

050 Advanced fructo-oligosaccharides improve itching and aberrant epidermal lipid composition in children with atopic dermatitis.



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RATIONALE: To investigate the effects of oral administration of advanced fructo-oligosaccharide (FOS) including 85% of 1-kestose on skin symptoms, skin microbiome, and epidermal lipid profiles in children with atopic dermatitis.

METHODS: In a randomized, double-blind, placebo-controlled study, 48 children were assigned to receive either advanced FOS or a placebo for 12 weeks. We assessed SCORing Atopic Dermatitis (SCORAD), skin microbiome, and epidermal lipid profiles. Human primary epidermal keratinocytes (HEKs) were treated with advanced FOS and maltose to examine the effect of advanced FOS on the expression of elongases.

RESULTS: After 12 weeks, the SCORAD and itching scores were reduced in both the treatment (all $P < 0.01$) and the placebo groups ($P < 0.05$ and $P < 0.01$). Sleep disturbance was improved only in the treatment group ($P < 0.01$). The treatment group demonstrated decreased abundance of *Lachnospiraceae* ($P < 0.05$) and increased abundance of *Prevotella* ($P < 0.01$) in the skin microbiome. The treatment group revealed a decreased proportion of linoleic acid (18:2) esterified omega-hydroxy-ceramides with amide-linked shorter chain fatty acids (C28 and C30, all $P < 0.05$), along with an increased proportion of linoleic acid (18:2) esterified omega-hydroxy-ceramides with amide-linked longer chain fatty acids (C32, $P < 0.01$). Additionally, *in vitro* treatment of Ca²⁺-differentiated HEKs with advanced FOS upregulated the gene expression of elongating of very long chain fatty acids 3.

CONCLUSIONS: This study suggests that advanced FOS may be beneficial in alleviating itching and sleep disturbance, and improving skin lipid profiles in children with atopic dermatitis.

051 Demographics of Patch Testing Results in Kyiv, Ukraine Done to Confirm Allergic Contact Dermatitis Diagnosis



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RATIONALE: Patch testing using haptens is the most modern and reliable method of confirming the diagnosis of allergic contact dermatitis (ACD). The pattern of ACD sensitization was sought in the Kyiv, Ukraine region.

METHODS: Screening (patch testing) of 128 patients from the Kyiv, Ukraine region was performed on patients age 18 to 60 years with suspicion of ACD. For diagnosis the European basic screening series was used which includes 30 haptens that cause contact allergy in 85% of patients worldwide.

RESULTS: Patch testing confirmed ACD in 112 patients (81 women and 31 men), which was 87.5% of the entire study group. In the vast majority of patients positive reactions were recorded for several haptens at once. The most frequent positive results of patch tests were reactions in response to Nickel and Textile dye mix, as well as to Nickel and Cobalt. In total, 112 patients with a positive response to haptens were analyzed showing that ACD is more often seen in women (72%), typically under 45 years old

(82%), who typically are city dwellers (81%), and perform manual labor (63%).

CONCLUSIONS: Allergic contact dermatitis was identified in the Kyiv, Ukraine region mostly in working women under the age of 45 who live in an urban setting, typically showing a reaction to nickel and haptens 30, as well as to nickel and cobalt, confirming findings from other recent ACD studies.

052 Severe Atopic Dermatitis: When to Suspect Hyper IgE Syndromes (HIES)?



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RATIONALE: Atopic dermatitis affects about 20% of children worldwide. When severe, investigation of Inborn Immunity Errors (IEI) is mandatory, including HIES. Distinguishing these two syndromes is not easy as their symptoms are very similar, with eosinophilia, elevated serum IgE levels, and eczematous skin lesion. Genetic tests, while ideal, face cost barriers. In patients with IgE > 1000 IU/ml, a modified NIH-HIES score > 30 can predict HIES mutations. This study aims to assess how many patients reach at least 30 points in the modified NIH-HIES score at a reference center for Allergy and Immunology in Brazil.

METHODS: Sixteen patients aged 5 to 21 years with severe atopic dermatitis were included in this study. Severity was graded using SCORAD > 50. A modified NIH-HIES score, which includes the number of pneumonia, rashes in newborns, pathologic bone fractures, characteristic facial features, and high palate, was applied to these patients.

RESULTS: The median age was 12 years, with 3 females (18.75%) and 13 males (81.65%). 2 patients (12.5%) had a positive NIH-HIES score, 1 scored 29.97. All patients with positive scores had early-onset eczema and recurrent infections. NGS exomes were performed in the three patients with the presence of pathogenic variants of HIES.

CONCLUSIONS: The prognosis and management of atopic dermatitis in the context of HIES can differ, highlighting the importance of accurate diagnosis. Early diagnosis and preventive therapies have the potential to improve quality of life and prevent complications in patients with HIES. The modified NIH-HIES scoring system is a useful tool for identifying HIES patients.

053 Propolis: Emerging Allergen in Facial Contact Dermatitis



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RATIONALE: We sought to investigate the frequency of positive patch tests to propolis (bee glue) in patients presenting with facial contact dermatitis.

METHODS: This was a retrospective review of patch test results of consecutive adult patients presenting with facial contact dermatitis tested between August 2022 and July 2023. Patch testing was performed using the American Core Patch Series (80 allergens).

RESULTS: Twenty-one patients underwent testing. Seventeen (81%) had positive reactions to at least one allergen. The three most common positive allergens were to propolis found in seven patients (33%) followed by nickel in five (24%), and fragrance mix in four (19%). The most common site of skin involvement was eyelids. The mean age was forty-five with 95% females.

CONCLUSIONS: Our results indicate a high prevalence of contact sensitization to propolis in adults presenting with facial contact dermatitis.