IgE sensitisation to Bet v 1 in a birch pollen-allergic adult patient with oral allergy syndrome to hazelnuts, Rosaceae fruits and soy drink

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Background: Patients from Southern Romania with allergy to birch pollen sometimes report oral allergy syndrome, a contact urticaria of the oropharyngeal sites, to Rosaceae fruits and hazelnuts, but no report of soy allergy in these cases was published.

Report: We present a 21-year-old female patient with seasonal allergic rhinoconjunctivitis in spring and convincing history of oral allergy syndrome to hazelnuts, fresh Rosaceae fruits (apple, pear, quince, peach, apricot, plum, sweet cherries, strawberries), and soymilk. The skin prick testing was performed with commercial extracts, the prick-prick testing with some fresh edible Rosaceae fruits, serum specific IgE sensitization profile was assessed by line blot test system to native aeroallergen extracts and cross-reactive foods, while a multi-parameter line blot test system was used for pollen defined partial allergen diagnosis. The patient presented positive skin prick tests to birch (6 mm wheal) and hazel (7 mm wheal) pollen commercial extracts, negative to soy extract, and positive prick-prick tests with fresh fruits: apple (4 mm wheal), pear and peach (each 3 mm wheal). Serum specific IgE levels were found increased for birch pollen (72 kU/L, EAST class 5), hazel pollen (21 kU/L, EAST class 4), alder pollen (25 kU/L, EAST class 4), but also, to a lesser extent, for hazelnut (0.43 kU/L, EAST class 1). Specific IgE antibodies to apple, apricot, strawberries, celery and carrot were not found (<0.35 kU/L). IgE sensitization profile to recombinant allergen components revealed sensitization to rBet v 1 (65 kU/L, EAST class 5), while specific IgE to profilin biomarker rBet v 2, polcalcin biomarker rBet v 4 and isoflavone reductase rBet v 6 were not detected (<0.35 kU/L). Serum IgE level to cross-reactive carbohydrate determinant marker was below detection (<0.35 kU/L).

Clinical Relevance of Report: A multiplex line blot assessment of recombinant Betula pollen allergen components can be used in clinical practice to determine whether IgE sensitization to Bet v 1 in patients with birch pollen allergy is involved in cross-reactivity reactions with foods containing Bet v 1-like allergen components: Rosaceae fruits (apple, pear, peach, apricot, plum, cherry, strawberry, raspberry), exotic fruits (kiwi, persimmon, Jack fruit), Betulaceae (hazelnut) and Rosaceae (almond) nuts, Apiaceae vegetables (celery, carrot), Fabaceae legumes (peanut, soybean, chickpea) and tomato.

Statement of consent: Written informed consent was obtained for presentation and publication.