Psychological problems in patients with type 2 diabetes – Clinical considerations

Psihološki problemi bolesnika sa dijabetesom tipa 2 – klinička razmatranja

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Introduction

Diabetes mellitus is a major health and social problem. The prevalence of diabetes for all age groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030 1. Type 2 diabetes mellitus (DMT2) (adult-onset diabetes) is the most common form of this disease, which is present in 90–95% of patients 2. In Serbia, the prevalence of DMT2 in the year 2000 was 4.5%, both in men and women 3. Diabetes has negative impact on physical, psychological and social functioning 4. DMT2 is a disease related to stress and stressful life events which may have an important role in its pathogenesis, course and outcome.

The interactions between behaviour, central nervous and endocrine systems that might cause immunosuppression is the most fascinating finding in modern medicine, and its implications are important for the prevention and treatment of somatic illnesses 5. The patophysiological mechanisms related to the role of stressful life events on the emergence of DMT2 include hypothalamic arousal syndrome, with parallel activation of the hypothalamic-pituitary-adrenal axis (HPA) and the central sympathetic nervous system, leading to development of endocrine abnormalities, insulin resistance, and DMT2 6.

DMT2 is a chronic, self-managed disease that significantly affects the lives of patients and their families. According to the biopsychosocial model originally proposed by Engel 7, the mind and body are two important systems that are interconnected. The model offers additional insights into how chronic illnesses such as diabetes can affect daily life. This model makes a distinction between pathological processes that cause disease, which includes the individual’s perception of his or her health and its subsequent impact on health. Stress and coping with diabetes can affect the severity of disease directly, through pathophysiological processes or indirectly, through patients’ own perception of illness by deteriorating adherence to therapy and daily functioning.

The results of numerous studies indicated the presence of difficulties of many patients with diabetes living with their disease 8–10, such as the threat of serious complications (renal disease, amputation, blindness) and the potential for reduced life expectancy 11. The constant stress of maintaining tight glycemic control can result in two types of psychological distress: subclinical emotional distress and diagnosable psychological disorders 10.

Comorbid mental disorders in patients with type 2 diabetes

According to the results of a number of studies, anxious disorders and depression are the most frequent psychiatric comorbid conditions in DMT2 patients 12, 13. People with diabetes of any type have a 20% higher prevalence of lifetime diagnosis of anxiety than those without it 14. Generalized anxiety disorder (GAD) appears to be the most common anxiety disorder in this patients’ population, with prevalence rate ranging from 13% to 14% 15. Panic disorder (PD), post-traumatic stress disorder (PTSD) and social phobia are also more frequent in patients with DMT2 than in general population.

Depression occurs two to three times more frequently in DMT2 patients in relation to the general population 16. Depression is also more common in patients with undiagnosed 17 and newly diagnosed DMT2 18. The relationship...
between DMT2 and depression appears to be bidirectional in terms of causes, influences and treatment outcomes. Comorbidity of these two conditions is associated with suboptimal adherence to pharmacological therapy and dietary regimen, resulting in unfavorable clinical outcome. Antidepressant treatment of comorbid depression in DMT2 patients is associated with reduction of depressive symptoms and improvement of quality of life. However, results referring to the effect of antidepressant treatment on improvement of glycemic control are inconsistent.

Diabetes is clearly associated with impaired health-related quality of life, in comparison with the population without diabetes, independently of psychological factors and presence of somatic comorbid diseases, which was shown in many studies. In one of our studies, the severity of self-rated depressive symptoms in patients with DMT2 significantly inversely correlated with both social adjustment and quality of life.

Along with anxious disorders and depression, various other psychiatric disorders are present among DMT2 patients: adjustment disorder, substance and/or alcohol use disorders, bipolar I disorder and schizophrenia. DMT2 also increases the risk of developing dementia, mostly Alzheimer's disease and vascular dementia.

Diabetes-related distress

Diabetes-related distress (DD), a measure of health-related quality of life, includes negative emotional reactions to the diagnosis, threat of complications, self-management demands (testing and monitoring blood glucose level, compliance with dietary regimen and engaging in regular physical activity), treatment and social support. The results of a large cross-national DAWN study (The Diabetes Attitudes, Wishes, and Needs Study), examining the experiences of patients and health professionals in dealing with diabetes, have shown that DD was frequently present and interfered with their self-management efforts. The majority of patients (85.2%) reported feelings of shock, guilt, anger, anxiety, depression and helplessness at the time of diagnosis. The distress remained common in the long period of time after diagnosis (15 years in average). Of particular clinical importance are adaptation problems associated with repeated hypoglycaemic episodes and the implementation of insulin therapy.

