Scientia Psychiatrica

Journal Homepage: www.scientiapsychiatrica.com

eISSN (Online): 2715-9736

Organic Mental Disorder Accompanied with Anxiety and Depression in Diabetes Mellitus Type 1

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ARTICLE INFO

Keywords:
Anxiety disorder
Depression
Organic disorder
Diabetes mellitus

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All authors have reviewed and approved the final version of the manuscript.

https://doi.org/10.37275/scipsy.v1i3.17

A B S T R A C T

Introduction: Diabetes mellitus is a chronic disease that is often accompanied by psychiatric disorders. This mental disorder may be caused by the role of biological factors such as neurotransmitter disturbance, or psychological factors of patients who are less prepared to accept changes in conditions caused by this chronic disease. This case report was aimed to present reported cases of mixed anxiety disorders and depression that accompany organic mental disorders post epilepsy and type 1 diabetes mellitus. **Case presentation:** A girl, 12 years old, living in a rural area with, low socioeconomic background, was taken by her father to a psychiatric clinic with complaints of frequent seizures and feeling depressed and worried, especially when she was disappointed or there was pressure. Patients were also known to have type 1 diabetes mellitus since the previous year. The patient had been hospitalized and was suspected of suffering from atonic focal epilepsy disorders or periodic paralysis. From psychiatric anamnesis, there were depressive feelings, worrying about her mothers and family, and relevant thought progressions. Pharmacotherapy and psychotherapy were conducted to treat this patient. **Conclusion:** Anxiety disorders and depression are very common in patients with diabetes mellitus and other organic disorders. So clinicians are expected to detect psychiatric disorders early in patients with chronic diseases.

1. Introduction

Anxiety disorders and depression often accompany medical conditions. Chronic illnesses change a patient's social changes, which then develop into developing and improving other psychiatric disorders.[1] Depression-related effect of medical conditions is generally the same as those in endogenous depression, including feelings of depression, sadness, reduced mental activity, and impatience. However, mental organic disorders related to depression are marked by concentration disorder, apathy, depressive mood, insomnia, anorexia, low self-esteem, obsessive-compulsive risk, and suicidal ideation.[2-3]

Diabetes mellitus is a chronic disease that is often accompanied by psychiatric disorders. This mental disorder may be caused by the role of biological factors such as neurotransmitter disturbance, or psychological factors of patients who are less prepared to accept changes in conditions caused by this chronic disease.[4]

This case report presents cases of mixed anxiety disorders and depression that accompany organic mental disorders post epilepsy and type 1 diabetes mellitus.

2. Case Presentation

A girl, 12 years old, living in a rural area with, low socioeconomic background, was taken by her father to a psychiatric clinic with complaints of frequent

seizures and feeling depressed and worried, especially when she was disappointed or there was pressure. This happened since her mother died due to kidney failure, because of type 1 diabetes mellitus complications. Patients were also known to have type 1 diabetes mellitus since the previous year. The patient had been hospitalized and was suspected of suffering from atonic focal epilepsy disorders or periodic paralysis. Patients were often suddenly weak, sometimes accompanied by partial seizures, namely in the right hand, duration of 15 minutes, unconscious, but if given an order, the patient can still follow the order. In the past week, patients still experience seizures and weakness around 2 to 3 times.

Based on the development history, the patient was born prematurely at 7 months of pregnancy, weighed 1300 grams, and was treated in an incubator. Patients can walk and talk at the age of 2 years. Patients started preschool for 2 years and continued kindergarten and elementary school until grade 5 with very good performance. Because she was ill and often weak in school, the patient was eventually transferred to an inclusion school (SLB).

From the examination of mental status, the patient had a small posture, hypertelorism, good self-care, adequate contact with examiners, compos mentis, realistic thought forms, preoccupation thought contents want to go to school and remember mothers, relevant thought progressions, coherent, appropriate affect, eutimic mood, feeling depressed, insight degree III. Then, several investigations were carried out in the form of EEG (electroencephalography) found epileptiform waves in the form of sharp, diffuse, frequency, high amplitude (supporting clinical atonia generation); ENMG (electroneuromyography) there is axonal type polyneuropathy (according to clinical features of hypokalemia paralysis); Graphic tests (House Tree Person Test) inferiority, depressive impression, the role of small mothers, immaturity personality; Psychological tests: IQ level 60-65 (mild mental retardation); CDI (Child depression inventory) questionnaire: 14 (Mild Depression); Blood Sugar Level 470.

This patient was diagnosed as an organic mental disorder accompanied by a mixture of anxiety and depression disorders. Initial management of these patients is by administering medications related to diabetes mellitus in children (consultation with pediatricians), administering fluoxetine 10 mg / 24 hours, and psychotherapy. After administering fluoxetine for 2 weeks, felt calmer and began to be able to talk. Psychotherapy begins with the consent of the patient and his family. Psychotherapy was provided in the form of supportive psychotherapy, relaxation exercises, and cognitive behavior therapy for 6 sessions. Currently, the patient's condition has improved, and is still undergoing psychotherapy with a psychiatrist. Discussion

Mental disorders associated with the physical illness are characterized by symptoms of impaired consciousness, impaired influence and will, personality disorders, and dementia. In particular, affective symptoms often accompany physical illness, and depression most often occurs between them. Depression related to medical conditions can be classified as reactive or psychogenic depression, that is depression caused by changes in a patient's social situation or depression that is directly caused by a medical condition (somatogenic depression). Somatogenic depression is further divided into organic depression due to brain disorders and depression associated with systemic disease. Depression due to organic brain disorders (organic depression) is often called secondary depression (or secondary mood disorders) in recent years.

