Multicenter study of clinical relevance of recombinant allergen Api m 1 and Ves v 5 determined by IgE multiplex test ImmunoCAP ISAC

Urška Bidovec-Stojkovič1, Vachova Martina2,Mira Šilar1, Žiga Košnik1, Mitja Košnik1, Petr Panzner2, Jasna Volfand3, Matjaž Homšak4, Vojko Berce5,Peter Korošec1

1University Clinic of Respiratory and Allergic Diseases, Golnik, Slovenia

2 Department of Immunology and Allergology, Faculty of Medicine in Pilsen, Charles University, Czech Republic

3Diagnostic Centre Bled, Bled, Slovenia

4Private pediatric practice, Lenart, Slovenia

5University Medical Centre Maribor, Maribor, Slovenia

**Background:**

ImmunoCAP ISAC (ISAC) is an advanced diagnostic tool for the assessment of complex cases. Two major venom components honeybee rApi m1 and yellow jacket rVes v5 are also included on this microarray. We evaluated ISAC results for those two components and its possible clinical relevance.

**Methods:**

Specific IgE to rApi m1 and rVes v5 were analyzed in all subjects, which were routinely tested with ISAC from 2012 to 2017 at University Clinic Golnik, Slovenia or at Faculty of Medicine Pilsen, Czech Republic. Results were compared with singleplex ImmunoCAP (CAP) assay and evaluated weather they are clinically relevant.

**Results:**

Positive results for rApi m1 and/or rVes v5 were observed in 342 (11.4%) out of 3001 ISAC tested subjects. 232(67.8%) of 342 subjects were sensitized for rVes v5, 83 (24.3%) for rApi m1 and 27 (7.9%) for both allergens. Positive ISAC results from 93 (27.2%) subjects were clinically evaluated and compared with CAP. Honeybee venom allergy was confirmed in 5.4% (5/93) subjects, yellow jacket venom allergy in 23.7% (22/93), and both in one subject. Twelve of those patients (43%) experienced anaphylactic reactions while 16 (57%) had large local reaction. Concordance between ISAC and CAP results was 90.3% (84/93) for rApi m1 and 97.8% (91/93) for rVes v5. Discordance for rApi m1 was present in 9 subjects; 8 were negative with ISAC, but positive with CAP, one was positive with ISAC, but negative with CAP. Discordance for rVes v5 was demonstrated only in 2 subjects; in both ISAC was positive and CAP negative. There was a significant correlation between semi-quantitative ISAC and quantitative CAP measurements, both for rApi m1 (R=0.79, p<0.0001) and rVes v5 (R=0.69, p<0.0001).

**Conclusions:**

In ISAC microarray, positive rApi m1 and rVes v5 results are frequent, reaching approximately 10-15% in the Middle Europe geographic region. The results were confirmed with standard CAP assay, both according to the positivity/negativity and semi-quantitative/quantitative levels, with higher matching for rVes v5 than for rApi m1. The sensitization was relevant in one third of the subjects (half with anaphylactic sting reactions), what obviously suggests that every positive subject should be clinically evaluated.