Although emotional problems related to diabetes in majority of patients are not severe enough to fulfil criteria for mental disorders, they are associated with worsening of quality of life and self-management of disease. DD may differ by country and ethnicity due to cultural influences and health care system factors.

Clinical, behavioural and biological correlates of diabetes-related distress

DD was found to be an important contributor both to poor metabolic control and suboptimal adherence to treatment. One of important barrier to optimal adherence in DMT2 patients is the presence of multiple somatic comorbid illnesses, each having its own set of guidelines. That could further complicate adherence to treatment and self-management of the disease.

Several cross-sectional studies have shown that DD is associated with glycemic control, obesity, depressive symptoms, and quality of life. The psychosocial factors directly influenced diabetes self-care habits and women reported significantly higher DD. According to the results of prospective studies, DD predicted glycemic control, indirectly through self-efficacy. Reduction of the intensity of DD, not a change in depressive symptoms, was associated with improvement of glycemic control. A diabetes self-management education intervention has proven successful in patients of different ethnic origin. Fisher et al. have shown that DD was significantly associated with glycemic control and physical activity and that both DD and severity of depression were significantly and independently associated with diet and adherence to medication.

There are several studies that clearly showed an association between DD and type of antidiabetic therapy. The patients treated with insulin experienced higher DD in comparison with those who were treated with oral hypoglycemic therapy or diet. A negative appraisal of insulin therapy was significantly associated with higher level of DD, higher severity of depression and low education.

Hypoglycemia is often associated with unpleasant symptoms, such as tremors, profuse sweating, cognitive dysfunction, and irritability. Risk factors for the emergence of hypoglycemia would be the following: a history of hypoglycemia length of time since the first insulin treatment and a higher level of variability in blood glucose level. Severe hypoglycemic reactions can lead to unconsciousness, coma and death. Patients may manifest subclinical symptoms of anxiety related to hypoglycemia that may also adversely affect diabetes self-management. A fear of hypoglycemia is linked to both state and trait anxiety, although this relationship is complex.

“Psychological insulin resistance” (PIR) (patients' reluctance to both initiate and intensify insulin therapy) represents a complex of beliefs about the meaning of insulin therapy, poor self-efficacy concerning the skills needed for this, a lack of accurate information, the fear of unwanted effects and complications from insulin use, as well as lifestyle adaptations, restrictions required by insulin use and social stigma. Worry about efficacy was the factor most strongly correlated with delay of insulin therapy and self-blame has been identified as the attitude most predictive of patients' unwillingness to begin insulin therapy. PIR is the most frequent among females and ethnic minorities. Approximately 9% of diabetic patients on insulin treatment reported anxiety symptoms related to self-injecting.

Psychological factors and psychiatric disorders associated with diabetes-related distress

The results of 18-months study showed that risk factors for subsequent DD over time were female gender, previously
having major depression, experiencing more negative events or more chronic stress, having more complications, poor diet and low exercise. Negative life events increased the negative effects of both poor glycemic control and complications on the emergence of distress over time.61

Personal characteristics of patients with DMT2, such as coping style and temperament could also significantly impact the intensity of DD. Poor coping with anger may cause poorer glycemic control by provoking greater DD.62 A clear majority of patients with diabetes of different nationalities and cultural characteristics reported to accept their disease.63, 64 Denial and/or mental disengagement and resignation were present only in a small minority of patients. In a Norwegian survey 40% of the respondents reported that they often blamed themselves. Self-blame correlated significantly with both active and passive coping styles.65 The most frequently used coping strategies in Turkish patients were acceptance, religion, planning, positive reframing, instrumental support, emotional support, self-distraction and venting. The effect of certain coping strategies on patient's level of anxiety may be indicative of cultural differences in how patients from various cultures distract or vent their DD.64 A recent study showed a greater variance in emotional distress accounted for by coping styles, and perceived support than by clinical factors.

There are few studies of temperament and metabolic control in patients with DMT2. Patients with excessive depressive and anxious temperaments had worse psychological adjustment to diabetes, more depressive symptoms and worse metabolic control. Only depressive temperament was independently associated with metabolic control.66 These findings may indicate that healthcare providers should pay more attention to non-clinical factors such as personality traits, coping styles and social support, when addressing DD.

