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Hay fever immunotherapy – treating the disease not the symptoms...

Hay fever (allergic rhinitis) is often treated as the poor relation of eczema and asthma – just a bit of a seasonal inconvenience. However, untreated rhinitis represents a major cause of morbidity that includes interference with usual daily activities and impaired sleep quality.

Furthermore, recent research has shown that the negative impact of hay fever can extend to school performance. Samantha Walker and colleagues undertook an elegant study looking at the exam performance of UK teenagers sitting their GCSE examinations. ‘Cases’ were teenagers who dropped one or more grades in any of three core subjects (maths, English and science) between the practice exams sat in winter and the final exams taken in summer. ‘Controls’ were children whose grades were unchanged or improved.

Remarkably, between 38% and 43% of students reported symptoms of seasonal allergic rhinitis on any one of the examination days. In this study, young people with reported allergic rhinitis symptoms on an examination day were, in comparison with their fellow students without symptoms, 40% more likely to drop a grade between their practice and final GCSE examinations, and 70% more likely to drop a grade if they reported taking sedating antihistamines at the time of their examinations.

The authors drew some important conclusions that deserve widespread dissemination. The number of children in this study who were taking sedating antihistamines in the study was high, despite current guidelines that recommend treatment with non-sedating preparations.

The significant effect of sedating medications on examination performance observed in this study should encourage prescribers to recommend the use of non-sedating alternatives in routine practice. The take home message is that children should not be taking Piriton (chlorphenamine) for their hay fever, and that hay fever should be as optimally controlled as possible before the exam season, and should include the use of immunotherapy, where indicated.

Aetiology

Historically, allergic rhinitis has been divided into seasonal (with symptoms tending to occur in the spring or summer), and perennial (with symptoms all year round). The timing of symptoms gives an indication of the likely seasonal allergen, for example, tree pollens are most prevalent in spring, whilst grass pollens are predominant in summer.

Children with seasonal symptoms occurring specifically in the autumn, are often reacting to mould spores in the air. Unfortunately, children (and adults) often lack the ability to recognise the specific triggers of their symptoms, hence the need for diagnostic testing to clarify the specific allergens.

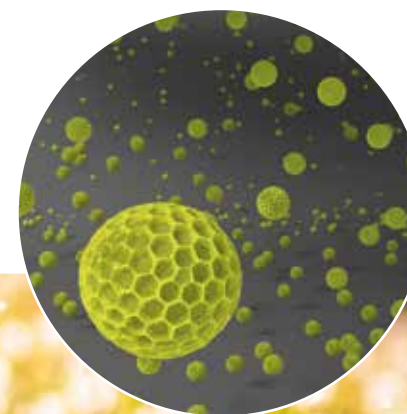
Investigations

In a paediatric allergy consultation, we undertake skin prick testing as the principle means of identifying the causative allergen.

Skin prick testing is extremely safe (we frequently undertake it in children’s homes during our research studies), rapid (the results are available 10 to 15 minutes after undertaking the procedure) and reliable (research has shown it to be sensitive and specific).

The only proviso regarding skin prick testing is that it is important that children stop any antihistamines for several days before the testing is done.

Blood testing is undertaken when skin prick tests are not possible, or when the skin prick tests, together with the clinical history, give equivocal results.



Treatment

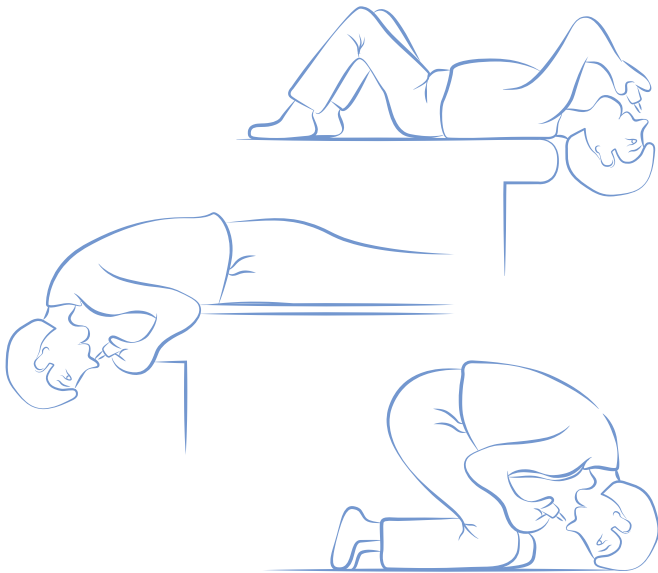
Allergic rhinitis should be treated holistically, with the main lines of treatment being: education, allergy avoidance and pharmacological treatments. In clinics, parents are routinely taught about the nature of the condition, causes and mechanisms of rhinitis, the symptoms and available treatments. Standardised allergy education improves disease-specific Quality of Life.

