

# A gardening apprentice with 'hayfever' and shortness of breath

Commentary by

**JO A. DOUGLASS** MB BS, MD, FRACP, FThorSoc

An 18-year-old gardening apprentice presents with worsening symptoms of hayfever and dyspnoea that have caused him concern about his choice of career. How should he be managed and what advice can be offered to him?

## Case

Joel is an 18-year-old gardening apprentice who presents with 'hayfever'. He has had a gardening job for almost a year and has recently started to experience a runny nose, sneezing fits and very itchy, tired eyes. It is November, and his symptoms have been worsening for the past month. He is finding the symptoms exhausting and has found little relief from the antihistamine tablets he purchased from his pharmacy. Joel is concerned because he has also noticed some shortness of breath when his symptoms are especially bad, such as when mowing lawns. He is particularly concerned because he is about to invest in a garden design course.

Joel says the eye symptoms remind him of his 'cat allergy', which he has had since he was quite young. He is not aware of being allergic to any plants; his only allergy is to cats. He has one sibling, who has well-controlled asthma, but Joel has never been diagnosed with asthma. Joel is otherwise well and he is not taking any other medications.

- How commonly do adult patients present with allergic rhinitis without a history of childhood symptoms?
- How likely is it that Joel's symptoms will be manageable enough for him to continue a career in gardening? Should he be referred for allergy testing and desensitisation because of his profession?

## Commentary

### Diagnosis

Joel is describing symptoms of allergic rhinoconjunctivitis, with watery rhinorrhoea, sneezing and eye itch and irritation. He does not describe symptoms of nasal obstruction but these should be enquired about. Rhinitis is a risk factor for asthma. People with allergic rhinitis have a 3.5-fold increased incidence of asthma, so symptoms of rhinoconjunctivitis should prompt enquiry about any symptoms of asthma such as wheezing or coughing, dyspnoea on exertion or night waking with wheeze.<sup>1</sup> Significant symptoms should prompt further investigation for asthma and consideration of asthma treatment.

Not all rhinitis is allergic in origin. In Joel's case, however, the history of symptoms on exposure to likely allergens, together with a young age of onset, makes an allergic



## Key points

- The symptoms of allergic rhinoconjunctivitis include watery rhinorrhoea, sneezing and eye itch and irritation.
- Intranasal corticosteroids are recommended as first-line treatment for seasonal allergic rhinoconjunctivitis, except for mild intermittent disease.
- Allergic rhinoconjunctivitis is a risk factor for asthma.
- Immunotherapy is recommended for patients with moderate to severe allergic rhinoconjunctivitis.
- Two modes of immunotherapy, injections and sublingual, are available, and may be prescribed by an allergy specialist after allergic disease has been accurately diagnosed.

RESPIRATORY MEDICINE TODAY 2017; 2(2): 38-40

Professor Douglass is Head of the Department of Immunology and Allergy, and Honorary Clinical Professor, University of Melbourne, Royal Melbourne Hospital, Parkville, Vic.

origin likely. A history suggestive of allergic rhinoconjunctivitis should prompt consideration of the likely cause. Allergens can be seasonal, such as in Joel's case. Grass pollens typically emerge in spring and temperate grasses – such as rye grass – generally have a season lasting from October through to the end of December. Pollens arising from subtropical grasses – such as Bermuda and bahia grass – are likely to cause allergic rhinoconjunctivitis extending into January and beyond. Joel is also likely to be exposed to tree pollens, which typically are present in late winter and early spring and can cause a very intense reaction in sensitised individuals. Trees associated with seasonal allergic rhinoconjunctivitis include silver birch, plane tree and olive tree. Allergic rhinoconjunctivitis due to year-round allergen exposure typically leads to symptoms of predominant nasal obstruction; house dust mite and allergens from domestic animals, especially cats, are likely culprits.

In Joel's case, the spring-time onset of symptoms suggests grass pollen allergy. His dyspnoea is concerning and suggests mild asthma associated with his rhinitis. His sensitisation could be confirmed by blood tests or skin prick tests for allergy-specific IgE to rye grass and other relevant allergens.

### Age of onset of allergic rhinoconjunctivitis

Allergic rhinitis is often reported in early childhood where severe nasal congestion from chronic allergic disease can lead to significant symptoms, such as nasal blockage and sleep disturbance. However, population-based observational data reveal that the onset of allergic rhinitis can occur at any age: the highest rates of diagnosis occur up to age 25 years but there is adult incidence into the sixth decade of life (Figure).<sup>1</sup> Women develop less rhinitis in later childhood and more rhinitis in adulthood than do men.<sup>1</sup> The recent onset of Joel's symptoms may reflect new disease onset or may just reflect the greater exposure to grass pollens he is now encountering through the course of his work.

