original research

EDUCATION FOR ALLERGIC RHINITIS

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ABSTRACT
Allergic rhinitis is a significant disease that adversely affects quality of life. Guidelines for diagnosis and management of allergic rhinitis are simple, yet not widely implemented. In addition, there are nuances in diagnosis and management that may make the treatment of allergic rhinitis very challenging. Education is recommended as a key strategy for management of allergic rhinitis, yet data on patient education in allergic rhinitis is fragmented. Leaflets for education are often inadequate. Educational programs, that include holistic training about allergic rhinitis, are more effective than those focusing on techniques of administration of intranasal medication only. However, there is no consensus on what those programs should contain or how to administer them. Educational strategies for allergic rhinitis may benefit from adopting some of the strategies proven to be effective in asthma education, such as the adoption of specific key messages around symptoms and control of rhinitis that change patients’ expectations of their disease. A focus on pathophysiology of different aspects of rhinitis symptoms may foster adherence to regular anti-inflammatory therapy. Essential aspects of a management plan may include the central role of allergic and non-allergic triggers, pre-empting patients’ concern regarding medication and detailed training in the technique of administration of nasal spray.

INTRODUCTION
Allergic rhinitis is a common condition, affecting between 10-40% of the population. The ISAAC studies in South Africa showed that the 12-month prevalence of symptoms of allergic rhinitis increased from 30.4% to 38.5% between 1995 and 2002, and symptoms of rhinoconjunctivitis from 17.6% to 24.3%.

ARIA guidelines recommend education as a key strategy for management of allergic rhinitis, along with environmental control, pharmacotherapy and allergen immunotherapy. There is, however, no consensus on the content of educational strategies. This may affect the quality of care of allergic rhinitis sufferers and have an adverse impact on their quality of life.

CARE OF ALLERGIC RHINITIS: THE ALLERGIES IN AMERICA STUDY
Epidemiological studies on allergic rhinitis confirm that it is a significant disease with major morbidity and effects quality of life. The Allergies in America study was a very large study which screened over 61,000 adults. The study found that persistent symptoms were more common than seasonal symptoms and that blockage was the most frequent and bothersome symptom, followed by headache and post-nasal drip. Rhinitis caused major discomfort, affected quality of life, made patients tired, irritable and miserable and caused interference with work and daily activities. Despite this, only 47% of patients had seen a doctor for their nasal allergies, in the previous year.

Fifty percent of patients were “very satisfied” with their nasal sprays and 40% were “somewhat satisfied”. About 20% changed their medication for allergies once a year or more frequently. Patients who had stopped their medication, did so because of perceived lack of efficacy, lack of long term duration of action, or tolerance to its effects.

Almost 60% of patients were very satisfied with their doctor’s management and 30% were “somewhat satisfied”. Although almost 80% of patients claimed to follow doctors’ advice all or most of the time, doctors and nurses estimated much lower levels of adherence to their advice. There was a slight difference in self-reported adherence between patients who had seen a doctor recently, and those who had not, but there was no difference between these groups in the satisfaction with their treatment. Doctors markedly overestimated the degree of satisfaction patients had with their therapy. Between 90 and 100% of patients, nurses and doctors agreed there was need for better education...
of patients.

Why was it that a higher portion of patients were moderately satisfied rather than being very satisfied? Why didn’t patients follow advice consistently? Why did seeing a doctor have only minor effects on adherence and no effect on satisfaction? Why did doctors believe patients were more satisfied than they were?

Although the study pointed out that all sectors agreed there was a need for more education, it did not comment on the presence or effectiveness of any education given. However, there were some telling findings that pointed towards other aspects of quality of care. Although almost all patients reported one or more allergic and non-allergic triggers, the most common being pollen (41%) and dust (34%), only 33% had had skin prick tests, 8% blood tests and 15% both, leaving 42% having had no allergy tests at all (2% were not sure). Even more telling, only 31% had been shown how to use their nasal spray in the previous year, 14% within the previous 2 years, 8% in the previous 3-4 years, 15% in the previous 5 years or longer and 30% had never been shown how to use their nasal sprays.

One can conclude that if doctors don’t test for triggers and don’t show patients how to use their nasal sprays, then it is exceedingly unlikely that they are doing things that take up even more time, such as educating their patients correctly about their condition and how to manage it effectively.

**CARE OF ALLERGIC RHINITIS IN SOUTH AFRICA: THE ALLERGIC RHINITIS CARE PROGRESS IN SOUTH AFRICA**

Are things any better in South Africa? The Allergic Rhinitis Care Programme in South Africa surveyed 1181 subjects with allergic rhinitis and confirmed that nasal congestion was a frequent problem. A large proportion of subjects (76.6%) reported interference with sleep, 37.2% every night, with an even larger proportion (85.2%) feeling miserable because of the condition! There were higher rates of self-reported adherence than the American study, at 63.1%, but no attempt was made to validate this with diaries or direct measuring. Subjects who stopped their medication gave a different spectrum of reasons than in the American study. In the American study, the physical characteristics of the medication or their side effects caused non adherence, whereas in the South African study, issues of perception and expectations of their disease and medication took priority (Table I). Fifty five percent preferred tablets and 41% nose spray (the remaining 5% liking both). Only 7.6% did not like the method of intranasal medication. Why then would patients prefer tablets if they do not have an issue with giving medication intranasally? Although this was not explored, my conjecture would be that they perceive the efficacy of tablets, either antihistamines, or oral steroids, to be better than that of intranasamines, or oral steroids. If this is the case, then perhaps patients, although complaining highly of blockage, actually perceive efficacy in terms of whether the medication stops the sneezing, itching and rhinorrhoea, which may respond better to antihistamines and be quicker to resolve the blockage. This, along with the reasons for non-adherence, may also imply that, much like asthma, patients expect to have a certain amount of symptoms with allergic rhinitis and do not aim for “total control”.

