



MODERN METHODS OF DIAGNOSIS AND TREATMENT OF DIABETES MELLITUS USING EVIDENCE-BASED MEDICINE

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ABSTRACT

Diabetes mellitus is one of the most common chronic noncommunicable diseases and represents a serious medical and social problem due to its high prevalence, risk of complications, and significant impact on patients' quality of life. With the rapid development of clinical diabetology, the application of evidence-based medicine principles in the diagnosis and treatment of this disease is particularly important. This article examines modern methods of diagnosing and treating diabetes mellitus using evidence-based medicine. It analyzes the capabilities of laboratory and instrumental diagnostic methods based on clinical guidelines, as well as evidence-based approaches to pharmacotherapy and non-drug treatment. It is shown that the implementation of evidence-based methods facilitates early detection of the disease, optimizes treatment strategies, and reduces the risk of acute and chronic complications of diabetes.

СОВРЕМЕННЫЕ МЕТОДЫ ДИАГНОСТИКИ И ЛЕЧЕНИЯ САХАРНОГО ДИАБЕТА С ИСПОЛЬЗОВАНИЕМ ДОКАЗАТЕЛЬНОЙ МЕДИЦИНЫ

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ABSTRACT

Сахарный диабет является одной из наиболее распространённых хронических неинфекционных заболеваний и представляет серьёзную медико-социальную проблему вследствие высокой распространённости, риска развития осложнений и значительного влияния на качество жизни пациентов. В условиях стремительного развития клинической диабетологии особое значение приобретает применение принципов доказательной медицины при диагностике и лечении данного заболевания. В статье рассматриваются современные методы



KEYWORDS

*Сахарный диабет;
доказательная медицина;
диагностика; лечение;
клинические
рекомендации;
эндокринология.*

диагностики и терапии сахарного диабета с использованием доказательной медицины. Анализируются возможности лабораторных и инструментальных методов диагностики, основанных на клинических рекомендациях, а также доказательно обоснованные подходы к фармакотерапии и немедикаментозному лечению. Показано, что внедрение доказательных методов способствует раннему выявлению заболевания, оптимизации лечебной тактики и снижению риска развития острых и хронических осложнений сахарного диабета.

Introduction. Diabetes mellitus is one of the most pressing issues in modern medicine due to its high prevalence, progressive course, and significant contribution to disability and mortality. According to international epidemiological studies, the incidence of diabetes continues to rise steadily, driven by lifestyle changes, increased life expectancy, and the increasing prevalence of risk factors such as obesity and physical inactivity. Under these circumstances, timely diagnosis and effective treatment based on evidence-based approaches are particularly important.

Evidence-based medicine is the foundation of modern endocrinology and involves making clinical decisions based on the results of high-quality scientific research, the physician's clinical experience, and the individual characteristics of the patient. Using evidence-based medicine principles in diagnosing diabetes mellitus ensures early detection of the disease, accurate classification of its forms, and assessment of the risk of complications. This allows for timely treatment and the prevention of the progression of the pathological process. Modern diabetes treatment methods include a combination of pharmacological and non-pharmacological interventions, the efficacy and safety of which are confirmed by randomized clinical trials and international clinical guidelines. Rational selection of hypoglycemic therapy, individualized treatment, and regular monitoring of carbohydrate metabolism parameters are key elements of an evidence-based approach to managing patients with diabetes.

Therefore, a pressing scientific challenge is to analyze modern diabetes diagnostic and treatment methods from an evidence-based medicine perspective, as well as to evaluate their role in improving the quality of medical care and clinical outcomes in patients with this disease.

Materials and Methods. This study was conducted using a systematic review of current scientific literature on the diagnosis and treatment of diabetes mellitus from an evidence-based medicine perspective. The primary method was an analytical review of publications, including randomized controlled trials, meta-analyses, systematic reviews, and international clinical guidelines in endocrinology.

The study included data reflecting the effectiveness and diagnostic value of laboratory and instrumental methods for detecting diabetes mellitus, such as fasting



plasma glucose, glycated hemoglobin (HbA1c), oral glucose tolerance testing, and glycemic monitoring methods. Particular attention was paid to recommendations from international professional societies, developed taking into account levels of evidence and recommendation classes.

To analyze treatment approaches, a comparative evaluation of pharmacological and non-pharmacological therapies was used, including insulin therapy, oral hypoglycemic agents, and modern drug classes. Treatment effectiveness was assessed based on glycemic control indicators, the incidence of acute and chronic complications, and the impact of therapy on patients' quality of life.

