Selections from international journals

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Ann Allergy Asthma Immunol. 2018;120(6):559-579.

The pediatric asthma yardstick: Practical recommendations for a sustained step-up in asthma therapy for children with inadequately controlled asthma.

Chipps BE, Bacharier LB, Farrar JR, Jackson DJ, Murphy KR, Phipatanakul W, Szefler SJ, Teague WG, Zeiger RS.

Current asthma guidelines recommend a control-based approach to management involving assessment of impairment and risk followed by implementation of treatment strategies individualized according to the patient's needs and preferences. However, for children with asthma, achieving control can be elusive. Although tools are available to help children (and families) track and manage day-to-day symptoms, when and how to implement a longer-term step-up in care is less clear. Furthermore, treatment is challenged by the 3 age groups of childhood-adolescence (12-18 years old), school age (6-11 years old), and young children (≤5 years old)-and what works for 1 age group might not be the best approach for another. The Pediatric Asthma Yardstick provides an in-depth assessment of when and how to step-up therapy for the child with not well or poorly controlled asthma. Development of this tool follows others in the Yardstick series, presenting patient profiles and step-up strategies based on current guidance documents, but modified according to newer data and the authors' combined clinical experience. The objective is to provide clinicians who treat children with asthma practical and clinically relevant recommendations for each step-up and each intervention, with the intent of helping practitioners better treat their pediatric patients with asthma, particularly those who do not always respond to recommended therapies.

Pediatr Allergy Immunol. 2018;29(5):469-480.

EAACI/ENDA Position Paper: Diagnosis and management of hypersensitivity reactions to non-steroidal anti-inflammatory drugs (NSAIDs) in children and adolescents.

Kidon M, Blanca-Lopez N, Gomes E, Terreehorst I, Tanno L, Ponvert C, Chin CW, Caubet JC, Soyer O, Mori F, Blanca M, Atanaskovic-Markovic M.

Non-steroidal anti-inflammatory drugs (NSAIDs) are commonly used in the pediatric population as antipyretics/analgesics and anti-inflammatory medications. Hypersensitivity (HS) reactions to NSAID in this age group, while similar to adults, have unique diagnostic and management issues. Although slowly accumulating, published data in this age group are still relatively rare and lacking a unifying consensus. This work is a summary of current knowledge and consensus recommendations utilizing both published data and expert opinion from the European Network of Drug Allergy (ENDA) and the Drug Hypersensitivity interest group in the European Academy of Allergy and Clinical Immunology (EAACI). This position paper summarizes diagnostic and management guidelines for children and adolescents with NSAIDs hypersensitivity.

J Allergy Clin Immunol. 2018;142(2):485-496.

Mast cell activation test in the diagnosis of allergic disease and anaphylaxis.

Bahri R, Custovic A, Korosec P, Tsoumani M, Barron M, Wu J, Sayers R, Weimann A, Ruiz-Garcia M, Patel N, Robb A, Shamji MH, Fontanella S, Silar M, Mills ENC, Simpson A, Turner PJ, Bulfone-Paus S.

BACKGROUND: Food allergy is an increasing public health issue and the most common cause of life-threatening anaphylactic reactions. Conventional allergy tests assess for the presence of allergen-specific IgE, significantly overestimating the rate of true clinical allergy and resulting in overdiagnosis and adverse effect on health-related quality of life.
OBJECTIVE: To undertake initial validation and assessment of a novel diagnostic tool, we used the mast cell activation test (MAT). METHODS: Primary human blood-derived mast cells (MCs) were generated from peripheral blood precursors, sensitized with patients' sera, and then incubated with allergen. MC degranulation was assessed by means of flow cytometry and mediator release. We compared the diagnostic performance of MATs with that of existing diagnostic tools to assess in a cohort of peanut-sensitized subjects undergoing double-blind, placebo-controlled challenge. RESULTS: Human blood-derived MCs sensitized with sera from patients with peanut, grass pollen, and Hymenoptera (wasp venom) allergy demonstrated allergen-specific and dose-dependent degranulation, as determined based on both expression of surface activation markers (CD63 and CD107a) and functional assays (prostaglandin D2 and β-hexosaminidase release). In this cohort of peanut-sensitized subjects, the MAT was found to have superior discrimination performance compared with other testing modalities, including component-resolved diagnostics and basophil activation tests. Using functional principle component analysis, we identified 5 clusters or patterns of reactivity in the resulting dose-response curves, which at preliminary analysis corresponded to the reaction phenotypes seen at challenge. CONCLUSION: The MAT is a robust tool that can confer superior diagnostic performance compared with existing allergy diagnostics and might be useful to explore differences in effector cell function between basophils and MCs during allergic reactions.

Clin Exp Allergy. 2018;48(5):594-603.

Temperature-controlled laminar airflow (TLA) device in the treatment of children with severe atopic eczema: Open-label, proof-of-concept study.

Gore C, Gore RB, Fontanella S, Haider S, Custovic A.

BACKGROUND: Children with severe, persistent atopic eczema (AE) have limited treatment options, often requiring systemic immunosuppression. OBJECTIVE: To evaluate the effect of the temperature-controlled laminar airflow (TLA) treatment in children/adolescents with severe AE. METHODS: We recruited 15 children aged 2-16 years with long-standing, severe AE and sensitization to ≥1 perennial inhalant allergen. Run-in period of 6-10 weeks (3 visits) was followed by 12-month treatment with overnight TLA (Airsonett® , Sweden). The primary outcome was eczema severity (SCORAD-Index and Investigator Global Assessment-IGA). Secondary outcomes included child/family dermatology quality of life and family impact questionnaires (CDQLI, FDQLI, DFI), patient-oriented eczema measure (POEM), medication requirements and healthcare contacts. The study is registered as ISRCTN65865773.
RESULTS: There was a significant reduction in AE severity ascertained by SCORAD and IGA during the 12-month intervention period ($P < .001$). SCORAD was reduced from a median of 34.9 [interquartile range 28.75-45.15] at Baseline to 17.2 [12.95-32.3] at the final visit, and IGA improved significantly from 4 [3-4] to 2 [1-3]. We observed a significant improvement in FDQLI (16.0 [12.25-19.0] to 12 [8-18], $P = .023$) and DFI ($P = .011$), but not CDQLI or POEM. Compared to 6-month period prior to enrolment, there was a significant reduction at six months after the start of the intervention in potent topical corticosteroids ($P = .033$). The exploratory cluster analysis revealed two strongly divergent patterns of response, with 9 patients classified as responders, and 6 as non-responders. CONCLUSION AND CLINICAL RELEVANCE: Addition of TLA device to standard pharmacological treatment may be an effective add-on to the management of difficult-to-control AE.