

Systemic reactions to peach are associated with high levels of specific IgE to Pru p 3

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Allergy to fruits belonging to the Rosaceae family is common in the adult population of the Mediterranean area, with peach and apple being the fruits more frequently responsible. The main allergenic proteins involved

are Bet v 1 omologues, profilins, and lipid transfer proteins (LTPs)

(1, 2). Plant

LTPs are basic polypeptides of ~9 kDa (91–95 amino acid), which have been identified as relevant allergens in several foods and pollens (3). Of note, LTPs are highly resistant to both gastric digestion and heat, and seem therefore to be associated to more severe and/or systemic symptoms, and capable of inducing sensitization in fruit-allergic patients without an associated pollinosis (4). This study was aimed to verify whether the severity of the clinical reactions to peach fruits is associated to sensitization towards allergenic LTP molecules, namely the LTP Pru p 3, the Bet v 1-related protein Pru p 1, and the profilin Pru p 4.

Among outpatients referred to our Allergy Unit, subjects with adverse reactions due to the ingestion of fresh peaches and/or peach juices were identified. Those patients were divided, according to the severity of reaction into: subjects with systemic symptoms including urticaria,

angioedema, asthma rhinitis or anaphylaxis and subjects with oral allergy syndrome (OAS) only. A control group of patients with respiratory allergy and no symptom of food allergy was also included. All patients underwent a complete diagnostic work-up including skin prick tests with a panel of common food/inhalant commercial extracts and CAP assay (Phadia Diagnostics, Milan, Italy). The CAP assay was carried out with the following recombinant (r) or natural (n) allergens: rBet v 1, rBet v 2, rBet v 4, rPhl p 1, 2, 5b, 6, 7, 11, 12, nPhl p 4, rArt v 1, rPar j 2, rAmb a 1, rAlt a 1, rFel d 1 and *Dermatophagoides pteronissinus* extract. A statistical analysis was carried out in order to verify if the three groups of patients displayed significant differences in the LTP-specific IgE. Forty-six patients were studied, according to the criteria mentioned above. Seventeen patients (mean age 25.8 years, 7 male, total IgE 722 ± 101 kU/l) had systemic symptoms with peach, 12 patients (mean age 26.9 years, 8 male, total IgE 408 ± 280 kU/l) had OAS, and 17 subjects (mean age 29.1 years, 6 male, total IgE 311 ± 180 kU/l) suffered from respiratory allergy. Only the concentra-

tions of Pru p 3 specific IgE were significantly higher in the 17 patients with systemic reactions after fruit or fruit-juice ingestion, than in patients with OAS and patients with respiratory allergy, as shown in Fig. 1.

Six patients of the OAS group and four of the systemic symptoms group had measurable specific IgE to Pru p 4 (profilin), whereas a co-sensitization to Pru p 1 was present in four patients of the OAS group and three of the systemic symptoms group. Specific IgE to Par j 2 (another LTP) were detected only in three patients, two of whom were controls. A complementary observation was that specific IgE against Bet v 1 were detected in four of the patients with OAS. Those patients, in fact have had OAS also with cherry, apple or pear.

LTPs are potent panallergens, and their biological activity is favoured by the resistance to heat and gastric digestion (5), since they can persist in the native form even in processed food such as fruit juices. Pru p 3, a compact protein stabilized by four disulfide bonds, has been identified as the major allergen of peaches (6), capable of inducing clinical symptoms in sensitised subjects. In the present

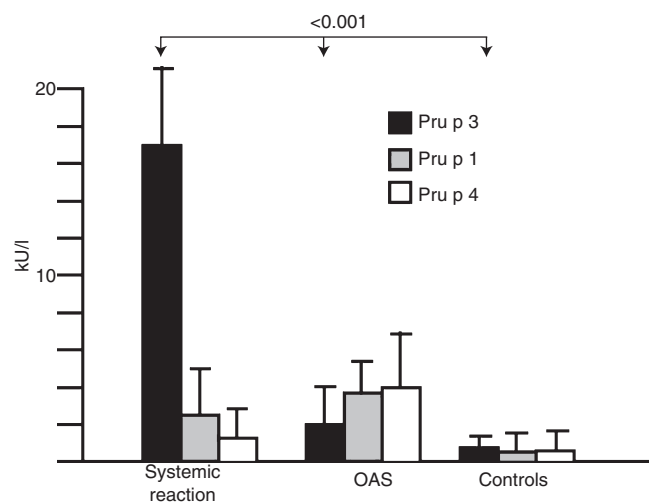


Figure 1. Specific IgE (kU/l, mean $\pm$ SEM) to Pru p 3, Pru p 1 and Pru p 4 in patients with systemic symptoms, OAS and control subjects.

work we demonstrated that there is a direct correlation between the levels of Pru p 3 specific IgE and symptom severity. In particular, patients with lower levels of Pru p 3 specific IgE had only OAS, which could be ascribed to Bet v 1 only in four cases. In conclusion, in patients with allergy to fruits belonging to *Rosaceae* family, the detection of high levels of Pru p 3 specific IgE can be regarded as a warning for systemic reactions.

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