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Late Breaking Poster Session Group I – Blue

LBTPS 1 – Allergy and asthma in children

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Evaluation of omeprazole in the treatment of moderate to severe persistent asthma in children

Behmanesh, F[1]; Jafari, SA[2]; Khakshor, A[3]; Khodashenas, E[4]; Motiei, A[5]
[1]Allergy Research Center, School of Medicine, Mashhad University of Medical Sciences, Mashhad, Iran; [2]Pediatric Gastroenterology, Mashhad University of Medical Sciences, Mashhad, Iran; [3]Pediatrics, North Khorasan University of Medical Sciences, Bojnurd, Iran; [4]Pediatrics, Mashhad University of Medical Sciences, Mashhad, Iran; [5]General Physician, Mashhad University of Medical Sciences, Mashhad, Iran

Background: Asthma is the most common chronic disease of childhood. The disease is caused by a temporary blockage of airflow due to chronic inflammation of the airways.

One of the conditions that often occur with asthma and exacerbate disease, is gastroesophageal reflux. The aim of this study is to evaluate the role of acid suppressing therapy in patients with refractory asthma.

Method: In this study children with moderate to severe asthma under maintenance therapy at least for 3 months and poor response to treatment were evaluated. After exclusion of other exacerbating conditions, treatment with proton pump inhibitor was initiated and reassessment was done.

Results: The frequency of mild intermittent asthma increased from 0% to 30% and mild persistent from 40% to 70% whereas moderate persistent asthma decreased from 60% to 0% and there is no case of severe persistent asthma. Differences in disease stage before and after treatment were statisticaly significant.

Conclusion: Based on the role of antireflux therapy in persistent asthma, we recommend treatment with proton pump inhibitor for these patients after exclusion of other exacerbating conditions.

Keywords: asthma, reflux, omeprazole.

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Reference value and determinants of fractional concentration of exhaled nitric oxide in healthy preschool children

Jung, Y-H[1]; Kwon, J-W[2]; Yang, S-I[3]; Lee, E[4]; Cho, H-J[3]; Kim, HY[5]; Seo, J-H[6]; Kim, B-J[7]; Kim, H-B[8]; Lee, S-Y[9]; Song, DJ[10]; Kim, WK[11]; Jang, GC[12]; Shim, JY[13]; Hong, S-J[4]
[1]Pediatrics, Bundang CHA Medical Center, Seongnam, Korea; [2]Department of Pediatrics, Seoul National University Bundang Hospital, Seoul National University College of Medicine, Seongnam, Korea; [3]Department of Pediatrics, Childhood Asthma Atopy Center, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; [4]Childhood Asthma Atopy Center, Asan Medical Center, University of Ulsan College of Medicine, Seoul, Korea; [5]Department of Pediatrics, Kosin University Gospel Hospital, Kosin University College of Medicine, Busan, Korea; [6]Department of Pediatrics, Korea Cancer Center Hospital, Seoul, Korea; [7]Department of Pediatrics, Haeundae Paik Hospital, Inje University College of Medicine, Busan, Korea; [8]Department of Pediatrics, Sanggye Paik Hospital, Inje University College of Medicine, Seoul, Korea; [9]Department of Pediatrics, Hallym Sacred Heart Hospital, Hallym University College of Medicine, Anyang, Korea; [10]Department of Pediatrics, Korea University Guro Hospital, Korea University College of Medicine, Seoul, Korea; [11]Department of Pediatrics, Seoul Paik Hospital, Inje University College of Medicine, Seoul, Korea; [12]Department of Pediatrics, National Health Insurance Corporation Ilsan Hospital, Goyang, Korea; [13]Department of Pediatrics, Kangbuk Samsung Hospital, Sungkyunkwan University School of Medicine, Seoul, Korea

Background: Measurement of fractional concentration of exhaled nitric oxide (FeNO) is a quantitative, noninvasive, simple, and safe method of measuring airway inflammation. While FeNO measurement has been standardised, but reference values for preschool children in the general population are not yet in Korea. The aim of this study was to establish reference values for FeNO in preschool children.

Method: 919 children completed a modified International Study of Asthma and Allergy in Children (ISAAC) questionnaire. FeNO was measured in 410 preschool children aged 4–6 years according to American Thoracic Society guidelines with an electrochemical sensor devices (NIOX MINO®, Aerocrine, Sweden). 295 children defined as healthy controls were assessed.

