance of chronically ill adolescents. In several studies it is found that positive and co-operative family environment and good relationships with the other family members are associated with good compliance and the reverse was also observed in poor family relationships[12 13]. In here the parent's role to increase their supervision to the chronically ill child was found to be very effective towards the pathway in the improvement of compliance and furthermore, the parents should be highly motivated in showing interest to the requirements of their ill child without showing over concerns. A good and co-operative relationship between the patients and health care providers are also linked with good compliance[13].

The diabetic care team includes a very efficient and knowledgeable health care team that includes doctor (Diabetologist) Dietitian, Diabetic Educator Nurse and other health care professionals. According to the various studies, the patients with poor glycemic status (High risk) have a higher prevalence of accompanying psychiatric illness such as depression and eating disorders[3]. Thus the prevention of primary and secondary diabetic complications requires a team based treatment approach that includes understanding of social, psychological and psychiatric branching of type 1 diabetic patients[3].

Psychologically mediated care begins with an ideal understanding of how to create and continue the therapeutic relationship between the patients and the doctor. This relationship can do even better by encouraging the patient to participate themselves in setting the goals of their care. The caring physician should discover the unexplained/unexpressed goals of the participating diabetic patient and then suggest a plan that will identify any existing difference between the patients and the caring physician. These steps are usually connected with the likelihood of successful treatment outcomes[3].

The diagnosis of depression is based on the detection of at least a subgroup of the possible physical, cognitive, affective and attitudinal symptoms of depression. It is very difficult to recognize a depressed diabetic patient if there are physical symptoms like fatigue and weight loss or if cognitive symptoms predominate as these signs/symptoms may be a consequence of poorly controlled diabetes or ketonuria. When these symptoms persist after improvement of glycemic control then the diagnosis of depression is justified. If the diagnosis is confirmed for depression then the treatment should be initiated as early as possible. For the treatment of depression both psychotherapeutic and psychopharmacologic interventions are very helpful for treating depression among diabetic patients and furthermore each elements of the treatment plan should be revised jointly by the physician and the patient. Furthermore, this will minimize the frustration of the patient[3].

Management of the Depression in Diabetes

i) *Psycho education:* It encourages people to develop their own coping skills. It may to form self-help and group-support groups. Peer modeling plays a great role in support groups. It will lessen depression or depressive feelings among children and adolescents. In psycho education all psychological issues must be addressed categorically and should encourage patients for successful application of newly acquired knowledge and skills to cope with diabetes and help to keep it under control. It will improve patient's self esteem and will make possible for him/her to control their blood glucose[18].

ii) *To develop emotional strength and self-confidence:* Emotional strength of a human being depends on love, trust and humour and also on harmonious environment. Clinicians who deal with diabetic patients should be able to foster these qualities in themselves and then they will be able to generate these qualities

among their patients. Patients in return will develop self confidence in themselves to deal with their daily mundane life experiences including having insulin injections on a daily basis. They will also be able to modify their dietary intake according to their blood sugar level. This kind of activity will be able to create optimism in the patient's life and will be able to cut down his/her distressful feelings[19].

iii) *Stress Relaxation therapy:* This therapy can help diabetic patient to cope with fear and uncertinainly in relaxation to diabetes[20].

iv) *Insight development therapy:* Lots of diabetic patients do not have insight regarding their life long problem; hence lack of insight may influence the outcome of diabetes[15].

v) *Family counseling and support:* Diabetes is a life long illness and is a complex medical condition. This condition is most of all managed by the patients. As the patient lives in a family, so better understanding regarding patient's illness is required by the family members. Family counseling along with patient is also an important step to deal with diabetes. Significant improvements has been reported in the group counseling with family members in their glycemic control[15]. Furthermore, family support is a very vital and fundamental factor for the compliance of chronically ill adolescents[12, 13].

vi) *Doctor and patient relationship:* A good doctor-patient relationship can ensure a good compliance from the patient regarding his/her medication and subsequent follow-up. For this purpose doctors need to form a rapport (Empathy) with his/her patients which is very important to keep the therapeutic relationship with the patient. It does not mean he/she has to spent his/her valuable time with the patient, it means a simple nod or sympathetic gesture can assure a patient a lot at the same time can ensure his compliance[21]. The consulting doctor should ascertain the confined goals of the patient and then put forward a plan that will spot any accessible difference between the patient and the physician. These steps are usually linked with the like hood of successful treatment outcomes[3].

vii) *Pharmacotherapy:* As depression and anxiety are common in diabetes, they may need drug treatment at times. Medication in the form of selective serotonin reuptake inhibitors and antidepressants may be helpful in reducing the anxiety[15].

viii) *The combination of CBT and supportive diabetes education:* This is an effective non pharmacologic treatment for major depression in patients with type 2 diabetes. It is also found associated with the improvement of glycemic status[22].

CONCLUSION

Diabetes education is more important for all age groups of patients especially for adolescents because the adolescent/young patients with diabetes are generally frustrated due to lack of proper Diabetic Self Management Education (DSME). Everyone should know to take better care of their disease as its consequence is very serious if unmanaged. As the patients have to drive a long way with this chronic incurable disease called diabetes, they have to face innumerable problems in the near future. An educational program should be arranged for the diabetic patients (Type 1 or type 2) for reversing their depression and misconception. It is very important for achieving proper short and long- term goals of this chronic disease and to ensure an almost normal life for all age of patients with diabetes mellitus. A physician is the right person who can influence the patient, remove all misconceptions and give positive guidelines to the diabetic patients. This will enable the diabetic patients especially adolescents to face the challenges of defeating this chronic disease positively and effectively.

DISCLOSURE

All the authors declared no competing interest.