CLIPPINGS

Theme: Pediatric Pulmonology and Sleep Medicine

Tiotropium is efficacious in 6- to 17-year-olds with asthma, independent of T2 phenotype. (*J Allergy Clin Immunol Pract. 2019;7:2286-95*)

Tiotropium is an anticholinergic drug that has shown to be efficacious as an add-on controller for poorly controlled asthma at GINA step 4 and 5 in children 6 years of age and older. It is a non-biological step-up used through inhalational route with a big cost advantage. The current study explored whether the response to tiotropium was influenced by patients' type 2 status (assessed by serum IgE levels and blood eosinophil counts). The results of this exploratory analysis show that the improvement in lung function parameters (FEV1, FEF 25-75 and FEV1/VC), risk of exacerbations and improvement in Asthma Control Questionnaire were largely independent of systemic markers of T2 inflammation. This data can further expand the use of tiotropium in children with poorly controlled asthma with a non-eosinophilic phenotype.

Subcutaneous mepolizumab in children aged 6 to 11 years with severe eosinophilic asthma (*Pediatr Pulmonol. 2019 Sep 9. [Epub ahead of print]*)

Mepolizumab is a humanized monoclonal antibody that selectively blocks the interleukin-5 (a signalling protein of the immune system). It is approved for treatment of severe eosinophilic asthma in adults. This multinational, non-randomized, open-label trial evaluated the pharmacokinetics and pharmacodynamics of subcutaneous mepolizumab for children 6 to 11 years of age with severe eosinophilic asthma (blood eosinophil count ≥150 cells/μL at screening or ≥300 cells/μL <12 months of screening) and ≥2 exacerbations in the prior year. Mepolizumab was well tolerated; no new safety signals were observed compared with previous adult/adolescent studies. Mepolizumab (subcutaneous) 40 or 100 mg provided body weight-adjusted drug exposure within two-fold of target adult exposure as well as marked reductions to blood eosinophil counts similar to adults. Although this trial was not designed to evaluate efficacy outcomes, it demonstrated a positive clinical profile. Further efficacy trials would be required before this drug can be used in clinical practice for children.

EAACI Guidelines on Allergen Immunotherapy: House dust mite-driven allergic asthma. (*Allergy. 2019;74:855-73*).

Children with allergic asthma not adequately controlled on pharmacotherapy (including biologics) represent an unmet health need. Allergen immunotherapy (AIT) is underused in asthma, both in children and in adults. The European Academy of Allergy and Clinical Immunology clinical practice guideline provides an evidence-based recommendation for the use of house dust mites AIT as add-on treatment for house dust mite-driven allergic asthma. AIT with house dust mite sublingual immunotherapy (SLIT) tablet has demonstrated a robust effect in adults for critical end points (exacerbations, asthma control and safety). Thus, it is recommended as an add-on to regular asthma therapy for adults with controlled or partially controlled house dust mite-driven allergic asthma. A randomized control trial is underway for children with such asthma using house dust mite SLIT tablet. SLIT tablet is recommended for adults and children, and SLIT drops are recommended for children with controlled house dust mite-driven allergic asthma as the add-on to regular asthma therapy to decrease symptoms and medication needs. The evidence for this is although of low quality.

Chronic cough and gastroesophageal reflux in children: CHEST guideline and expert panel report (*Chest. 2019;156:131-40*)

The current meta-analysis and Expert Panel evaluated whether gastroesophageal reflux (GER) or GER disease (GERD) causes chronic cough (>4 weeks) in children without underlying lung disease. The study also evaluated what investigations and diagnostic criteria best determine GERD as the cause of the cough, whether empirical treatment for GERD be used for children with chronic cough with or without GER symptoms, and what GER-based therapies should be used and for how long? The authors could not find any trials on the investigative modality for GERD diagnosis in children with chronic cough. The single meta-analysis (two randomized controlled trials) showed no significant difference between the groups (any intervention for GERD *vs* placebo for cough resolution; OR 1.14; 95% CI 0.45-2.93; *P*=0.78). Proton pump inhibitors (*vs* placebo) caused increased serious adverse events. The panelists endorsed that: (*i*) treatment(s) for GERD should not be used when there are no clinical features of GERD; and (*ii*) pediatric GERD guidelines should be used to guide treatment and investigations.

Accuracy of high-speed video analysis to diagnose primary ciliary dyskinesia (*Chest. 2019;155:1008-17*)

Primary ciliary dyskinesia (PCD) remains underdiagnosed because of poor awareness of the condition and poor availability of confirmatory tests. European Respiratory Society (ERS) PCD diagnostic guidelines recommends a combination of diagnostic tests. High-speeda video microscopy analysis (HSVA) has been commonly used in the UK and has the advantage of giving the results on the same day but the qualitative analyses are subjective. The study aimed to establish the accuracy of HSVA to diagnose PCD compared with a combination of tests, and to assess the interobserver reliability of HSVA analysis across three UK PCD centers. HSVA had excellent sensitivity and specificity to diagnose PCD: (*i*) 100% and 96%, respectively, compared with ERS guidelines; and (*ii*) 96% and 91% compared with diagnostic outcomes. There was high interobserver agreement for "PCD-positive" outcomes (κ=0.7). HSVA can be reliably used to counsel patients and commence treatment on the day of testing while awaiting confirmatory investigations.

Ankit Parakh
ankitparakh102@gmail.com