Results: Geometric mean of FeNO were 8.39 (95% confidence interval [CI] 5.97–10.81) ppb, 9.56 (95% CI 6.92–12.20) ppb and 8.60 (95% CI 6.14–11.06) ppb in non-atopic, atopic, and all healthy controls, respectively. The FeNO reference equations were determined by multiple linear regression analysis, taking into account the variables of BMI, total IgE, eosinophil percent, and bronchial hyper-responsiveness (methacholine PC_{20}). FeNO was not associated with bronchial hyper-responsiveness.

Conclusion: This study provides reference values for FeNO that can be used to evaluate airway inflammation in healthy preschool children. This study assesses affecting factors to FeNO values in preschool children.

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Efficacy of newly invented temperature and humidity control machine on house dust mite allergen and clinical symptom of dust mite sensitised allergic rhinitis children

Manuyakorn, W[1]; Padungpak, S[1]; Luecha, O[1]; Kamchaisatian, W[1]; Sasisakulporn, C[1]; Vilaiyuk, SV[1]; Monyakul, V[2]; Benjaponpitak, S[1]
[1]Department of Pediatrics, Faculty of Medicine Ramathibodi Hospital, Mahidol Univerisity, Bangkok, Thailand; [2]School of Energy Environment and Materials, King Mongkut's University of Technology Thonburi, Bangkok, Thailand

Background: House dust mite avoidance is advised in dust mite sensitised patients with allergic rhinitis (AR) to decrease their risk of developing symptoms. Maintaining a stable room temperature and a relative humidity (RH) of less 50% is recommended for reducing the growth and survival rate of dust mites. This study was to investigate the effect of newly invented temperature and humidity control machine on the level of dust mite allergens and total nasal symptom scores (TNSS) of dust mite sensitised allergic rhinitis children.

Method: Children (8–15 years) with dust mite sensitised persistent AR were enrolled. The temperature and humidity control machine was installed in the bedroom for 6 months. TNSS were assessed before and every month after machine installation and the level of dust mite allergens (Der p1 and Der f1) from the mattress were measured before and every 2 months after machine installation using enzyme-linked immunosorbent assay (ELISA).

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Results: A total of seven children were enrolled. There was a significantly reduction in the level of Der f1 after 2 months of machine installation and the level was sustained low throughout 6 months ($P < 0.05$). However, the level of Der p1 in the mattress was lower than 0.2 μg/g dust in 6/7 houses resulting in the non-significant changes in the level of Der p1. There was a modest reduction in TNSS score from 3.3 to 2 in before and 6 months after installation. However, the statistically significant reduction of TNSS from the baseline was also demonstrated at 2 and 4 months. Seventy percent of the patients were able to stop using their intranasal corticosteroids. There was no correlation between TNSS and the level of dust mite antigens.

Conclusion: The level of house dust mite allergen in the mattress effectively decreases after installation of temperature and humidity control machine. The temperature and humidity control machine may have a role in controlling clinical symptom of dust mite sensitised AR children.

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Evolution of the prevalence of rhinoconjunctivitis and atopic dermatitis in school children in Algiers: a comparison of 2 surveys conducted 20 years apart

Boukari, R[1]; Kaddache, CA[1]; Smati, L[2]; Benhalla, NK[2]; Baghriche, M[2]
[1]Pediatrics, Blida University, Blida, Algeria; [2]Pediatrics, Algiers University, Algiers, Algeria

Background: Many studies of asthma prevalence have been conducted worldwide. The International Study on Asthma and Allergies in Childhood (ISAAC) showed large variations in the prevalence of rhinitis and atopic dermatitis between countries and increased incidence of the allergic diseases over the past few years.

Objectives: Determine the prevalence of allergic diseases such as rhinitis and atopic dermatitis in a population of 13–14 years old school children.

Appreciate the magnitude of the variation observed by comparing the results of this survey with those obtained by a prevalence study conducted using a comparable methodology 20 years earlier.

Methods: The study focuses on a representative sample of children aged 13–14 years enrolled from colleges (30 institutions).

A sample of 3805 teenagers participate in the survey questionnaire by ISAAC methodology.

Target questions are six for rhinitis and six questions for atopic dermatitis (ISAAC survey).

Results: The annual prevalence of rhinitis was 44%, the annual prevalence of rhinoconjunctivitis was 25%, the cumulative prevalence of hay fever is 15% (12–18%). Rhino-conjunctivitis is associated with moderate discomfort activities (15%) or a major discomfort (12%).

Annual prevalence of pruritic dermatosis of the folds is 08% and the cumulative prevalence of eczema is 05%.

The 2005 survey confirms the increasing prevalence of allergic diseases such as rhinoconjunctivitis and atopic dermatitis as has been shown in other countries.

