**Does specific IgE to grass pollen allergens / total IgE ratio better reflect the presence of clinically relevant allergy than specific IgE itself?**

**Liska M., Gutova V., Galanska R., Hanzlikova J., Malkusova I., Vitovcova P., Bojcukova J., Vlas T., Panzner P.**

**Department of Immunology and Allergology, University Hospital Pilsen, Czech Republic**

Background

We investigated whether specific IgE to grass pollen allergens/total serum IgE ratio better reflects the presence of clinically relevant allergy in sensitized patients than specific IgE to grass pollen allergens itself.

Methods

Our study group comprised 34 patients with allergic rhinoconjunctivitis and sensitization to grass pollen. All subjects were examined for total serum IgE (BN II ©, Siemens) and specific IgE to timothy allergenic components Phl p 1 and Phl p 5 by using ImmunoCAP ISAC © (Thermo Scientific). The subjects recorded symptoms of allergy and medication use by mobile application AllergyMonitor© during peak grass pollen season 2018 (May to July). Finally, medians of Rhinoconjunctivitis Total Symptom Score (RTSS) and Average Combined Score (ACS) for every subject and statistical evaluation by using chi-square test were calculated. We aimed to reject the null hypothesis stating that the measured laboratory values do not distinguish between clinically insignificant (RTSS ≤ 1; ACS ≤ 0.583 (for RTSS = 1 and Rescue Medication Score = 1)) and significant grass pollen allergy (RTSS > 1; ACS > 0.583).

Results

30 enrolled subjects were assessed as they completed the records on more than 50% days in peak grass pollen season. Their median of specific IgE Phl p 1 was 8.07 ISU, the median of specific IgE Phl p 5 was 0 ISU, the median of RTSS was 2, the median of ACS was 0.58. While using cut-off 0.9 ISU for specific IgE Phl p 1 and/or Phl p 5, the null hypothesis could not be rejected both for RTSS (*p* = 0.45), and for ACS (*p* = 0.22). However, while using cut-off 0.05 for the ratio of specific IgE Phl p 1/total IgE and/or specific IgE Phl p 5/total IgE, the null hypothesis was rejected for RTSS (*p* = 0.03), but it could not be rejected for ACS (*p* = 0.3).

Conclusion

The ratio of specific IgE to main allergenic components of timothy pollen to total serum IgE seems to have better capability of recognizing the presence of relevant grass pollen allergy than specific IgE itself. Possibly, future enlargement of our study group might bring stronger evidence for this assumption.