

objective was to validate the clinical score in nasal challenge.

**Methods:** Nasal challenge was made to asthma patients with or without polyps. We diluted 160 mg of L-asa in 3.2 ml of NaCl 0.9% (12.5 mg/250 µl). At baseline CS and total nasal flow (TNF) obtained with Jaeger rhinomanometer were recorded. L-asa 12.5 mg were instilled into each nostril, CS and TNF were measured over the following 30 minutes, if the patient didn't develop a positive reaction, we proceed to repeat this procedure until 4 times (maximum accumulated dose 100 mg L-asa); If exist 40% decrease of TNF and/or an increase of 8 points on the CS compared with baseline values we considered positive criteria and the challenge was stopped. The CS was constituted by 10 items (nasal obstruction, sneezing, rhinorrhea, facial color, pruritus, hyperemia conjunctival, size/color of right and left inferior turbinates) with a score of 0–3 in each one, it was evaluated by two different blind allergists. We used Wilcoxon and concordance test.

**Results:** 40 patients were enrolled, 20 had history of AH in the last 12 months and 20 had history of intake aspirin without any reaction in the same time. 19/20 challenges in patients with AH had positive criteria; the 20 challenges in asthma patients without history of HA were negative. We obtained  $\kappa=1$  between the two allergist; the concordance with the challenge positive criteria was 95% (only two patients with a decrease of 40% of TNF didn't have increase of  $\geq 8$  points in CS). The mean of decreased of TNF was 47% ( $p = 0.001$ ), and mean of the increase of CS in the positive challenges was 11.75 points ( $p = 0.001$ ). In negative challenges we found an increase mean TNF of 28.37% but had not significance ( $p = 0.940$ ).

**Conclusion:** The increase of the  $\geq 8$  points in CS is a good method for establish AH and could be option in centers that not have specific devices.

### 1397

#### Increased Th1 cells infiltration in nasal polyps from patients with refractory chronic rhinosinusitis and asthma

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**Background:** Bronchial asthma is recurrently associated with chronic rhinosinusitis (CRS) and influence endoscopic sinus surgery (ESS) outcomes. Common mucosal eosinophilia is frequently associated with more severe disease and with recurrence of

nasal polyps (NPs) after ESS. Furthermore, CRS patients with aspirin-intolerant asthma (AIA) often have particularly severe asthma that is associated with rhinorrhea and recurrent NPs. These findings suggest that concomitant asthma may contribute to the pathophysiology of CRS. On the other hand, T-cell immunity has been suggested to play an important pathogenic role in many chronic inflammatory diseases including CRS. In order to determine whether T helper (Th) 1 or Th2 cells were increased in NP tissues, we detected T-bet or GATA-3 and CD3 by double immunofluorescence staining.

**Method:** A specimen of NP mucosa was obtained during surgery from patients who had been referred to our hospital for ESS. Specimens of NP and mucosal tissues were obtained from 3 groups of CRS patients:

- 1) patients without asthma (CRS group),
- 2) patients with aspirin-tolerant asthma (ATA group), and
- 3) patients with AIA (AIA group).

Biopsy specimens from these CRS patients were subjected to immunohistochemistry for detection of T-bet and GATA-3 expression in CD3 + T cells by double labeling.

**Results:** CD3 + cells were restricted to the perivascular and subepithelial regions of nasal biopsy specimens. Representative double-stained images of T-bet+CD3 + cells (Th1 cells) and GATA-3 + CD3 + cells (Th2 cells) in nasal biopsy specimens are shown. CD3 + cells were detected in all specimens, but the number of CD3 + cells was significantly higher in the ATA and AIA groups than in the control and CRS groups. In addition, the number of T-bet+CD3 + cells and GATA-3 + CD3 + cells was significantly higher in the AIA group than in the control or CRS groups. In the ATA group, the number of T-bet+CD3 + cells and GATA-3 + CD3 + cells was slightly higher than in the control group or the CRS group, but there were no significant differences.

**Conclusion:** In addition to Th2 cells, there was more abundant infiltration of Th1 cells into tissues from the AIA and ATA groups. Both Th1 and Th2 cells were significantly increased in NP tissues from the AIA group compared with the control, CRS, and ATA groups. These findings suggest that concomitant asthma is a major reason why CRS may become refractory to treatment.

### 1398

#### Self-reported improvement of chronic rhinosinusitis symptoms in patients on omalizumab therapy for asthma

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**Background:** The purpose of this study was to evaluate the effect of omalizumab on self-reported improvement of chronic rhinosinusitis (CRS) symptoms in patients receiving omalizumab as part of their asthma treatment.

**Method:** A chart review and survey were performed at two private asthma and allergy clinics in Ottawa and Toronto, Ontario, Canada.

Patients identified for investigation were receiving omalizumab as part of their asthma treatment, and were also diagnosed with chronic rhinosinusitis with polyps (CRSwNP) or chronic rhinosinusitis without polyps (CRSsNP). Data on demographics, omalizumab therapy and medical history were obtained from the patients' medical charts. Patients were invited to complete a survey about their CRS symptoms. Patients graded the level of improvement of their olfaction, rhinorrhea, facial pain, nasal obstruction and overall improvement in CRS symptoms since the start of omalizumab therapy on a 10 cm Visual Analogue Scale (VAS) (0 = no improvement, 10 = complete improvement). The mean self-reported improvement for each symptom was compared between CRSwNP and CRSsNP patients using a t-test.

