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OPTIMIZATION OF EXTERNAL CARE IN CHILDREN OF EARLY AGE WITH SKIN SYMPTOMS OF FOOD ALLERGY

Key words: external therapy, skin manifestations of food allergy, emollients, children.

The World Health Organization (WHO) has declared the 21st Century "an age of allergy" [8]. This situation is conditioned by the progressive increase of allergic diseases. According to the literature, up to 35 % of people worldwide suffer from allergic diseases [5]. The World Allergy Organization reports that approximately 40 % of inhabitants of our planet are sensitized to at least one protein [9].

The first signs of allergy onset in children is usually food allergy. It can affect various target organs, including the skin, digestive and respiratory tract, and sometimes it may develop systemic manifestations. In young children, the most common cause of food allergy is milk, eggs, wheat, and soy [3, 9]. In school age, in the structure of sensitization to food allergens nuts, fish and seafood prevail [5]. Allergic manifestations are observed in at least 20 % of people [9].

Thus, skin care is a priority in everyday hygiene and an important preventive step from the influence of exogenous factors [2]. This situation is related to the anatomico-physiological and age-specific features of the skin of a child that is immature at an early age, has increased permeability and sensitivity to changes in humidity, temperature, friction, etc. [6, 7]. The skin of the baby represents a barrier that holds moisture, electrolytes and proteins, and protects from mechanical, physical and bacterial factors [11]. The thin and delicate corneus layer (stratum corneum) of the epidermis is easily damaged and can not sufficiently protect the child's body from external influences [8]. Despite the

fact that the baby's skin is considerably thinner, the water content in it is higher and during the first year of life it is constantly changing. Violation of the barrier's function, especially in the first years of life of child, leads to an increase of transepidermal loss of water [1, 4]. That is why a balanced, correct skin care for a young child is an important step not only in care, but also in the prevention of exacerbations of various diseases, including allergic ones [2, 10].

The purpose of the study was to optimize an external skin care of young children with skin manifestations of food allergy.

Materials and methods: The study included 60 patients aged 6 months to 3 years with skin manifestations of food allergy. The criteria for inclusion in the study was: food allergy with skin manifestations with mild, moderate to severe course. Duration of the disease is not less than 3 months. For the study, two groups were formed that were identical in age, sex, severity of the disease and the same initial quality of life indicators. The exclusion criterion was the deterioration of the condition and use of antihistamines more than 3 days.

The main group included 30 patients (mean age $27,4 \pm 10,99$ months) who received a hypoallergenic diet (elimination of "causal" allergens) and external therapy with a dosing frequency that was self-determined daily on the basis of touching proposed tissue samples. The comparison group included 30 patients (mean age $30,43 \pm 10,31$) who received a hypoallergenic diet and external therapy with a dosing with frequency determined by the physician.

Observation of children was carried out within 8 weeks, the assessment of symptoms was determined twice — at the beginning and at the end of the study. The evaluation of clinical symptoms was based on the prevalence of rash and intensity of itching. The assessment of the prevalence of lesions on the skin surface was determined in the groups under study according to the "nine" rule, as shown in Table 1.

Table 1. Estimation of the prevalence of rash (%)

Part of the body	Front part	Back part
Head	4,5	4,5
Body	18	18
Upper extremity	4,5	4,5
Lower extremity	9	9
Hand	1	1
External genital organs	1	-

Itching was assessed by 10-point scale according to parents' opinion (0 — absent, 10 — maximum expressed).

Determination of skin moisture was carried out using a portable device (Aram Human Vision System, APM 100 Skin, Korea) at the site of the rash and intact skin. It should be noted that normally moisturized skin is with an index of 22,1 % to 45,0 %. The interpretation of the moisture of the skin is given in Table 2.