A number of studies have shown an association between DD and depression.67 Diabetes-specific emotional problems were most common in patients with a comorbid depressive disorder.68 DD was shown to be significantly related to the severity of depressive symptoms, independent of physical complications and glycemic control.69 DD, severity of baseline depression and a degree to which depression disrupted patients' quality of life were shown to be independent predictors of 1-year depression outcomes.70 DD was associated with higher levels of depression and poor emotional well-being71 and mediated the relation between depression and glycemic control.72, 73. Our recent cross-sectional study indicated that the level of DD was significantly higher in patients with a comorbid major depression in comparison to those without, as well as that DD, extra-disease stressful life events and polineuropathy were significant predictors of depression.

Incomplete therapeutic adherence, reduced self-efficacy, negative attitudes toward treatment (introduction of insulin treatment) are the components of DD that can result in poor glycemic control. The influence of sociodemographic factors (gender, education level, socio-economic status, cultural environment) as well as psychological characteristics of individuals and the presence of symptoms of depression were significantly associated with DD and glycemic control. Better glycemic control can be achieved by appropriate interventions (person-centred, i.e. adjusted to the personal and social characteristics of the patients) to overcome DD. It is obvious that the course and outcome of the illness depend not only on the application of optimal hypoglycemic therapy, but also on the timely detection of DD, and the implementation of interventions aimed at changing attitudes and behavior of patients and alleviating fears associated with the illness and its treatment.

Recognition of diabetes-related distress

Peyrot et al.77 have shown that most health providers of the countries studied are aware of the level of patient's distress secondary to diabetes. In spite of this general awareness, many providers had a lack of confidence in their ability to identify and evaluate psychological problems and to provide support for their patients. Thus, these factors remain considerable barriers to managing negative emotions more effectively and improving quality of life in this population of patients. Recognition of DD and application of effective strategies to reduce its intensity, even if diabetes self-care is adequate might be a key health care intervention in patients with diabetes.

Discussion about distress may be the most effective clinical approach and the first step in detection of psychological problems related to diabetes. Many diabetic patients hesitate to talk to their physician about emotional distress and prefer to report medical symptoms and complaints. Some patients spontaneously express their DD, often in terms of demoralization about their ability to manage their diabetes and an unwillingness or inability to engage in active self-management despite recognition of the need for change.75 The next step in identifying patients with DD would be asking questions about specific sources and intensity of the distress (having trouble accepting diabetes, feeling overwhelmed or buried out by the demands of diabetes management, getting support from family and worry about getting complications).

The ability of depression screening measures to identify DD is modest.76 The Problem Areas in Diabetes (PAID) questionnaire,79 that takes less than 5 minutes, could be useful. Shorter versions of the PAID, PAID-5 and PAID-1 (only one question referring to worrying about the future and serious complications), appear to be psychometrically robust measures of DD.77

Recognition of DD and mental disorders associated with diabetes is very important for primary care physicians, who participate in the implementation of prevention and treatment of DMT2 as well as other chronic somatic diseases.80 Since detection of patients with severe mental disorders by primary care physicians is better than detection of subthreshold symptoms, mild form of anxiety and other factors making distress related to disease,81 it is necessary to provide special training for primary care physicians by mental health care specialists, which would significantly advance this important area of clinical practice. Introduction of clini-
The symptoms of several psychiatric conditions such as adjustment disorder, depression and anxiety disorders could overlap with emotional and behavioural problems that make DD. Distinguishing DD from these mental disorders is important due to necessity to implement appropriate interventions that would be more efficient than treatment specifically directed at clinical depression and other mental disorders 79.

Depression is related to, but distinct from, diabetes distress. There has been considerable confusion among major depressive disorder (MDD), diabetes distress, and depressive symptoms. The physical symptoms associated with diabetes could also complicate distress assessment because they may be mistaken for symptoms of MDD 80, 81. It is important to know that the connection between chronic illness and depressive symptoms diminishes with age, as does the association between functional disability and depressive symptoms. Expectations of functioning in important roles appear crucial for explaining the link between disease and significant emotional distress.

Interventions to reduce the intensity of diabetes-related distress

The intensity of DD can vary considerably over time, depending on diabetes status, and should be regularly evaluated as part of a comprehensive diabetes care. Because of the bidirectional relationship between distress and diabetes management, interventions that focus on addressing both DD and diabetes management are likely to have maximal effects.

