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**MODERN SCIENTIFIC RESEARCH:  
ACHIEVEMENTS, INNOVATIONS  
AND DEVELOPMENT PROSPECTS**



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# **MODERN SCIENTIFIC RESEARCH: ACHIEVEMENTS, INNOVATIONS AND DEVELOPMENT PROSPECTS**

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# PSYCHOLOGICAL CONDITION OF PATIENTS WITH DIABETES MELLITUS – CONTROL AND CORRECTION

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**Introduction.** Chronic polyetiological metabolic disease or a group of metabolic diseases that include diabetes mellitus is so widespread in the world today that it looks like a non-infectious epidemic. The total number of patients according to world statistics exceeds 300 million, with an annual increase of 5-7% and a doubling every 12-15 years. It should be noted that there has been a significant increase in the number of patients with both types of diabetes over the past two years, which may indicate the effect of the previous coronavirus infection on both the state of the pancreas (insulin production) and glucose utilization (hypoxia of organs and tissues, decreased sensitivity of peripheral receptors).

In modern medical practice, based on evidence, the concept of the very essence of the disease, the clinical symptoms that occur during its acute or chronic course, are closely intertwined with changes at the level of the biopsychosocial model of health, the center of which is the patient as a person. The diagnosis of diabetes and the need for the patient to understand their condition affect metabolic changes, psychophysiology and quality of life. Psychological personal and family well-being is an important component of compensation for hyperglycemia, glucosuria, ketonemia, reduction of fatigue, excessive emotional lability, feelings of fear, normalization of behavior, increased compliance and self-control of the clinical state. The leading program condition for effective treatment of diabetes mellitus is the normalization of metabolic parameters. In our work, along with this, and perhaps even to a greater extent, attention was paid to improving the state of the emotional sphere when using different methods of insulin delivery in patients with the first type of diabetes.

**Aim.** The main purpose of the study was to carry out a comparative analysis of changes in the psychological criteria of the quality of life (emotions, feelings, focus, thinking, learning, self-esteem) in patients with insulin-dependent diabetes mellitus using two schemes of insulin administration - a pen and an insulin pump.

**Materials and methods.** The study was conducted and based on a specialized endocrinological department. Patients with the first type of diabetes were selected, the duration of the disease was 10 years. The total number of patients (age 17-35 years old) - 75 people (male - 35%, female - 65%), divided into 2 groups: the first - used traditional reusable daily subcutaneous injections of insulin using a syringe pen; the second - used a continuous infusion of insulin using an insulin pump. A year later, the results of treatment were evaluated retrospectively (the level of glycosylated hemoglobin, fasting glucose, C-peptide). According to the objectives of the study, using specifically developed questionnaires, the initial and subsequent psychological condition of patients was assessed (Self-Efficacy for Diabetes Scale - a subjective assessment of the effectiveness of treatment; Issues in Coping with IDDM - an independent attitude to the disease; Diabetes Quality of Life - quality of life).

**Results and discussion.** Against the background of the use of an insulin pump, the concentration of glycosylated hemoglobin decreased to 7,5%, remained during the observation period and was significantly lower than the level during the use of a syringe pen. At the same time, the fasting glucose level was 25% lower in the corresponding groups, and the level of C-peptide, which indicates the viability of endogenous insulin production, was 2,5 times higher in the group of patients on constant pump therapy.

At the same time, analyzing the psychological state of patients with diabetes mellitus, two conclusions can be drawn. The first - is the improvement of the metabolic profile, which is a way to correct the psychophysical quality of life (reducing fatigue, excessive emotionality, reducing the risk of complications, improving the quality of life). The second - is psychoemotional stress at the stages of the formation of the disease and its progression, due to the negative metabolic effects of stress hormones (catecholamines, glucocorticoids) in combination with impaired

blood flow, affect the absorption and effect of insulin, and also indirectly worsen self-control and behavior.

The use of constant daily monitoring and administration of insulin by the pump method was accompanied by an increase in self-assessment of the effectiveness of therapy and was slightly higher when using a syringe pen (104,5 and 102,0 points). At the same time, the attitude of patients to the disease (a high score means difficulties, disappointment, low mood) increased, which was accompanied by a decrease in the score by 11% in patients of the second group and practically did not change in the first group. The quality of life, according to the Diabetes Quality of Life survey, increased to satisfactory by 4 points in the second group and by 1 point in the first; unsatisfactory - it decreased by 2 and 1 points, respectively, and only in terms of depression assessment it practically did not change.

**Conclusions.** Thus, the analysis of treatment with insulin preparations of two groups of patients showed greater efficiency, physiology of continuous pump therapy, which imitates the work of the pancreas, which was accompanied by its influence on laboratory parameters of carbohydrate metabolism and a change in psychological life status. The joint practice of a doctor, a pharmacist, a patient significantly improves the prognosis and compliance of pharmacotherapy.