Table 2. Interpretation of skin moisture condition

Moisture index, %	Interpretation of moisture condition
45,1 i above	Very wet
39,1 — 45,0	Normal with a high degree of hydration
27,1 — 39,0	Normal with a moderate degree of hydration
22,1 — 27,0	Normal with a low degree of hydration
12,1 — 22,0	Dry
Below 12,1	Very dry

Food Allergy Survey of the Food Allergy Quality of Life Questionnaire (Parent Form) was conducted using a standardized questionnaire. Questionnaire for parents with children under 3 years old contained 14 questions. Each criterion was evaluated by seven-point scale — from 0 to 6, where 0 — does not affect at all, 1 — a little bit, 2 — slightly, 3 — moderately, 4 — essentially, 5 — very much, 6 — extremely strong. The questions grouped information about three components — emotional impact; feelings about food intake; social and dietary restrictions. The sum of points in each sphere was summed up and divided into three [4, 5].

Results

During the study, four children of the main group and three of the comparison group were excluded, as there was a need to add antihistamine medication to the therapy.

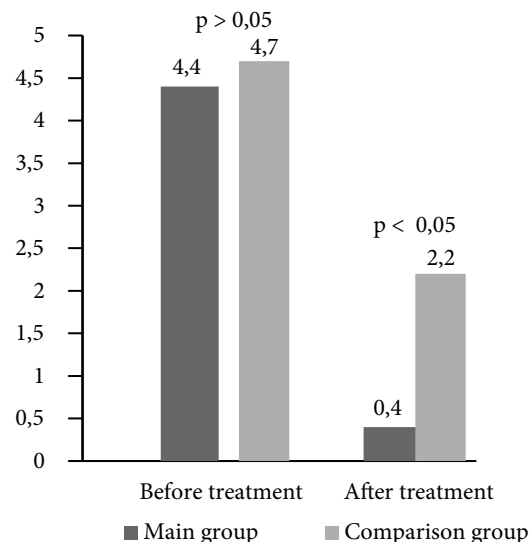


Figure 1. Dynamics of intensity of itching (points) in children during treatment

The proposed way of optimizing external skin care for a child with manifestations of food allergy allowed us to conduct a comprehensive objective assessment of the patient's condition and provide treatment at home. Selected and suggested tissue samples had a different texture and the patient's parents comparing the tissue with the skin of the child by touch, received information on the multiplicity of application of the external medication. If the skin on touch resembled silk satin (elastic, smooth fabric), then the skin was well moisturized and the need to apply the emollient was 1 time per day. Suit "nicole" (elastic, thick cloth) corresponded to the touch of the skin, which required more thorough moisture — 2–3 times a day. Chiffon-fabric (texture of granular tissue) was identical to dry skin, which should be humidified more often — 4–5 times a day. Shine (pronounced rough texture) tactilely resembled very dry skin and the need to apply emollient was 6 times or more per day.

The prevalence of skin lesions was not significantly different in both groups at the start of treatment. It was 34,6 % in the main group and 32,9 % in the comparison group at the start of therapy and 7,4 % and 6,3 % respectively at the end of treatment.

The intensity of the itching was not significantly different in both groups at the beginning of treatment (4,4 in the main group and 4,7 in the comparison group) and significantly decreased during the observation in the main group (0,4 and 2,2 respectively; $p < 0,05$) The dynamics of the itching intensity is shown in Figure 1.

Determination of skin moisture showed that at the beginning of treatment, the average moisture content of the skin was 19,5 % in the main group and 21,5 % in the comparison group ($p > 0,05$). At the end of treatment, the rates were significantly different, especially in the children of the main group (39,5 % and 26,5 % respectively; $p < 0,05$). The dynamics of skin moisture is depicted in Figure 2.

