



## TREATMENT FEEDING OF INFANTES WITH ATOPIC DERMATITIS AS A GUARANTEE OF THE FORMATION OF A HEALTHY CHILD IN THE FAMILY

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**Abstract.** *The article presents the results of studying the assessment of risk factors for atopic dermatitis and the effectiveness of hypoallergenic formulas in the complex treatment of infantes in the first year of life with atopic dermatitis. It has been proven that feeding infantes with hypoallergenic formulas "Humana HA 1" and "Humana HA 2" from the company "Humana" (Germany) is significantly more effective in comparison with other hypoallergenic breast milk substitutes. Feeding with these milk formulas reduces the skin manifestations of atopic dermatitis, contributes to the normalization of the level of blood eosinophils and Ig E; intestinal microbiocenosis, have pleasant organoleptic properties, do not cause side effects.*

**Key words:** *infantes, atopic dermatitis, hypoallergenic breast milk substitutes, milk formulas "Humana HA 1" and "Humana HA 2" from the company "Humana" (Germany).*

### **Introduction.**

A healthy child in a family is the key to the psycho-emotional unity and integrity of the family, which ensures the formation of a healthy society and the preservation of the nation's gene pool. For the health of the child, breastfeeding is of exceptional importance - it provides optimal physical growth and mental development, prevents the development of infectious and alimentary-dependent diseases throughout life.

However, for various reasons, the infantes are supplemented or transferred to artificial feeding, which causes the development of food allergies and atopic dermatitis (AD).

AD is a global medical and social problem of here and now due to its high prevalence (20-40% of the population, of which - from 10 to 28% of infantes, in Ukraine from 3 to 10%), debut in early childhood, rapid development of "atopic march" with the formation of chronic forms, a decrease in social adaptation and the quality of life of infantes, and early disability. Therefore, the prevention and treatment of AD in infantes is one of the important tasks of pediatrics and pediatric allergology.

The most common allergen (70-90%) in infantes is cow's milk protein. In this regard, the main element of the complex therapy of AD is the nutrition of infantes with hypoallergenic therapeutic and prophylactic milk formulas.

### **Literature review.**

In [1] infants and infantes with immunoglobulin E-mediated CMA were exposed to a diagnostic double-blinded, placebo-controlled food challenge with a new amino acid formula by Blemil Plus Elemental using Neocate as the placebo.

In [2] use of hypoallergenic replacement formulas such as extensively hydrolyzed formulas (EHF) are recommended. However, in about 5% of patients EHF are not



tolerated and/or allergy symptoms can persist. When EHF's are ineffective and in severe forms of CMA, amino acid-based formulas (AAF) should be considered.

In [3] presents the current knowledge on tolerance development in infants and infants with CMPA to increase the awareness of the clinicians concerning the new approaches in CMPA treatment. Tolerance development is considered a relatively new concept in CMPA, inducing a shift in interventions in CMPA from a passive (avoidance of responsible allergen) toward a proactive (tolerance induction) strategy.

In [4], one of the directions is the formation of tolerance to food allergens in infancy, prevention of Ig E-mediated sensitization and the development of early clinical manifestations of a FA (FA is a pathological reaction to food components, which is based on immune mechanisms involving specific immunoglobulin E).

In methodical recommendations [5] the peculiarities of diagnosis and approaches to the therapeutic and preventive nutrition of infants with an allergy to CMP (cow's milk protein) are considered. The results of own research on the appointment of appropriate milk formulas for diet therapy of various forms of food allergy to CMP are given.

Paper [6] presents new severity grading system of food-induced acute allergic reactions in infants could serve as a clinical tool for health care professionals.

In the article [7] milk formulas based on partial hydrolysis of milk protein with the addition of a prebiotic - "Humana HA 1" and "Humana HA 2" from the company "Humana" (Germany) were studied. The protein component in these formulas is represented by low molecular weight peptides, which provide a balance of amino acids in the child's blood, similar to natural feeding. The low molecular weight of the partially hydrolyzed protein helps to reduce its allergenicity by 400 times and the risk of sensitization of the body, and also ensures the development of oral tolerance. Humana HA formulas do not contain  $\beta$ -lactoglobulin.

Fats are represented by a milk formulas of vegetable oils with a high content of PUFAs of classes  $\omega$ -6 and  $\omega$ -3 in the optimal ratio. Carbohydrates - lactose and galactose. The prebiotics included in the milk formulas, the vitamin-mineral complex contribute to the proper development of the brain, central nervous system, good digestion, strengthening the natural immune defenses of the child's body, and healthy growth.

Humana milk formulas are made from high-quality raw materials (fresh milk) under identical technological conditions, without the use of biological additives for all countries of the world.

Purpose of the study. Study and evaluation of risk factors for AD, as well as the effectiveness of the milk formulas "Humana HA 1" and "Humana HA 2" in the complex treatment of infants with atopic dermatitis

#### **Material and research methods.**

We observed 72 infants aged 2.5 months to 1 year with AD. Boys made up 52.7%, girls - 47.3%. In order to objectively assess the severity of AD and the effectiveness of therapy, we calculated the SCORAD index recommended by the European Working Group on AD [8]. Moderate course of AD on the SCORAD scale corresponded to 20-40 points, mild - up to 20 points.



All babies with AD were divided into groups randomized by sex, age and severity of the course of the disease. The complex of treatment included traditional drug treatment using a short course of antihistamines, sorbents, enzymes, local non-hormonal drugs.

For 8 weeks, 30 infants (main group 1) received a formula of "Humana HA 1" as a therapeutic diet, 26 infants of the second half year of life (2 main group) - "Humana HA 2" with a prebiotic. The comparison groups consisted of 36 infants with AD, 16 of them in the first and 20 in the second half year of life. Prior to the start of the study, all infants were bottle-fed with various breast milk substitutes (BMS).