The data were processed and interpreted using logical-analytical and generalizing methods, which allowed us to systematize the available evidence and formulate scientifically valid conclusions about the role of evidence-based medicine in modern diabetes diagnosis and treatment.

Results. An analysis of current scientific data has shown that the application of evidence-based medicine principles in the diagnosis of diabetes mellitus significantly improves the accuracy and timeliness of disease detection. The use of standardized diagnostic criteria based on international clinical guidelines ensures the reliable identification of various forms of diabetes mellitus and allows for an objective assessment of the degree of carbohydrate metabolism impairment.

Determining glycated hemoglobin (HbA1c) levels has been established as one of the most informative methods for long-term assessment of glycemic control and the risk of complications. The use of continuous blood glucose monitoring systems facilitates a more accurate assessment of glycemic fluctuations and improves the effectiveness of individualized therapy, especially in patients with insulin-dependent diabetes mellitus.

The results of the analysis of treatment strategies demonstrate the high effectiveness of evidence-based approaches to pharmacotherapy for diabetes mellitus. The use of modern classes of hypoglycemic agents, the efficacy and safety of which have been confirmed in randomized clinical trials, helps achieve target glycemic control indicators and reduce the risk of cardiovascular and microvascular complications. Individualizing therapy based on the patient's clinical characteristics can improve adherence and long-term clinical outcomes.

It has also been established that non-pharmacological treatments, including dietary modification, increased physical activity, and patient education on self-management principles, are an integral part of an evidence-based approach to managing diabetes. The integrated use of pharmacological and non-pharmacological approaches helps stabilize the disease and improve patients' quality of life.

Thus, these results confirm that the implementation of evidence-based medicine in diabetes diagnosis and treatment provides a comprehensive, scientifically sound, and effective approach to managing patients with this disease.

Discussion. These results confirm the key role of evidence-based medicine in improving the diagnosis and treatment of diabetes. The use of clinical guidelines based on the results of randomized controlled trials and meta-analyses ensures a unified and scientifically sound approach to managing patients with various forms of this disease.



This is especially important in the context of the high prevalence of diabetes and the significant risk of developing severe vascular complications.

Analysis of modern diagnostic methods shows that the implementation of standardized diagnostic criteria, including HbA1c determination and the use of glycemic monitoring systems, improves the accuracy of disease detection and improves its management. Unlike isolated blood glucose testing, a comprehensive diagnostic approach provides a more comprehensive assessment of carbohydrate metabolism and facilitates the early detection of latent forms of diabetes.

An important aspect of the discussion is the use of evidence-based therapeutic strategies. Modern antidiabetic drugs, the effectiveness of which has been confirmed by large clinical trials, not only help control glycemic levels but also reduce the risk of cardiovascular complications. Individualizing therapy based on the patient's age, disease duration, and comorbidities is consistent with the principles of personalized medicine and improves treatment effectiveness.

It should be noted that non-pharmacological treatments, including lifestyle modifications and patient education, remain an important component of the evidence-based approach. Their effectiveness has been confirmed by numerous studies and clinical observations. However, the practical implementation of evidence-based recommendations may be limited by poor patient adherence and differences in the availability of modern technologies, requiring comprehensive organizational and educational measures.

Thus, a discussion of the obtained data suggests the need for further implementation of evidence-based medicine principles in clinical endocrinology practice to improve the quality of care and long-term treatment outcomes for patients with diabetes.

Conclusion. The application of evidence-based medicine principles is key to improving the effectiveness of diabetes diagnosis and treatment in modern clinical practice. The analysis showed that the use of scientifically sound diagnostic criteria and clinical guidelines facilitates early detection of the disease, an accurate assessment of its type and severity, and the timely initiation of therapy. Evidence-based diabetes treatment methods, including modern pharmacological and non-pharmacological approaches, enable sustainable glycemic control and reduce the risk of acute and chronic complications. Individualizing therapy based on the patient's clinical characteristics and using modern glycemic monitoring technologies increase treatment adherence and improve long-term clinical outcomes. The implementation of evidence-based medicine principles in endocrinology practice requires a systematic approach, including regular updates of clinical guidelines, enhanced professional training of healthcare professionals, and active patient participation in the treatment process. Despite existing organizational and social limitations, an evidence-based approach remains the most effective strategy for managing patients with diabetes. Thus, the use of evidence-based medicine in the diagnosis and treatment of diabetes mellitus is an important tool for optimizing medical care, improving the quality of life of patients and reducing the burden of this disease on the healthcare system.



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