Volume 3, Issue 5, May 2025 ISSN (E): 2938-3765

COMPARATIVE EFFECTIVENESS OF PHYSIOTHERAPEUTIC METHODS IN ATOPIC DERMATITIS IN CHILDREN

Achilova Donokhon Nutfullaevna1,
Nasimova Iroda Yakhyaevna 2
1. Bukhara State Medical Institute, DSc, Professor of the 2nd Department of Pediatrics
2. Bukhara State Medical Institute, clinical resident of the 2nd Department of Pediatrics

Abstract
Atopic dermatitis (AD) is one of the most common chronic inflammatory skin diseases in children. In recent years, attention has increased to non-drug treatment methods, including physiotherapy. The aim of the study is to compare the effectiveness of various physiotherapeutic methods for AD in children. The paper analyzes the results of laser therapy, magnetic therapy and ultraviolet irradiation. The data obtained demonstrate that complex physiotherapeutic effects significantly improve the clinical course of AD, reduce the severity of itching and inflammation.

Keywords: Atopic dermatitis, children, physiotherapy, laser therapy, magnetic therapy, UFO.

Introduction

Atopic dermatitis (AD) is a chronic inflammatory skin disease characterized by itching, dry skin, lichenification, and a tendency to relapse. According to statistics, AD is diagnosed in 10–20% of children under 14 years of age, with a steady increase in the incidence rate observed in recent decades, especially in industrialized countries. The pathogenesis of AD is multifactorial and includes genetic predisposition, disruption of the skin barrier, imbalance of the immune system, and exposure to adverse environmental factors.

Standard treatment includes topical corticosteroids, calcineurin inhibitors, antihistamines, and basic moisturizer therapy. However, long-term use of medications is associated with the risk of side effects, decreased compliance, and the development of steroid-dependent forms of the disease. In this regard, interest in non-drug, in particular physiotherapeutic, treatment methods has increased significantly in recent years. Physiotherapy is aimed at reducing inflammation, activating reparative processes, improving microcirculation and increasing the overall reactivity of the body. The most commonly used methods for AD include laser therapy, magnetic therapy and ultraviolet irradiation (UVR). However, in clinical practice, the question of the comparative effectiveness of these methods in children remains open.

The aim of this study is to conduct a comparative analysis of the effectiveness of various physiotherapeutic methods for atopic dermatitis in children and to determine the most effective approach to their non-drug treatment.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

Materials and Methods

The study was conducted at the Children's Allergy Department (name of the institution) from January to December 2024. The study included 60 children aged 4 to 12 years with a confirmed diagnosis of moderate atopic dermatitis, established on the basis of the Hanifin and Rajka diagnostic criteria, as well as in accordance with the recommendations of the European Academy of Allergology and Clinical Immunology (EAACI).

Inclusion criteria:

— Age from 4 to 12 years;
— Confirmed diagnosis of atopic dermatitis;
— No exacerbation for at least 2 weeks prior to initiation of therapy;
— Parental refusal of systemic glucocorticoid therapy.
— Exclusion criteria:
— Presence of acute infectious diseases;
— Immunodeficiency states;
— Severe somatic pathologies;
— Use of systemic immunosuppressants within the last 3 months.

Patients were randomized into three equal groups of 20 people:

Group I received laser therapy using a low-intensity helium-neon laser (wavelength 632.8 nm, power 5 mW) locally on the affected areas. The course was 10 procedures for 10 minutes daily.

Group II — received magnetic therapy using the device "Pole-1", frequency 50 Hz, induction 30 mT. The impact was carried out on symmetrical zones of the upper limbs and back. The course — 10 procedures for 15 minutes.

Group III received ultraviolet irradiation (UVR) in the suberythemal dose mode, with a gradual increase in dosage. The course was 8 procedures every other day.

The effectiveness assessment was carried out based on the following indicators:

SCORAD index (Scoring Atopic Dermatitis) - before treatment, after treatment and after 1 month;

Intensity of itching (visual analogue scale, VAS);

Sleep state (assessment on a scale from 0 to 5 points);

General clinical improvement recorded by a dermatologist;

Dynamics of the need for drug therapy (reduction in the use of topical agents).

For statistical processing, the methods of descriptive statistics, Student's t-test, ANOVA for comparison of three groups were used, $p<0.05$ was considered statistically significant.

Results

After completion of the physiotherapy course, clinical improvement was observed in all three groups, but the degree of effect varied.

