Prevalence of Allergic Sensitization to Russian thistle in Kingston and the South-eastern Ontario Catchment Area; a Retrospective Chart Review

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Introduction

Allergic rhinitis and allergen-induced asthma often occur concomitantly and are thought to be a part of the same spectrum of disease. Allergens induced asthma and allergic rhinitis are caused by an immunoglobulin E (IgE)-mediated reaction to the protein and glycoprotein components of inhaled Aeroallergens such as pollens, mounds and animal dander. The prevalence of allergic rhinitis and allergen-induced asthma is increasing. It is believed that up to 40% of adults suffer from allergic rhinitis and 75% of adults with asthma have an allergic component.

Methods

A retrospective chart review was conducted at the Queen’s University Allergy and Immunology clinic representing patients residing in Kingston and the South-eastern Ontario catchment area. Patients aged, gender, skin test reaction and the presence or absence of clinical features were recorded. Relevant clinical symptoms were documented as well as the rate of sensitization amongst tested individuals. Specific clinical parameters on history included nasal congestion, sneezing, rhinorrhea, of the nose, eyes, palate for allergic rhinitis and wheezing chest tightness, cough for asthma.

A standardized extract to Russian thistle (Salsola 3) was used in all tested patients. Only patients with appropriate histamine responses were included in our data. We collected demographic data in addition to the presence/absence of relevant clinical symptoms.

Results

- 410 charts were reviewed in the Queen’s University Allergy and Immunology Clinic
- 170 of these patients were skin tested for Russian thistle using a standardized allergen reagent (n=170)
- Of these, 10% (17) were found to have a positive skin test to Russian thistle when compared to an appropriate histamine skin-test response

Results...continued

- Of the skin-test positive cohort, 100% were found to be symptomatic based on history, having clinical features consistent with allergic rhinitis or asthma
- 47% of the skin test positive individuals had symptoms that correlated seasonally with the predominant Russian thistle pollen season (August-October)
- Of positive tested individuals, 47% were male and 52.9% were female
- The median age of skin-test positive individuals was 33 years and mean age was found to be 35.2 years

Cross reactivity:
- Birch, ragweed and kiwi were described as antigens with known cross reactivity
- Of the skin-test positive cohort, 82% had comitant positive skin tests to ragweed
- 52% of the skin test positive cohort also had positive tests to birch
- None of the patients in this series had been skin tested to kiwi

Discussion

- The data suggests that Russian thistle in this particular study area yields a positive skin test result in 10% of skin tested patients (in an unselected patient population)
- All patients with a positive skin test were clinically symptomatic with symptoms consistent with either allergic rhinitis and/or asthma
- Among these, about half (47%) had symptoms that seasonally correlated with the predominant Russian thistle season between August-October
- There was no significant gender predominance amongst the skin-test positive cohort
- There may be utility in testing patients with known ragweed and birch allergies to Russian thistle, given the rates of cross-reactivity

Conclusions

- Data obtained suggests that the prevalence of skin test positivity to Russian thistle in the study area is approximately 19%, with about half of these individuals reporting comitant seasonal symptoms
- Including Russian thistle in routine skin testing panel may better establish the clinical significance of this environmental allergen