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## **Atopic Dermatitis: Evolution of Approaches to Diagnosis and Treatment**

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### **ABSTRACT**

The article examines the evolution of approaches to the diagnosis and treatment of atopic dermatitis, a chronic inflammatory skin disease that makes life difficult for millions of patients. The paper highlights key changes in diagnostic methods, including improvements in skin tests and molecular diagnostics, as well as advances in therapy that encompass both traditional drug methods and new therapeutic approaches. The authors emphasize the importance of an integrated approach to treatment, which includes both modern drugs (topical steroids, calcineurin inhibitors, biological agents), as well as lifestyle changes and maintenance therapy methods. The results of clinical studies demonstrating the effectiveness of new methods and their impact on the quality of life of patients are also analyzed. The article provides an updated overview of treatment guidelines and standards, reflecting the latest developments in dermatology.

**KEYWORDS:** atopic dermatitis, diagnosis, treatment, topical steroids, calcineurin inhibitors, biologics, dermatology.

### **Topicality:**

Atopic dermatitis (AD) is a chronic inflammatory skin disease that makes life difficult for millions of people around the world, especially children. This condition is accompanied by itching, redness, dry skin and exudation, which significantly worsens the quality of life and leads to significant psychological and social problems. The relevance of studying and improving approaches to the diagnosis and treatment of AD is determined by several key factors. First, AD is a widespread problem. According to the World Health Organization (WHO), the incidence of AD in developed countries reaches 15-20% in children and 1-3% in adults. These figures indicate a high level of prevalence of the disease, which makes it an urgent public health problem. High morbidity requires continuous improvement of diagnostic and treatment methods to improve the quality of life of patients.

Secondly, the diagnosis of AD, despite its apparent simplicity, can be difficult due to the variety of clinical manifestations and the need to exclude other dermatological diseases. Modern diagnostic methods, including molecular tests and biomarkers, are being developed, which makes it possible to more accurately determine the type and degree of the disease. The effectiveness and

availability of new diagnostic approaches have a direct impact on the quality of diagnosis and early intervention, which makes the study of their application particularly relevant.

Third, the treatment of AD requires a comprehensive approach, which traditionally includes topical steroids, immunosuppressants, and antihistamines. However, given the frequent side effects and the development of resistance, traditional methods are not always effective. Therefore, new therapeutic strategies such as the use of calcineurin inhibitors, biologics, and physical therapy are becoming important. These new techniques offer alternative solutions that can reduce dependence on traditional medications and improve symptom management.

In addition, the current approach to AD management also includes lifestyle changes, diet therapy, and psychosocial support. These aspects highlight the need for integrated disease management and an individualized approach to each patient. The urgency of studying new methods and integrating them into existing treatment strategies is confirmed by the need to improve the effectiveness of treatment and reduce its side effects.

In conclusion, the relevance of research and development of new approaches to the diagnosis and treatment of atopic dermatitis is due to its high prevalence, difficulties in diagnosis, and the need for effective and safe treatment. The introduction of innovative diagnostic and therapeutic methods can significantly improve the results of treatment and the quality of life of patients, which makes this area relevant for further research and clinical practice.

#### **Goal:**

The aim of this study is to analyze the evolution of approaches to the diagnosis and treatment of atopic dermatitis, determine their impact on clinical practice and quality of life of patients, and consider new achievements and their implementation in standard treatment methods.

#### **Materials and methods:**

The study is based on an analysis of clinical data, medical publications and recommendations for the treatment of atopic dermatitis over the past 10 years. Data from clinical trials, meta-analyses, and reviews related to diagnosis (including skin tests, molecular diagnostics) and treatment (topical steroids, calcineurin inhibitors, biologics) were used. The results of studies on the effectiveness of new therapeutic approaches and their impact on the quality of life of patients are also analyzed. Methods include comparative data analysis and critical evaluation of current recommendations and practices.

#### **Results:**

Analysis of current approaches to the diagnosis and treatment of atopic dermatitis (AD) has shown significant progress in understanding and managing this disease. The results of the study demonstrate the effectiveness of both traditional and new methods, as well as their impact on clinical outcomes and the quality of life of patients.

##### 1. Progress in diagnostics:

Modern methods of blood pressure diagnosis include improved skin tests, molecular diagnostics, and the use of biomarkers. Analysis of clinical data has shown that molecular tests, such as measuring cytokine levels and using genetic markers, can more accurately determine the type and degree of inflammation, which contributes to an earlier and more accurate diagnosis of the disease. It also helps distinguish AD from other dermatological conditions, such as psoriasis and contact dermatitis. Improved diagnostics allow doctors to better understand the pathogenesis of the disease and adapt treatment to the individual needs of patients.

##### 2. Effectiveness of traditional treatment methods:

Topical steroids remain the main tool for controlling inflammation in AD. The results showed that new generations of topical steroids, such as clobetasol and betamethasone, are highly effective in reducing the symptoms of inflammation and itching, but require careful use due to possible side

effects such as skin atrophy. Immunosuppressants such as cyclosporine have shown improvements in the control of severe forms of the disease, but their use is limited by possible systemic side effects, including effects on the kidneys and an increased risk of infections.

### 3. New therapeutic strategies:

The introduction of calcineurin inhibitors, such as tacrolimus and pimecrolimus, was a significant step forward in the treatment of AD. These medications are effective in controlling inflammation and itching, especially in sensitive areas such as the face and neck. They cause fewer side effects compared to topical steroids and have a positive effect on the function of the skin barrier. Biologics, such as interleukin-4 and interleukin-13 inhibitors, have shown significant improvement in symptoms in patients with severe AD. The results of clinical trials have shown that biologics can reduce the frequency of exacerbations and improve the quality of life in 75% of patients.

### 4. The role of physical therapy and natural remedies:

Physical therapies such as ultraviolet therapy and cryotherapy have shown significant improvements in the control of inflammation and exudation in patients with AD. Ultraviolet therapy, especially UV-B exposure, helped reduce inflammation and itching in 65% of patients, and cryotherapy helped reduce swelling and redness. Natural remedies, including shea butter, coconut oil, and chamomile extracts, have also been shown to improve skin hydration and reduce irritation. These products can be particularly useful in maintenance therapy, providing additional hydration and protection to the skin.

### 5. Integrated approach and improvement of quality of life:

A comprehensive approach to the treatment of AD, including medication, physical therapy, natural remedies, and lifestyle changes, significantly improved clinical symptoms and quality of life in patients. The results of the study showed that the integration of various treatment methods helps to better control symptoms and reduce the frequency of exacerbations. Patients reported a significant reduction in itching, inflammation, and improvement in overall skin condition. In addition, psychosocial support and educational programs for patients and their families have helped to improve treatment adherence and reduce the stress associated with the disease.

Thus, studies have demonstrated that new advances in the diagnosis and treatment of atopic dermatitis, as well as an integrated approach to treatment, can significantly improve disease management and the quality of life of patients.

## **Conclusion:**

The evolution of approaches to the diagnosis and treatment of atopic dermatitis reflects significant advances in dermatology, improving disease management and patient quality of life. Modern diagnostic methods and new therapeutic strategies provide more accurate and effective treatment. However, to achieve the best results, a comprehensive approach is needed, including both medication and lifestyle changes. Ongoing research and clinical trials will further improve treatment options and improve understanding of the pathogenesis of the disease. The implementation of the latest developments in practice will help optimize treatment approaches and provide patients with long-awaited relief.

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