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Anaphylaxis to multiple pollen allergen sublingual immunotherapy

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As the traditional subcutaneous immunotherapy (SCIT) route of administration had a high risk of serious side-effects, the sublingual immunotherapy (SLIT) has been investigated and improved as a reliable desensitization method for clinical use in respiratory allergies (1). The efficacy of SLIT for allergic rhinitis has been confirmed recently by a meta-analysis and reporting a complete absence of systemic side-effects (2). The immunotherapy task force has released a common European standard for practical allergen-specific immunotherapy which provides gold standard treatment guidelines (3).

Hereby we report the first case of SLIT anaphylaxis seen in Europe. An 11-year-old girl with a history of allergic rhinitis and asthma sensitized to House Dust Mite (HDM) and seasonal pollen aeroallergens (mixture grasses, *Plantago*, *Artemisia*, *Parietaria offi*, *Zea mays* and *Secale cereale*), was started on standardized extracts of HDM (*Dermatophagoides farinae* : *Dermatophagoides pteronyssinus* 50% : 50%; stallergenes, Antony, France) and seasonal pollen mixture (five grasses : four cereals 50% : 50%; stallergenes, Antony, France) SLIT with a 1 : 300 dilution in addition to inhaler and intranasal corticosteroid treatment.

Three years earlier, patient was skin test reactive to multiple seasonal pollen aeroallergens and received SLIT for seasonal pollen of a 1 : 100 dilution of mixed extracts containing mixture of five grasses and *Secale cereale* (50%/50%), but discontinued by the family with their own will after one and a half year of usage due to regression of her complains. She reappeared after a 2 years lost follow-up with her asthma and rhinitis symptoms recurring especially during spring season.

Compared with the previous skin test reactivity, she was polysensitized to a number of aeroallergens mostly seasonal aeroallergens in addition to HDM. After the induction treatment, the maintenance dosing regimens were eight drops of 300 index of reactivity (IR) for HDM taken in the morning and a mixture of pollen allergens taken in the evening three times a week was initiated. One month after starting maintenance phase, one evening during a peak spring season, she felt swelling of her lower lip 3 min after self-administering pollen SLIT drops which bulged 10 times the normal size and was accompanied with high fever, chest pain, nausea and abdominal pain. The patient was rushed to the emergency department and immediately treated for anaphylaxis and hospitalized for observation.

Two days after this episode, the patient was challenged with half the usual maintenance dose of pollen allergen at the emergency department which was tolerated without any symptoms and dose modification was performed. Thereafter, she still had complains of swelling/burning sensation under the tongue after modification dose of pollen SLIT which prompted to stop the immunotherapy with pollen allergen and continuing with house-dust-mite SLIT without complains.

The presented case is unique in that, an anaphylactic reaction to high dose multi-pollen SLIT occurred 1 month after the preseasonal initiation of SLIT during the

maintenance phase. On the other hand, 3 years earlier the same mixture but with low dose (100 IR) was used in this patient with no adverse reaction. This can be due to a dose-concentration environmental allergen exposure during the high spring pollen season and simultaneously using high dose multi-pollen SLIT.

There are no reported studies demonstrating efficacy and safety of SLIT using multiple allergens, instead there are clinical cases reporting anaphylaxis on using multiple extracts (4).

Many studies have demonstrated the efficacy and safety of SLIT in children mono-sensitized with pollen and perennial allergens (5, 6). In our opinion, multiple allergen SLIT should not be recommended and this case should draw a special attention on children receiving co-seasonal pollen SLIT especially when mixture of multiple extracts is concerned, and should be warned and closely followed-up for any potential systemic side-effects.

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