The average total parental rating of the Food Allergy Quality of Life Questionnaire (Parent Form) was evalu-

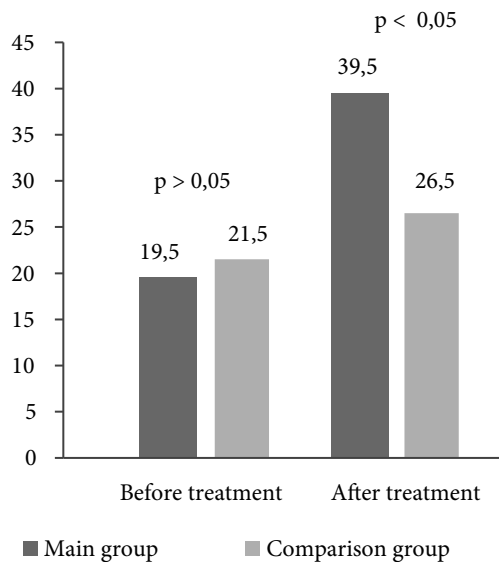


Figure 2. Dynamics of skin moisture (%) in children during treatment

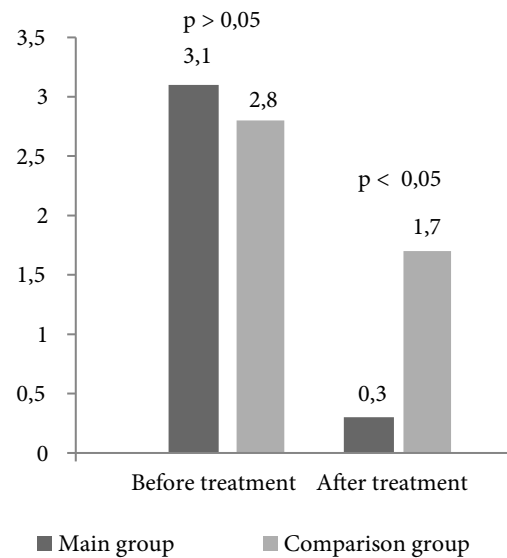


Figure 3. Dynamics of the quality of life of a child with food allergy during treatment

Table 3. Scheme of recommended multiplicity of application of an external mediator

Condition of skin moisture	Conformity of the tissue sample	The recommended application frequency of emollient per day
Very wet	Satin silk	If needed — 1 time
Normal with a high degree of hydration		
Normal with a moderate degree of hydration	Nicole suit	2–3 times
Normal with a low degree of hydration		
Dry	Chiffon fabric	4–5 times
Very dry	Shine	6 or more times a day

ated by parents at the start and at the end of treatment. The dynamics of the assessment of the quality of life is depicted in Figure 3.

As we see, at the beginning of treatment in the main group the average overall score in the groups was not significantly different: in the main group it was 3,1 [Me = 3,15; min 1,6; max 4,6] (included in the gradation "moderately") and in the comparison group 2,8 [Me = 2,55; min 1,4; max 4,3] (included in the gradation "slightly", but approaching "moderately"). A reassessment carried out after 8 weeks showed that in the main group the index was 0,3 [Me = 0,2; min 0,2; max 1,2] (included in the gra-

dation "does not affect at all") and in the comparison group 1,7 [Me = 1,75; min 1,2; max 2,1] (included in the gradation "a little bit").

Thus, the prescribed treatment equally affected the prevalence of the rash ($p > 0,05$), however, balanced and careful care led to a significant increase in skin moisture and reduction of itching ($p < 0,05$).

Summing up the obtained data, we have formed the scheme of recommended multiplicity of the application of the external mediator, which is presented in Table 3.

Conclusions:

1. The proposed way of optimizing external skin care can achieve a significant increase in skin moisture and reduce itching ($p < 0,05$).

2. Conducting a comprehensive assessment of the state of the skin at home will improve the effectiveness of therapy and improve the quality of life of patients.

3. An individual approach to applying an emollient is a priority in external care as a condition and moisture of the skin in each person varies daily, it depends on the influence of various factors (age, seasons, weather conditions, volume of consumed liquid, etc.).

4. Tactile assessment of skin condition allows to optimize the monitoring of the child's skin and it has a great practical value.