Treatment failure may be related to poor technique in the use of nasal sprays and drops and therefore appropriate training is imperative (see over).

Correct procedure for nasal sprays



Correct procedures for the installation of nasal drops



Allergen avoidance works!

It has been observed that when Italian children who are allergic to house dust mites go to summer camps, high in the Italian Alps, their asthma control improves along with their lung function measurements. This is because house dust mites decrease in number with altitude.

Unfortunately at normal altitudes the effects of house dust mite interventions in the household are much more equivocal. For example, the evidence for the effect of house dust mite proof bedding, as a single intervention, is fairly underwhelming. Efforts to obtain maximal mite elimination may lead to clinical benefits, but usually only in selected patients with high motivation.

Clinical benefits are most likely with multiple interventions. These strategies often take time to become effective. For example, if a child is allergic to cats, removing the animal from the home will eventually improve the child's symptoms, but it is not instantaneous, as it takes several months for the level of cat allergen to disappear from a home once the cat has been removed.



As paediatric allergists, we adopt a stepwise approach to the pharmacological management of allergic rhinitis depending on the severity of symptoms. The conventional treatment options are really quite limited.

These include antihistamines, which treat the symptoms of hay fever, but do not modify the underlying allergic disease. As stated previously, non-sedating new generation anti-histamines (e.g. cetirizine or loratadine) are used in preference to the first generation sedating antihistamines such as chlorphenamine (piriton).

Nasal steroid sprays (or drops) also have an important role to play and are regarded as the most effective of the traditional treatments of allergic rhinitis. Again, they treat the symptoms rather than modifying the disease. Their effect is observed after 12 hours, but reaches maximal effect after a few days.

Immunotherapy

The most significant development in the treatment of allergic rhinitis has been the re-emergence of immunotherapy for treating the condition in children in the UK.

In contrast to conventional treatments (antihistamines and nasal steroids), immunotherapy is the only treatment that is able to modify the natural history of allergic rhinitis - it is not just treating the symptoms, but altering the underlying immunological process that causes the condition.

It has a long history, and has in fact just celebrated its centenary. Historically, immunotherapy has predominantly been given as subcutaneous injections (SCIT) of the purified allergen specific to the patient. This is very effective and still in use today, but it is the emergence of sublingual preparations of immunotherapy (SLIT) that are proving most popular with children.

These preparations of the allergen are given as dissolving tablets or as sprays/drops that are given orally, and are typically a much more suitable form of treatment for children than injections. Both forms of immunotherapy are very safe but the safety profile of SLIT appears to be superior to SCIT. SLIT is licensed in the UK for children aged 5 years and above.



SCIT and SLIT have been shown to give long-lasting benefit, remaining effective for some years after the treatment has been stopped.

In a controlled trial of subcutaneous pollen immunotherapy (the PAT study), improvement in allergic rhinitis symptoms lasted for at least seven years after discontinuation of treatment. Both forms of immunotherapy exert beneficial effects on asthma symptoms in asthmatic children clinically sensitized to seasonal and perennial allergens.

In the PAT study, there was a reduction in the progression from rhinitis to physician-diagnosed asthma (OR 2.5 in favour of active treatment) which also persisted for seven years.

Who should be considered for immunotherapy?

Children over the age of five, with:

- IgE-mediated (skin prick positive), pollen-induced hay fever, whose symptoms respond inadequately to usual treatment
- Persistent symptoms despite a trial of medical therapy in carefully selected patients with an allergy to animals or house dust mites, where the allergen is not easily avoidable
- Systemic allergic reactions to stinging insect venom (wasp or bee)