Therapeutic nutrition with hypoallergenic milk formulas "Humana HA 1" and "Humana HA 2" with prebiotics based on partially hydrolyzed serum protein, meeting the requirements of ESPHGAN, was prescribed in accordance with the instructions for use. Infants in the control groups continued to be fed with various breast milk substitutes.

In order to evaluate the effectiveness of complex therapy using the hypoallergenic milk formulas "Humana HA 1" and "Humana HA 2" with prebiotics, a clinical and laboratory examination was performed before and on days 5, 10, 15 and 20 of treatment. Mathematical processing of the results was carried out by the methods of variational statistics using the Microsoft software package. Factor analysis was performed by calculating the odds ratio and its 95% confidence interval (CI).

### Results and its discussion.

Comparison of the significance of risk factors in the group of infants with AD with a group of healthy ones showed that the development of allergies is significantly likely in infants with a burdened family history of allergies, in cases of early artificial feeding, antibiotic therapy during pregnancy, lactation and in infancy, dysfunction of the gastrointestinal tract from birth.

An analysis of the dynamics of clinical symptoms of AD in infants showed that skin edema and rashes on the face, neck, scalp and extensor surfaces of the extremities disappeared significantly faster in the main groups 1 and 2, in contrast to the comparison groups.

75% of infants had a mild course of AD with an average SCORAD index of 16.7 points, 25% had a moderate course of the disease with a SCORAD index of 27.8 points.

The disappearance of skin inflammatory manifestations of AD on days 5–10 after the prescribed diet is more than 2 times decrease in the SCORAD index was considered a positive clinical effect.

**Table 1 - Dynamics of the SCORAD index in infants with AD who are fed with hypoallergenic milk formulas**

Decrease in the SCORAD index by more than 2 times	Groups (number of infants,%)			
	1 main (30)	1 comparisons (26)	2 main (26)	2 comparisons (20)
Day 5 (95% CI)	18 (60%) (42,47-77,53)	12 (46%) (26,84-65,16)	18 (69%) (51,22-86,77)	11 (55%) (33,19-76,80)
Day 10 (95% CI)	26 (87%). 74,96 - 99,03	18 (69%) 51,22 – 86,77	24 (92%) 81,57 -102,4	14 (70%) 49,92 – 90,08



The decrease in the SCORAD index by day 5 in the groups did not have significant differences, and by day 10 it was noted in a significantly larger number of infants who received the formulas "Humana HA 1" and "Humana HA 2".

In the study of blood, at the beginning of the observation, all infants had moderate eosinophilia. The level of eosinophils in infants with AD on the background of ongoing treatment and feeding with hypoallergenic milk formulas on day 10 was significantly lower in the main groups.

In infants receiving treatment feeding with hypoallergenic milk formulas "Humana HA 1" and "Humana HA 2", the level of Ig E by the 20-th day of treatment was significantly lower than in the comparison groups.

One month after feeding the infants with hypoallergenic BMS, normalization of the intestinal microflora was achieved in a significant majority of infants from the main groups. The rest of the infants were additionally treated with pre- and probiotics.

An important aspect of feeding infants in the first year of life is the taste of hypoallergenic milk formulas and the velocity of getting used to them. The conducted studies have shown a significantly faster adaptation of infants to new hypoallergenic milk formulas "Humana HA 1" and "Humana HA 2" compared to other various hypoallergenic BMS.

Subsequent catamnestic observations indicate the minimum frequency, severity and duration of allergic reactions and diseases in infants of the main groups.

### **Conclusions.**

1. The study and assessment of the significance of risk factors for the development of AD showed that the development of allergies is significantly likely in infants with a burdened family history of allergies, in cases of early artificial feeding, antibiotic therapy during pregnancy, lactation and in infancy, dysfunction of the gastrointestinal tract with birth.

2. Based on the results obtained on the evaluation of the clinical effectiveness of the use of hypoallergenic breast milk substitutes of the new generation "Humana HA 1" and "Humana HA 2" company "Humana" (Germany) for feeding infants in the first year of life suffering from atopic dermatitis, it was found that the above milk formulas significantly more effectively stop skin manifestations of AD, contribute to the normalization of the level of blood eosinophils and Ig E, intestinal microbiocenosis, have pleasant organoleptic properties, do not cause side effects (safe).

3. Long-term use of milk formulas of "Humana HA 1" and "Humana HA 2" reduces the likelihood of exacerbation AD, increases the period of remission, decreases the severity of the course and reduces the duration of exacerbation.

The foregoing allows us to recommend the priority use of hypoallergenic milk formulas "Humana HA 1" and "Humana HA 2" by "Humana" (Germany) in practical healthcare for the treatment and prevention of atopic dermatitis in infants.

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**Аннотация.** В статье представлены результаты изучения оценки факторов риска атопического дерматита и эффективности гипоаллергенных смесей в комплексном лечении детей первого года жизни с атопическим дерматитом. Доказано, что вскармливание детей гипоаллергенными смесями "Humana HA 1" и "Humana HA 2" фирмы "Humana" (Германия) достоверно эффективнее в сравнении с другими гипоаллергенными заменителями грудного молока. Вскармливание этими смесями уменьшают кожные проявления атопического дерматита, способствуют нормализации уровня эозинофилов крови и Ig E; микробиоценоза кишечника, обладают приятными органолептическими свойствами, не вызывают побочных эффектов.

**Ключевые слова:** дети первого года жизни, атопический дерматит, гипоаллергенные заменители грудного молока, смеси "Humana HA 1" и "Humana HA 2" фирмы "Humana" (Германия).