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ОПТИМИЗАЦИЯ ВНЕШНЕГО ОСМОТРА У ДЕТЕЙ РАННЕГО ВОЗРАСТА С КОЖНЫМИ ПРОЯВЛЕНИЯМИ ПИЩЕВОЙ АЛЛЕРГИИ

Л. В. Беш, О. И. Мацюра, Ф. Хоумани

Резюме

В статье подаются современные данные по организации правильного ухода за кожей у детей раннего возраста с кожными проявлениями пищевой аллергии. Показана эффективность собственного способа оптимизации внешнего ухода, апробированного в группе пациентов раннего возраста.

Цель исследования заключалась в оптимизации внешнего ухода за кожей у детей раннего возраста с кожными проявлениями пищевой аллергии.

В исследование было включено 60 пациентов в возрасте от 6 мес до 3 лет, которые имели кожные проявления пищевой аллергии. Критериями включения в исследование были: пищевая аллергия с кожными проявлениями легкого и средне-тяжелого течения, продолжительность анамнеза заболевания не менее 3 мес. Для проведения исследования сформированы две группы, идентичные по возрасту, полу, тяжести заболевания, одинаковыми исходными показателями качества жизни. Критерием исключения было ухудшение состояния и необходимость применения антигистаминных препаратов продолжительностью более 3 суток.

Данный способ позволил проводить комплексную объективную оценку состояния кожи пациента в домашних условиях и определять индивидуальную потребность кратности нанесения внешнего увлажняющего посредника — эмолиента: хорошо увлажненная кожа (напоминает сатин, шелк — эластичная, гладкая) — 1 раз в сутки; несколько шероховатая кожа (как костюмная Николь — эластичная, плотная) — 2-3 раза в сутки; сухая кожа (тактильно похожа на шифон-креп — фактура зернистая) — 4-5 раз в сутки; очень сухая кожа (шайн — выражено шероховатая) — 6 и более раз в сутки.

Результаты исследования показали, что сбалансированный и тщательный внешний уход позволил достоверно увеличить у пациентов с кожными проявлениями пищевой аллергии влажность кожи, уменьшить зуд и существенно улучшить качество жизни ($p < 0,05$).

Ключевые слова: наружная терапия, кожные проявления пищевой аллергии, эмолиенты, дети.

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**OPTIMIZATION OF EXTERNAL CARE IN CHILDREN
OF EARLY AGE WITH SKIN SYMPTOMS OF FOOD ALLERGY****L. Besh^{1,2}, O. Matsyura^{1,2}, F. Houmani¹***Abstract*

The article presents modern data on the organization of proper skin care in young children with skin manifestations of food allergy. The effectiveness of external care optimizing in children with skin manifestations of food allergy is shown.

The purpose of the study was to optimize an external skin care for young children with skin manifestations of food allergy.

The study included 60 patients aged 6 months to 3 years with skin manifestations of food allergy. The criteria for inclusion in the study was food allergy with mild or moderate skin manifestations. Duration of the disease was not less than 3 months. Two groups of children identical in age, sex, severity of the disease and the same initial quality of life indicators were included in the study. The exclusion criterion was the deterioration of the condition and use of antihistamines more than 3 days.

This method allowed to conduct a comprehensive objective assessment of the patient's skin condition at home and to determine the individual need for the application of an external moisturizer — an emollient: a well moisturized skin (resembles silk satin — elastic, smooth) — 1 time per day; somewhat rough skin (like a suit "nicole" — elastic, thickened) 2–3 times a day; dry skin (tactilely similar to chiffon-fabric — granular texture) — 4–5 times a day; very dry skin (shine — very scabrous) — 6 times or more per day.

Results of the study showed that balanced and careful external care allowed to significantly increase the moisture content of the skin in patients with skin manifestations, reduce itching and significantly improve the quality of life ($p < 0,05$).

Key words: external therapy, skin manifestations of food allergy, emollients, children.

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