Over the 20 years period (1985 - 2005), the annual increase in the prevalence of rhinoconjunctivitis rate is 0.5% and that of atopic dermatitis was 0.3%.

Conclusion: Risk factors associated with this significant increase in the space of two decades are related to a change in lifestyle and environment.

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Functional effects, including effects on gut microbiota, of an amino acid-based formula with synbiotics in cow's milk allergic infants

Burks, WA[1]; Harthoorn, LF[2,3]; van Ampting, M[2,3]; Oude Nijhuis, M[2]; Wopereis, H[2,4]; Goldberg, SB[5]; Ong, PY[6]; Essink, BJ[7]; Scott, RB[8]; Harvey, BM[9]
[1]University of North Carolina, Chapel Hill, United States; [2]Nutricia Research, Nutricia Advanced Medical Nutrition, Utrecht, The Netherlands; [3]Nutricia Advanced Medical Nutrition, Liverpool, United Kingdom; [4]Laboratory of Microbiology, Wageningen University, Wageningen, The Netherlands; [5]Visions Clinical Research, Tucson, United States; [6]Children's Hospital Los Angeles, Los Angeles, United States; [7]Meridian Clinical Research, Omaha, United States; [8]Asheboro Research Associates, Asheboro, United States; [9]Children's Investigational Research Program, LLC (CHIRP), Bentonville, United States

Background: Pre- and probiotics (synbiotics) are suggested to have beneficial effects on human health. This study describes how an amino acid-based formula (AAF) with a synbiotic blend, specifically designed for infants with cow's milk allergy (CMA), affects growth, allergy symptoms and gut microbiota in CMA infants.

Method: In a, randomized, double-blind controlled study, full-term infants with diagnosed CMA received an AAF (control; $n = 56$) or an AAF with synbiotics (neutral and acidic oligosaccharides, *Bifidobacterium breve* M-16V) (test; $n = 54$) for 16 weeks. The primary outcome measure was growth. Other outcomes were formula tolerance, allergic symptoms and proportions of major gut microbial groups and metabolites in stool samples collected at baseline and weeks 4 and 16. The microbial groups were determined by fluorescent *in situ* hybridization. In addition stool pH, levels of lactate and short-chain fatty acids were determined.

Results: Mean (±SD) age at inclusion was 4.5 ± 2.4 months. Both formulas were well tolerated, equally supported growth according to WHO growth charts, and reduced allergic symptoms. At weeks 4 and 16 proportions of bifidobacteria were significantly higher in the test group vs control group, while both *Clostridium histolyticum* and *Eubacterium rectale/Clostridium coccoides* groups were significantly lower. pH was significantly lower in the test group at weeks 4 and 16. At week 16, acetic acid levels were significantly higher and propionic acid levels significantly lower in the test group vs control group, whereas lactate and butyric acid levels were not different.

Conclusion: This study shows that the AAF with synbiotics supports normal growth, is equally well tolerated and is similarly effective in the management of CMA symptoms compared to an AAF without synbiotics. In addition, this is the first study to show that synbiotics can influence the intestinal microbiota and its associated metabolic profile in infants fed an AAF.

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Does it possible to prevent side effects of inhaled corticosteroids on teeth by preventive dental programs in children with asthma?

Kılınc, G[1]; Uysal, P[2]; Uzuner, N[3]; Ellidokuz, H[4]
[1]Pediatric Dentistry, Faculty of Medicine, Dokuz Eylul University, Izmir, Turkey; [2]Pediatric Allergy and Immunology, Adnan Menderes University Medical Faculty, Aydin, Turkey; [3]Pediatric Allergy and Immunology, Dokuz Eylul University, Faculty of Medicine, Izmir, Turkey; [4]Department of Biostatics and Medical Informatiques, Faculty of Medicine, Dokuz Eylul University, Izmir, Turkey

Background: The aim of the study is to investigate the protective effect of regular dental care and preventive dental programs on oral health in children with asthma.

Method: Fifty-one moderate-severe asthmatic using ICS and 51 healthy children with the ages ranging 5–16 years were included to the study. Salivary pH and flow rate were measured in morning unstimulated saliva samples in each visit, dental/periodontal examinations and topical fluoride varnish were performed. According to preventive dental protection program proper brushing techniques and protective measures were taught and children were followed-up for 1 year.

Results: Saliva pH was decreased in asthmatics when compared to healthy children at 6th month of the study ($P = 0.040$), whereas, unchanged at the beginning and end of the study ($P = 0.440$, $P = 0.496$ respectively). Flow rate of saliva was lower

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