**Results:** Thirty-four charts were available for review, 18 patients were male, 16 female. 23 (76.5%) patients had CRSwNP and 8(23.5%) had CRSsNP. All patients were receiving concurrent treatment for their CRS. 25 patients answered the survey. Patients with CRSwNP reported 42.9% improvement in olfaction, 77.5% in facial pain, 68% in nasal obstruction, 59.1% in rhinorrhea and 57.3% overall improvement of CRS symptoms since the start of omalizumab treatment. Patients with CRSsNP reported 53.5% improvement in olfaction, 78% in facial pain, 72% in nasal obstruction, 70.3% in rhinorrhea and an overall improvement of 76.7%. There was no significant difference between the improvement reported by patients with CRSwNP and those with CRSsNP for any of the symptoms or overall improvement.

**Conclusion:** Omalizumab treatment was beneficial for over 75 percent of patients

with chronic rhinosinusitis, with or without nasal polyps. Omalizumab may be a useful treatment for this patient population, for which there are few efficacious, cost-effective, long-term therapeutic modalities.

### 1399

#### The significance of allergen specific Ig E in the diagnosis of allergic rhinitis

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**Background:** Usually rhinitis is classified simply allergic and non-allergic rhinitis according to the allergic reaction to airborne allergens. Ig E-mediated inflammation is confirmed with positive skin test or presence of specific IgE and the positive result from the one of the two tests is usually enough for the diagnosis. However, the presence of specific IgE or positive skin reaction is a necessary condition not a sufficient condition for the allergic rhinitis. Therefore the false positive clinical allergic rhinitis may be increased. We are interested in the diagnostic power of the allergen specific Ig E. Recently, during Korean National Health and Nutrition Examination Survey 2010, presence of rhinitis and the specific Ig E for major airborne allergens were checked in the population. Purpose of this study is to evaluate the significant level of allergen specific Ig E in the diagnosis of allergic rhinitis.

**Method:** The data were obtained from the 2010 Korean National HANES, which was a cross-sectional survey of non-institutionalized population all around the country. Presence of rhinitis was defined as have you experience the rhinitis symptoms or have you diagnosed as have allergic rhinitis from doctor. Serum specific IgE was checked for dermatophagoides farinae, cockroach and dog. Data was obtained from 1,922 adult (older than 18). The statistical parameters for the diagnostic test such as sensitivity, specificity, positive predictive value and positive likelihood ratio

were calculated according to the level of the specific Ig E.

**Results:** The prevalence of rhinitis was 16.5%. The specific Ig E higher than 0.34 kU/L was found in 44.3%. The positive rate was 54.8% in the rhinitis group and 40.7% in group without rhinitis. When the diagnosis of allergic rhinitis was decided with the each level of the specific IgE, sensitivity was 100% in all levels. Positive predictive value and positive likelihood ratio were 37.3% and 3.00 for one +, 39.5% and 4.07 for two +, 49.3%, 9.89 for three +, 63.8% and 35.92 for four +, 77.4% and 133.86 for five +.

**Conclusion:** Capacity of the specific IgE to classify the rhinitis was not high when the level of 0.35 kU/L was adopted. The level of specific IgE equal or higher than 3.50 kU/L seems to be more clinically significant especially for selection of allergen specific treatment.

### 1401

#### Does the duration of participation to orienteering effects the frequency of allergic rhinitis in adolescent orienteers in West Mediterranean Region: a prospective, blinded, clinical study

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**Background:** Allergic rhinitis (AR) is a symptomatic disorder of the nose which affects quality of life, sleep, school, work and sport success with the symptoms of sneezing, nasal obstruction and mucous discharge. AR is the most common allergic airway disease in childhood with the prevalence of 1.4–24.5% in different studies. In recent years there are many epidemiological studies reported that the incidence of asthma and rhinitis in athletes are higher comparing with the general population.

AR rate have been reported in athletes as 15–29%. Orienteering is a olympic outdoor sport in which the participant have to proceed from the start to finish by visiting a number of control points with the help of map and compass. Orienteering in Antalya mostly takes places in wooded areas with an pollen exposure that may cause AR. We aimed to determine the prevalence of AR in orienteers, compare with basketball players and to find the effect of the sport duration on the AR.

**Method:** There were 33 licensed orienteers and 27 licensed basketball players included in to study. Modified ISAAC 2 questionnaire, epidermal prick test and clinical assessments were used for allergic rhinitis identification criteria. All athletes diagnostic nasal endoscopic and nasopharyngoscopic examinations were made by same otolaryngologist. Inferior turbinates, presence of secretions, nasal passages and mucous membranes were evaluated. Nasopharyngeal examination is done and the presence of adenoid tissue were evaluated. Pulmonary function tests, serum eosinophil numbers, percentage and total IgE levels were assessed.

The skin tests were performed by the same nurse in a standardized manner and evaluated by the same pediatric allergy and immunology specialist.

**Results:** There were 21 males and 12 females in orienteering group and 14 males and 13 females in the basketball group. The ages were between 10–18 and 10–16 with a mean age of  $14.1 \pm 2.3$  and  $13.4 \pm 1.6$  respectively. As a result of AR investigation and ENT examination 14 orienteers (42.4%) and 7 basketball players (25.9%) were diagnosed as AR. Presence of AR was higher in orienteers but this was not statistically significant (0.144). When we compare orienteers with AR and without AR we found that duration of exercise in years was higher in AR group as  $2.9 \pm 1.4$  to  $2.1 \pm 1.3$ . This was statistically significant ( $P = 0.046$ ).

**Conclusion:** With the longer duration of participation to orienteering, the frequency of AR increased.