### Treatment of seasonal allergic rhinitis

The treatment for allergic rhinoconjunctivitis has been outlined in the international

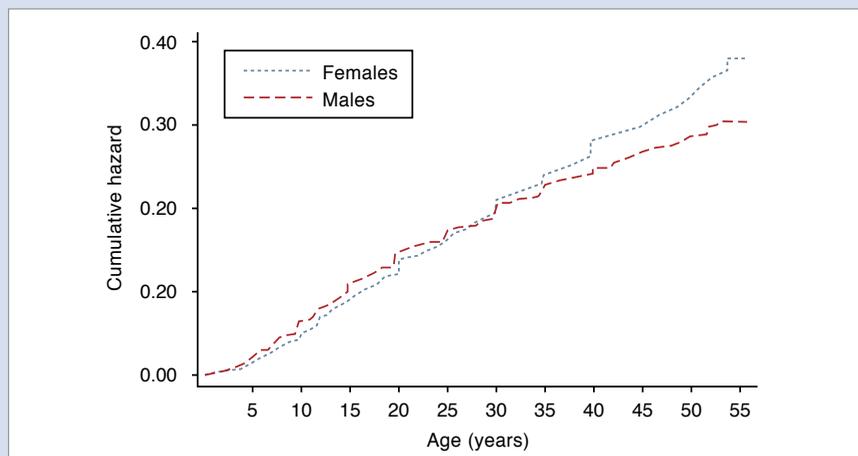


Figure. Cumulative probability of rhinitis by gender.

REPRODUCED FROM: J ALLERGY CLIN IMMUNOL 2011; 128: 816-823.<sup>1</sup>

Allergic Rhinitis and its Impact on Asthma (ARIA) Guidelines, which were updated in 2016.<sup>3</sup> Although most patients, including Joel, first try oral antihistamines for seasonal allergic rhinoconjunctivitis, topical intranasal corticosteroids are recommended as first-line treatment for all but mild intermittent disease due to greater efficacy.<sup>3</sup> Intranasal corticosteroids can be used in addition to oral or topical antihistamines and in addition to topical ocular medications such as sodium cromoglycate, olopatadine hydrochloride, azelastine or levocabastine hydrochloride eyedrops in patients who are affected by severe symptoms.

Rhinitis occurring in an occupational setting can be a warning of evolving sensitisation and should trigger attention to allergen exposure in the workplace. People in whom occupational allergic rhinitis is commonly encountered include those who work with animals and bakers. In this setting, new-onset allergic rhinitis may precede or coincide with occupational asthma. For Joel, working in horticulture will almost inevitably bring him into contact with grass pollen, so a more permanent treatment is desirable for his allergic rhinitis and attention to any asthma symptoms will be an important part of therapy.

Allergic rhinoconjunctivitis is a risk factor for asthma. Although not all people who have allergic rhinitis also suffer from asthma, recent events such as the 'thunderstorm asthma' epidemic in Victoria in November 2016

indicate a risk that can be significant for some individuals. Treating doctors should carefully question patients with allergic rhinoconjunctivitis due to rye grass sensitisation regarding asthma symptoms and treat any asthma symptoms. At a minimum, all patients should be aware of emergency asthma treatment and strong consideration given to the use of inhaled corticosteroid asthma preventive therapy during the springtime for those who suffer from even mild asthma symptoms as well as seasonal allergic rhinoconjunctivitis. Inhaled asthma corticosteroid treatment is more effective in preventing exacerbations of asthma than as-needed bronchodilator medication.

### Allergen immunotherapy

Allergen immunotherapy is recommended in rhinitis treatment guidelines for moderate-to-severe allergic rhinoconjunctivitis.<sup>3</sup> It remains the nearest therapy to a cure for allergies, inducing clinical and physiological tolerance to an allergen. Strong evidence exists, from meta-analysis, for the efficacy of immunotherapy for allergic rhinitis when administered by the subcutaneous and sublingual routes in children and adults.<sup>4</sup>

Both subcutaneous and sublingual allergen immunotherapy demands accurate diagnosis of allergic disease and should be prescribed by an allergy specialist. Once prescribed, subcutaneous immunotherapy preparations should be administered by the patient's GP, whereas sublingual immunotherapy is administered daily by the patient

## CASE REVIEW CONTINUED

at home. Sublingual tablets have advantages of safety and convenience – but they do need to be taken as prescribed and poor adherence is a common reason for treatment failure.