According to the International Diabetes Federation, diabetes is one of the biggest global health problems in the 21st century.[3] In 2015, the prevalence of diabetes worldwide was one in 11 adults and the estimated prevalence of impaired glucose tolerance is one in 15 adults. These figures are expected to increase, especially in urban populations. This certainly adds to the burden on the economic health sector, where 12% of global health expenditure is currently spent on diabetes.[3]

Depression is a common and very serious medical

disease with a lifetime prevalence ranging from around 11% in low-income countries to 15% in high-income countries. The risk of having mental health problems in life is around 50% and this causes a decrease in employment, productivity, and wages.[4-7]

As defined by the American Psychiatric Association Diagnostic and Mental Statistics Disorders Manual (DSM-5), depression is a mood disorder that reunites some symptoms that change individual functions.8 Depression interferes with emotions, cognition, and behavior. [8] According to DSM-5, criteria diagnostics for depressive disorders consist of the main symptoms of decreased mood, decreased interest (anhedonia) or both, and at least four of the following symptoms: feelings of guilt or despair, fatigue or loss of energy, impaired concentration, suicidal thoughts about death, decreased weight gain or weight gain (5% weight change), decreased or increased psychomotor activation (changes inactivity), hypersomnia or insomnia (changes in sleep) lasting at least 2 weeks. Depression can be described as a first episode, a recurring or chronic episode; can be mild, moderate, or severe, with or without psychotic symptoms.[8]

There is evidence that the prevalence of depression is increasing in prediabetic patients and in undiagnosed diabetic patients, and is significantly increased in previously diagnosed diabetic patients compared to normal glucose metabolism individuals.[9] The prevalence of depression can be up to three times higher in patients with type 1 diabetes and twice as high in people with type 2 diabetes compared to the general population worldwide.[10] Anxiety occurs in 40% of patients with type 1 or 2 diabetes.[9] The presence of depression and anxiety in diabetic patients worsens the prognosis of diabetes, increases non-compliance with medical care, decreases the quality of life, and increases mortality.[11-12]

Because of the negative aspects regarding individual health and also the health care system, comorbidity of diabetes and depression has triggered a lot of research in the past decade. However, recent studies have shown that there are no general genetic factors to explain the positive relationship between depression and type 1 or 2. diabetes.[13-14]

Various environmental factors (epigenetic factors) are thought to activate common pathways that increase the comorbidity of depression and type 2 diabetes. One important factor is a low socioeconomic status which increases the likelihood of type 2 DM, but also seems to be a cause of depression. Other common causes of DM and depression are lack of sleep, lack of physical exercise, and diet.[15-16]

Based on neurobiology theory, a key candidate for a common pathway can be the activation and disturbance of stress systems. Chronic stress activates the hypothalamus-pituitary-adrenal axis (HPA-axis) and sympathetic nervous system (SNS), increasing the production of cortisol in the adrenal cortex and the production of adrenaline and noradrenaline in the adrenal medulla. visceral and causes metabolic syndrome and type 2 diabetes.[17-18]

On the other hand, chronic stress has other behavioral consequences; noradrenaline, cortisol, and other hormones activate the fear system that determines anxiety, anorexia, or hyperphagia; the same mediator causes tachyphylaxis of the reward system, which results in the depression and cravings for food, other substances or stress. 18 Excess cortisol interferes with neurogenesis in the hippocampus, an area involved in depression as well as DM.[19-20]

In addition, chronic stress induces immune dysfunction directly or through the HPA or SNS axis, thereby increasing the production of inflammatory cytokines. Large numbers of inflammatory cytokines interact with the normal function of pancreatic β cells, induce insulin resistance, and induce the occurrence of diabetes mellitus.[21-22]

Many new studies show that the inflammatory response is also involved in the pathophysiology of depression. Proinflammatory cytokines have been found to interact with many pathophysiological domains that characterize depression, including neurotransmitter metabolism, neuroendocrine function, synaptic plasticity, and behavior.[23] These correlations show that stress (through chronic damage to the HPA and SNS axis) and inflammation, both of

which increase depression and diabetes mellitus, provide a possible correlation between the two.

Patients with type 1 DM need management of their disease that is different and more complicated than DM2: they need to monitor their glycemia, and adjust the insulin dosage accordingly, diet, and physical activity. The age of onset of type 1 DM is much earlier than type 2 DM; the close chronological relationship between type 1 DM and the onset of depression is striking, the diagnosis of type 1 DM and its treatment burden occurs in the period when the individual has an increased susceptibility to depression.[20] Children and adolescents with diabetes have a prevalence of depression two to three times greater than adolescents without diabetes.[24] Poor glycemic control in pediatric type 1 DM is associated with depression and lower socioeconomic status and the likelihood of depression in these patients is increased when glycemic control worsens.[25] There are not so many studies on type 1 DM and depression, but one important review of the subject proves a biological connection: increased circulating cytokines associated with autoimmune diabetes, lack of insulin which affects neurogenesis and neurotransmitter metabolism, effects of chronic hyperglycemia, and iatrogenic effects. hypoglycemia and hyperactivity in the HPA axis.[26]

Apart from drug treatment, patients with type 1 DM and depression need to be given psychotherapy. With psychotherapy, patients are invited to explore the meaning of stressors (crisis intervention) and then given support/support then invited to look for alternative ways to find coping mechanisms that are more adaptive and provide empathy. The technique that can be done is in the form of providing biofeedback therapy and relaxation techniques to overcome anxiety. Cognitive-behavioral therapy is done to reduce negative thoughts about stressors so that anxiety can be reduced. Through psychotherapy, it is hoped that there is no worsening of diabetes mellitus and organic mental disorders experienced by patients.

3. Conclusion

Anxiety disorders and depression are very common in patients with diabetes mellitus and other organic disorders. So clinicians are expected to detect psychiatric disorders early in patients with chronic diseases.

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