

Safety of sublingual grass pollen immunotherapy after anaphylaxis

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Abstract

Aim: To demonstrate that sublingual immunotherapy is a safe treatment option in patients who have previously suffered anaphylaxis when undergoing subcutaneous grass pollen immunotherapy.

Case report: We report two patients who developed a systemic anaphylactic reaction following subcutaneous grass pollen immunotherapy, resulting in discontinuation of treatment. Following treatment of the acute anaphylactic episode, both patients were subsequently safely commenced on sublingual grass pollen immunotherapy.

Conclusion: Injection immunotherapy has a relatively low risk of severe adverse events, although anaphylaxis is a potentially fatal complication and usually results in termination of the immunotherapy programme. Sublingual immunotherapy has a safer side effect profile than subcutaneous immunotherapy, with no reported cases of anaphylaxis.

Key words: Seasonal Allergic Rhinitis; Immunotherapy; Anaphylaxis

Introduction

Allergic rhinitis is a common condition which, despite optimal treatment with antihistamines and nasal corticosteroids, can significantly impair quality of life.¹

In patients who fail to respond to compliant use of medical treatment, subcutaneous, allergen specific immunotherapy can be effective.^{2–5} This treatment requires frequent hospital visits so that the injections can be administered in a safe, controlled environment, as complications include systemic allergic reactions and severe anaphylaxis.^{6–8}

We report the cases of two patients who developed systemic anaphylaxis following subcutaneous immunotherapy to grass pollen, but who were subsequently successfully treated with sublingual grass pollen immunotherapy. A Medline search combining the terms ‘anaphylaxis’, ‘grass pollen’, ‘allergy’ and ‘immunotherapy’ did not reveal any similar case reports.

Case report one

A 16-year-old male athlete was referred in October 2005 for grass pollen desensitisation. He was known to suffer from mild, well controlled asthma and poorly controlled allergic rhinitis.

Skin-prick testing confirmed allergies to grass pollen and cat danders.

As the patient was symptomatically very poorly controlled during the grass pollen season, despite compliant use of intranasal steroids and systemic antihistamines, he was offered subcutaneous immunotherapy to grass pollen. The initial treatment phase began in October 2006, with incremental ‘up-dosing’. Towards the end of the initial treatment phase, following an injection of 0.4 ml of

40 000 sq subcutaneous allergen, the patient developed an anaphylactic reaction, comprising wheezing, shortness of breath, facial flushing, tachycardia and transient hypotension. He was treated for this acute episode and recovered uneventfully.

A decision was made to discontinue subcutaneous immunotherapy in view of the risk of further systemic reaction.

The patient was very keen to pursue immunotherapy in view of the severity of his symptoms. Following extensive counselling, he was offered sublingual immunotherapy. The first dose of 75 000 sq was administered under supervision for four hours, with provision for hospital admission should the patient develop any signs of a systemic reaction. None occurred, and he continued his treatment in the community.

Case report two

A 33-year-old man presented with severe allergic rhinitis which impaired his ability to work, socialise and voluntarily leave the house during the summer months, despite compliant use of medical therapy.

Skin-prick testing showed multiple sensitivities to grass pollen, nettle, weeds and shrubs, birch, and tree pollen.

The patient was offered subcutaneous desensitisation to grass pollen, as his symptoms were dramatically worse during the grass pollen season. Subcutaneous immunotherapy was initiated in October 2006. During the initial up-dosing phase, the treatment dose could not be escalated on two occasions as the patient had a significant local reaction. Despite this he was very anxious to continue with the programme. Following an injection of 0.4 ml of 40 000 sq unit subcutaneous allergen, the patient developed a

severe anaphylactic response, which was biphasic and required adrenaline, hospital admission and treatment.

He recovered fully and was offered sublingual immunotherapy to grass pollen. This was initiated in March 2007, under close scrutiny in a hospital environment for four hours. The patient reported oral pruritis following this treatment but no systemic symptoms were reported, and he continued with this therapy in the community.

Discussion

The prevalence of allergic rhinitis is increasing, affecting approximately 20 per cent of the population in Western Europe,⁹ half of whom are allergic to grass pollen. In patients with severe hayfever unresponsive to compliant anti-allergy therapy, immunotherapy has been shown to be highly effective. Allergen immunotherapy is the only available therapy that treats the underlying cause of the disease.¹⁰ Injection immunotherapy involves weekly injections of incremental doses of allergen extract until a maintenance dose is reached. Maintenance injections are then given monthly for two to three years. Local reactions such as swelling at the injection site may occur frequently in these patients. Systemic reactions are uncommon and anaphylaxis is rare, although fatalities have been reported.¹¹

Sublingual immunotherapy provides an alternate and safe mode of administering immunotherapy. Wilson *et al.*,¹² in a Cochrane review of 22 randomised, controlled trials, reported a complete absence of systemic side effects in patients treated with sublingual immunotherapy. Local side effects have been reported, but these have rarely been of any significance. More recently, a randomised, placebo-controlled trial investigating the safety of a Standardised Quality (SQ)-standardised grass allergen tablet reported adverse events of mild to moderate severity; however, none of these patients suffered a serious adverse event.¹³ In addition to its high safety profile, sublingual immunotherapy has been shown to significantly reduce both rhinitis symptoms and requirement for anti-allergy medication.¹⁴

- Subcutaneous immunotherapy may be used to treat grass pollen allergy in patients who respond poorly to medical treatment
- Sublingual immunotherapy is a safe option in patients presenting with anaphylaxis to grass pollen subcutaneous immunotherapy

The extensive time commitment involved for multiple hospital visits ensures that patients who start treatment with subcutaneous immunotherapy are usually highly motivated to effect a change in their symptoms, which significantly reduce the quality of their lives during the grass pollen months. However, the development of systemic side effects in particular anaphylaxis, results in this treatment option being withdrawn.

The high safety and efficacy profile of sublingual immunotherapy prompted us to consider grass allergen sublingual immunotherapy as an alternative to subcutaneous immunotherapy in two of our patients who had previously suffered anaphylaxis during injection immunotherapy. The patients and their relatives were counselled regarding the risk of a further anaphylactic reaction but were very keen to proceed. The initial dose was administered in an out-patient setting, with facilities for resuscitation on hand as

well as access to a hospital bed and, if necessary, intensive care facilities. The patients were monitored for four hours but no systemic side effects developed.

Conclusion

Grass pollen sublingual immunotherapy is a safe treatment option, even in patients who have previously suffered anaphylactic reaction to grass pollen subcutaneous immunotherapy.

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