Grass pollen sublingual immunotherapy tablets, which were only recently introduced into Australia, have good evidence of efficacy in multiple clinical trials.<sup>5-7</sup> However, these studies arise mostly from Europe where temperate grass allergens are predominant. Although the aerobiology of pollens in the southern parts of Australia (i.e. Victoria and Tasmania) is likely to be similar to that of Europe, pollens from subtropical grasses become more evident as one travels north. In Australia, even as far north as Sydney, the applicability of exclusively temperate grass pollen desensitisation preparations is not established, warranting further local study. The pollen aerobiology differs substantially by location so that there is increasing sensitisation to subtropical grass pollens, such as Bermuda, bahia and Johnson grasses, in regions north and west of Victoria.

Subcutaneous and sublingual immunotherapy, although effective in the first year of treatment, requires treatment for three years to produce a durable effect. Joel could reasonably be offered either mode of immunotherapy once his allergy has been confirmed by testing.

### Final comments

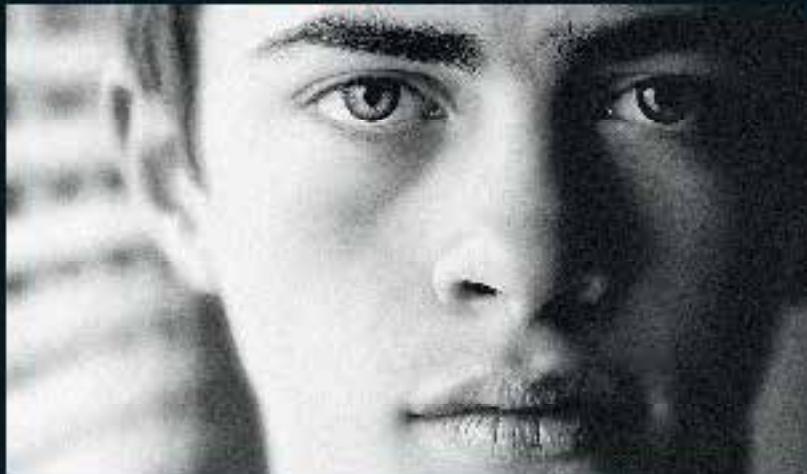
Allergic rhinitis due to grass pollens is very common and is not usually a reason to change career choice. Joel will need to see his GP regularly to ensure that he is using his rhinitis treatment appropriately and has a management plan for the upcoming grass pollen season and that any associated asthma is well managed. In addition, Joel should be referred to an allergy specialist specifically for consideration of allergen immunotherapy. **RMT**

### References

1. Matheson MC, Dharmage SC, Abramson MJ, et al. Early-life risk factors and incidence of rhinitis: results from the European Community Respiratory Health Study – an international population-based cohort study. *J Allergy Clin Immunol* 2011; 128: 816-823.
2. Shaaban R, Zureik M, Soussan D. Rhinitis and onset of asthma: a longitudinal population-based study. *Lancet* 2008; 372: 1049-1057.
3. Brozek JL, Bousquet J, Agache I, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) guidelines – 2016 revision. *J Allergy Clin Immunol* 2017; doi: 10.1016/j.jaci.2017.03.050 [Epub ahead of print].
4. Burks AW, Calderon MA, Casale T, et al. Update on allergy immunotherapy: American Academy of Allergy, Asthma & Immunology/European Academy of Allergy and Clinical Immunology/PRACTALL consensus report. *J Allergy Clin Immunol* 2013; 131: 1288-1296.
5. Didier A, Maling H-J, Worm M, et al. Optimal dose, efficacy and safety of once-daily sublingual immunotherapy with a 5-grass pollen tablet for seasonal allergic rhinitis. *J Allergy Clin Immunol* 2007; 120: 1338-1345.
6. Didier A, Maling HJ, Worm M, Horak F, Sussman GL. Prolonged efficacy of the 300IR 5-grass pollen tablet up to 2 years after treatment cessation, as measured by a recommended daily combined score. *Clin Transl Allergy* 2015; 5: 12.
7. Scaparrotta A, Attanasi M, Petrosino MI, Di Filippo P, Di Pillo S, Chiarelli F. Critical appraisal of Timothy grass pollen extract GRAZAX® in the management of allergic rhinitis. *Drug Des Devel Ther* 2015; 9: 5897-5909.

**COMPETING INTERESTS:** Professor Douglass has received honoraria for educational presentations from AstraZeneca, GSK, Novartis, Alphapharm, Shire, Mundipharma, Stallergenes Greer and Seqirus. She is a member of advisory boards for Novartis, GSK, AstraZeneca, Pieris, Stallergenes, Seqirus, Immunosis and CSL. She has received educational grants from Novartis, Alphapharm and Stallergenes and conducted contracted research for GSK, Novartis, AstraZeneca, Sanofi-Aventis, Grifols, CSL and Immunosis.

Discover Today's **Medicine**



[www.medicinatoday.com.au](http://www.medicinatoday.com.au)

**MedicineToday**