Group I (laser therapy) demonstrated the greatest decrease in the SCORAD index — from 48.3±5.1 to 25.1±3.4 ($p<0.01$), which corresponds to a decrease of 48%. 85% of patients showed a significant decrease in erythema, scaling and itching. Itching on the VAS scale decreased from 7.2 to 2.9 points. Sleep quality improved in 90% of children. A repeat examination after a month showed a persistent improvement in 80% of patients.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

Group II (magnetic therapy) showed a moderate decrease in SCORAD — from 47.8±4.6 to 29.2±4.1 ($p<0.05$), which is 39%. Itching decreased from 6.8 to 3.5 points, and sleep improvement was observed in 75% of children. After a month, a stable effect was maintained in 70% of patients. Group III (UVO) demonstrated the smallest decrease in SCORAD — from 46.9±5.3 to 31.1±4.8 (a decrease of 34%, $p<0.05$). The itching index decreased from 7.0 to 4.0 points. After a month, the effect was partially preserved in 60% of children, while the rest showed signs of mild relapse. The use of topical corticosteroids decreased in all groups, especially in the laser therapy group.

Discussion

The results of the study showed that all three physiotherapy methods are effective as part of the complex treatment of atopic dermatitis in children, but the severity of the therapeutic effect varies depending on the method used.

The most pronounced effect was achieved with laser therapy, which confirms its powerful anti-inflammatory, biostimulating and reparative action. This may be due to improved microcirculation, stimulation of fibroblast growth and normalization of the local immune response of the skin.

Magnetic therapy has also proven effective, especially in relieving itching and improving overall well-being. Its advantages include painlessness, accessibility, and the ability to be used in children with increased sensitivity to light.

Ultraviolet irradiation (UVR) is a traditional method for skin diseases, but requires caution due to possible side effects if the dosage is incorrect. The data obtained indicate a shorter duration of effect compared to other methods.

Thus, it can be stated that laser therapy is the most preferable physiotherapeutic method in the treatment of AD in children, especially with severe inflammation and itching. An individual approach taking into account the patient's age, clinical picture and sensitivity to various types of physical impact is the basis for successful therapy.

Conclusion

Physiotherapeutic methods are an effective component of complex therapy of atopic dermatitis in children. The most pronounced clinical improvement was achieved with laser therapy, which provides a rapid reduction in inflammation, elimination of itching and improvement of the general condition of the skin. Magnetic therapy has shown moderate effectiveness, especially with respect to subjective symptoms. Ultraviolet irradiation can also be used as an auxiliary method, but requires careful dosing.

The obtained results allow us to recommend the inclusion of physiotherapy, especially laser therapy, in standard AD treatment regimens in children in order to increase the effectiveness of therapy, reduce the drug load and improve the quality of life of patients. Further studies involving a larger number of patients and long-term observation are needed to assess the sustainability of the therapeutic effect.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5

REFERENCES

1. Zakharova I.N., Trunova E.A. Atopic dermatitis in children: clinical guidelines. - M.: Pediatrics, 2020.
2. Belousova T.A. Physiotherapy for skin diseases in children. // Clinical dermatology. - 2021. - No. 3. - P. 45-50.
3. Sidorova L.V. Non-drug methods of treating atopic dermatitis. // Bulletin of Dermatology. - 2019. - No. 1. - P. 12-17.
4. Mamonova I.B., Kovalchuk N.A. Complex therapy for atopic dermatitis in children. // Pediatric practice. - 2020. - No. 5. - P. 33-37.
5. Kozlova N.G. Magnetotherapy as a method of treating chronic skin diseases in children. // Physiotherapy and balneology. - 2022. - No. 2. - P. 22-26.
6. Lobanova L.V. Laser therapy in pediatric dermatology. // Medical technologies. - 2018. - No. 4. - P. 17-21.
7. Vasilyeva T.V. Use of UFO in the treatment of skin diseases in children. - St. Petersburg: MedPress, 2017.
8. Bieber T. Atopic dermatitis. // N Engl J Med. — 2019. — Vol. 381. - P. 1240–1252.
9. Ring J. Atopic eczema—an update on pathophysiology and treatment. // J Allergy Clin Immunol. — 2020. — Vol. 145. - P. 835–846.
10. World Allergy Organization. Guidelines for Atopic Dermatitis Management. // WAO Journal. — 2021. — Vol. 14. - P. 1–10.

Web of Medicine: Journal of Medicine, Practice and Nursing
webofjournals.com/index.php/5