Initiating discussion about DD by health provider could act positively on patients. Even brief conversations that address feelings and link them to difficulties with self-management could normalize emotional reactions related to disease. The patient’s verbalization and expression of emotional experiences of having diabetes can be therapeutic. Because of the reciprocal influences between emotional distress and diabetes self-management, integrative approach (psychological treatment and changes in health behaviour) that target both of these problems are likely to have stronger effects on diabetes health outcome than those that focus on either in isolation 81. It includes participation of nurses, nutritionists, health psychologists and psychiatrists. Taking into account that patients on insulin therapy represent group with more severe form of DMT2 requiring more demanding self-management, interventions leading to both of these problems are likely to have stronger effect.

A recent randomized study of the new developed program for the initiation of intensive insulin therapy in DMT2 patients (MEDIAS 2 ICT: More Diabetes Self-management for Type 2 Diabetes – Intensive Conventional Insulin Therapy) conducted as group sessions in comparison with an established education program (a combination of two older education programs regarding initiating mealtime insulin and treating hypertension) as an active comparator condition, has shown that this program was as effective in lowering HbA1c as the control education program, but superior in reducing DD. A key element of that program is shared decision-making between patients and diabetes educators referring to realistic treatment goals. The patients discuss individual problems and barriers to achieving the treatment goals and methods to overcome the barriers as well as attitudes and personal perceptions about certain aspects of diabetes treatment. An important issue of that program is social support with an active participation of family members, partners or friends of patients with diabetes 82.

Novel approaches to the emotional and self-management problems related to diabetes are clearly needed for the far larger population of patients struggling with disease-related distress.

Patients who experience long-standing and profound diabetes distress and those who have any mental disorder may require a referral for specialized care. Efficient consultation-liaison services (with psychiatrists and psychologists who are integrated into the multidisciplinary diabetes care team) and education of endocrinologists in recognition of diabetes distress as well as psychiatric disorders associated with diabetes would be necessary for the implementation of integrative treatment of these patients.

To our mind, the main limitations of previous studies on disease related distress in DMT2 patients would be methodological problems related to the proper diagnosis of comorbid depression and its differentiation from the disease related distress. It is therefore necessary to use structured diagnostic interviews for mental disorders, because it has been shown 38 that a considerable number of DMT2 patients had high levels of depressive symptoms on self-report measures and were not clinically depressed when structured interviews were used. In addition, more prospective studies on the relationship between personal characteristics, distress and depression, as well as the impact of distress on clinical and metabolic parameters of the disease would be of special clinical significance. Taking into account the increasing number of DMT2 patients, further studies on the impact of sociodemographic and clinical factors on the effectiveness of
different interventions to reduce DD are needed, as well as the application of new developed programs and integrated, multidisciplinary care.

Conclusion

Distress related to disease, a non-psychiatric, subclinical emotional distress is present in many patients with DMT2. Diabetes-specific distress corresponds to a complex set of repetitive thoughts regarding feeling of being overwhelmed by diabetes, worries about access to care, concerns about diet, physical activity, medications, and not receiving understanding and appropriate support from others. Distress secondary to diabetes is a significant contributor to unfavorable disease course and outcome due to its relationship to both poor metabolic control, suboptimal adherence to treatment and impairment of quality of life. High level of diabetes distress is related to a negative appraisal of insulin therapy and patients' reluctance to both initiate and intensify treatment with insulin ("psychological insulin resistance"). Personal characteristics of patients with diabetes, such as coping style and temperament could also contribute to the intensity of disease distress.

Recognition of distress related to disease and application of effective strategies to reduce its intensity is a key health care intervention in patients with diabetes. Special training is needed for primary care physicians in mental health issues in order to acquire necessary knowledge and skills in identifying diabetes distress and implement interventions for its alleviation.

Interventions that aim to alleviate psychological problems in patients with diabetes, even those that may not meet diagnostic thresholds, have the potential to not only improve mental health and quality of life of patients, but may also have important impact on treatment outcome. In order to achieve maximal efficacy of these interventions, a comprehensive approach is necessary, that integrates the treatment aimed at reducing fears related to the illness, decreasing social stigma, improving health behavior and compliance with dietary regimen. The development of efficient consultation-liaison services and person-centred medicine in general hospitals with providing education about the psychological aspects of diabetes would allow an effective collaboration between endocrinologists and mental health care professionals which would lead to the improvement of both the patient's psychological functioning and disease outcome.

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