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A COMPREHENSIVE APPROACH TO THE TREATMENT OF ATOPIC DERMATITIS(NEURODERMATITIS)

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Abbaskhanova F.Kh., Mirodilova F.B., Umarov Zh.M., Ibragimov K.U., Safarova M.A.
Tashkent state medical Univercity

One of the promising directions is the modulation of the gut microbiota using probiotics, as dysbiosis is associated with the development of atopic dermatitis. This article is devoted to studying the effectiveness of a comprehensive approach that includes probiotics in the treatment of atopic dermatitis in children.

Keywords: atopic dermatitis, probiotics, children, SCORAD.

Atopic dermatitis (AD) is the most common chronic, relapsing skin disease with a wide clinical spectrum, often associated with other allergic conditions such as food allergy, asthma, and allergic rhinitis. Alterations in the microbial flora, along with defects in the epithelial barrier and impaired immune response, contribute to the pathogenesis of this disease. Evidence suggests that AD arises due to an imbalance of T cells, with a predominance of T-helper type 2 (Th2) differentiation of naïve CD4+ T cells, leading to increased production of interleukins IL-4, IL-5, and IL-13. These interleukins can locally influence both IgE activation and eosinophils [1].

Atopic dermatitis causes chronic itching and scratching, which can affect the patient's psychosocial state and quality of life (QoL). A reduction in QoL has been associated with sleep deprivation and symptoms of depression, which may also influence the treatment of atopic dermatitis (AD).

In recent years, new evidence has emerged regarding the link between dysbiosis not only with gastrointestinal diseases, but also with the development of allergic and immunopathological conditions, particularly atopic dermatitis [2].

Intestinal dysbiosis can negatively affect skin function. Microbial metabolites (such as aromatic amino acids, free phenol, and p-cresol) enter the bloodstream, reach the skin, and disrupt the differentiation of epidermal cells. This is reflected in decreased skin hydration and compromised skin barrier integrity [3]. Moreover, gut dysbiosis leads to increased epithelial permeability, which activates effector T cells and triggers the release of inflammatory cytokines. These, in turn, contribute to inflammatory skin conditions through both immune and non-immune signaling pathways [4].

The gut microbial communities influence the development of the host's immune system, and gut microbiota dysbiosis is closely associated with immune dysfunction [5,6].

Probiotics are live microorganisms with immunomodulatory effects that provide health benefits to the host by modulating the immune response, competing with harmful intestinal flora, toxins, and host metabolites, thereby improving the intestinal barrier function. The most commonly used organisms are Lactobacilli, Bifidobacteria, and Enterococci. Each strain is known to have specific immunomodulatory properties by producing pro- and anti-inflammatory cytokines [7]. Some of them have also shown the ability to accelerate the restoration of the skin's barrier function [8].

Probiotics are also capable of increasing the production of IgA in the host's gastrointestinal tract. Secretory IgA protects the intestinal epithelium from colonization and/or invasion by binding to antigens of pathogens or commensals, promoting retrotransport of antigens into dendritic cells, and suppressing pro-inflammatory responses [9].

Given the proven close pathogenic relationship between disturbances in gut microecology and the development of atopic dermatitis, the normalization of gut microbiota should be considered as one of the therapeutic approaches.

Research Objective:

To evaluate the effectiveness of comprehensive treatment of atopic dermatitis (AD) in children by including probiotics in standard therapy.

We examined 30 children with atopic dermatitis, aged 3 to 17 years (18 girls and 12 boys). The severity of the disease was assessed using the SCORAD index.

Almost all children (over 75%) had comorbid gastrointestinal pathologies.

Inclusion criteria: Children aged 3–17 years diagnosed with AD (SCORAD ≥ 25).

Exclusion criteria: Use of antibiotics/probiotics within 4 weeks before the study, presence of severe comorbidities.

Depending on the treatment received, patients were divided into two comparable groups in terms of baseline characteristics:

Group 1 (Main group, n = 15) received comprehensive therapy, which included antihistamines, desensitizing agents, topical corticosteroids, and the probiotic Maxitopic. Its active components are live Lactobacillus paracasei and Lactobacillus fermentum, used to correct microbiocenosis. The probiotic was administered once daily for 3 months.

Group 2 (Control group, n = 15) received only standard therapy.

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The effectiveness of comprehensive treatment was evaluated using the SCORAD index at 4 and 12 weeks (Table 1).

In the control group receiving conventional therapy, resolution of erythema occurred on average in 4.7 ± 1.5 days, pruritus in 6.8 ± 1.2 days, and skin dryness in 12.3 days.

In the main group receiving Maxitopic, remission and resolution of skin symptoms occurred significantly earlier: erythema in 3.4 ± 1.2 days, pruritus in 4.3 ± 1 day, and skin dryness in 9.8 ± 1.2 days.

Table 1. (Not provided in the text)

SCORAD Score Dynamics

	Main group	Control group
SCORAD before treatment	48,2 ± 6,1	47,8 ± 5,9
SCORAD through 3 months after strarted treatment	18,4 ± 4,3*	29,6 ± 5,7

Statistically significant differences ($p < 0.05$).

The results demonstrated that adding Maxitopic, whose active components are live bacteria Lactobacillus paracasei and Lactobacillus fermentum, to standard therapy leads to a more significant reduction in SCORAD compared to the control group.

During treatment, normalization of gastrointestinal function was observed in the patients. Among children suffering from functional constipation, 78.6% experienced normalized bowel movements with Maxitopic intake, whereas in the control group, this was observed in only 36.4% of cases.

Among children with loose stools, improvement was noted within 1–2 days in 90% of the cases receiving Maxitopic, compared to only 26% in the group receiving traditional therapy.

In cases of functional constipation, flatulence, or loose stools in children with atopic dermatitis, the use of Maxitopic probiotics following the above-mentioned regimen, in combination with traditional therapy, appears to be more appropriate.

Conclusion:

The addition of probiotics to standard therapy for atopic dermatitis in children contributes to more significant clinical improvement and can be considered a promising direction in treatment.

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