<table>
<thead>
<tr>
<th>Table I: Reasons for non-adherence in South Africa&lt;sup&gt;4&lt;/sup&gt;</th>
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<tbody>
<tr>
<td>Stop taking when better</td>
</tr>
<tr>
<td>Take what I need</td>
</tr>
<tr>
<td>Worry about side effects</td>
</tr>
<tr>
<td>Forget to take medication</td>
</tr>
<tr>
<td>Taking medications is admitting defeat</td>
</tr>
<tr>
<td>Do not like the method</td>
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**EDUCATION FOR ALLERGIC RHINITIS**

The ARIA guidelines (2008 version)<sup>5</sup> recommend that the treatment of allergic rhinitis combines allergen avoidance, where possible, pharmacotherapy, immunotherapy and education. It can be postulated that educated patients take a more active role in their medical care, are better informed as to how to maintain a healthy state and may convert education into action, including using medication more effectively. Adherence is defined by the WHO as “the degree to which the person’s behaviour corresponds with the agreed recommendations from a health care provider.”<sup>6</sup> Although the terms “adherence” and “compliance” are often used interchangeably, adherence differs from compliance. A critical aspect of adherence is the patient’s involvement in deciding whether or not to conform to that advice, whereas compliance implies patient obedience to the doctor’s authority. In short, compliance implies “do as I say”, whereas adherence implies “do what we have agreed upon together.”

In addition, adherence to medication describes the patient’s behaviour of taking drugs correctly - in the right dose, with the right frequency, and at the correct time. There are different forms of non-adherence to medication.<sup>7</sup> These include “non-fulfilment”, in which patients do not go to the pharmacy to pick up a new prescription and “non-
ORIGINAL RESEARCH

persistance" in which patients stop taking a prescribed drug without the advice of their health care practitioner, which may be intentional or unintentional. “Non-conforming” refers to improper use of medication, where patients do not follow instructions by using the medication less frequently, more frequently or at different doses than prescribed. A subtype of non-conforming is where the patient is attempting to use the medication correctly, but because of poor technique is not able to deliver the correct effective dose. This is a particular problem in the delivery of asthma medication.

THE IMPORTANCE OF ADHERENCE IN RHINITIS

Successful treatment of allergic rhinitis requires good long-term patient adherence. Despite evidence that intranasal corticosteroids are a highly effective first-line treatment for rhinitis patients with moderate to severe symptoms, efficacy in clinical practice is often lower than that shown in clinical studies.

A study designed to evaluate the impact of adherence on the efficacy of treatment, demonstrated improvement in mean total symptom score, before (7.45) and after (3.59) treatment, in patients with a weight of medication consumed (WMC) of at least 50%, but no improvement when WMC was less than 50%. In addition, there was an inverse relationship between adherence and therapy failure. There was a discrepancy between reported and actual compliance. Less than 50% compliance was reported by one patient, but detected in 7 patients by WMC.

STUDIES OF ADHERENCE AND EDUCATION IN RHINITIS

Further data on adherence in allergic rhinitis is rudimentary. A review of adherence studies commented that “the variation in the methodologies used and the durations of treatments assessed in current compliance research in the field of allergic rhinoconjunctivitis decreases the comparability of results and a clear definition of compliance measured in clinical trials with allergic rhinoconjunctivitis sufferers is needed”.

Furthermore, there is considerable heterogeneity amongst studies on education interventions, some showing positive and some negative results. A recent Italian study showed that a medical education intervention to doctors, improved adherence to severe, but not mild, rhinitis guidelines. A Turkish study found a single educational event significantly improved primary care physicians’ knowledge, but the study did not assess behaviour or adherence to guidelines or patient outcomes. A much larger study in the USA showed that an education program for health care providers, structured around decision points in a treatment protocol, can alter inconsistence or deficiencies in the treatment of allergic rhinitis. Approximately 50% of providers altered their practice patterns as a result of the intervention program. Patient outcomes showed a decrease in the use of rescue medications, particularly antibiotics, and an increase in preventive measures in the treatment group compared with the control group.

A multi-centre randomised controlled trial in the UK showed that “standardised” allergy education given to primary healthcare professionals, led to modest improvements in quality of life. Thirty nine per cent in the intervention group showed a clinically significant improvement in quality of life compared with 28% of controls. What should such “standardised” education comprise and who should deliver it? An Australian study compared two interventions facilitated by pharmacists. In the first group, participants nominated personally relevant goals and strategies relating to their rhinitis and in the second, participants had their goals and strategies set by the pharmacist. Although both groups demonstrated significant improvements in symptom severity and quality of life scores, the second group’s severity scores improved more. This is largely due to the fact that they set a greater number of goals and strategies, which were better structured and more task specific. This implies that the content of intervention and the expectations that are determined upon for patients are of critical importance.

Many intervention programs feature teaching of nasal spray technique as the sole or predominant intervention. Failure to get relief from topical steroid nasal spray is often blamed on poor administration knowledge. However, treatment failure may be multifactorial and thus remediation of medication technique alone may not be effective in most patients. An Italian study investigated different types of patient education in the treatment of allergic rhinitis and its effects on nasal and bronchial symptoms. In this study, 101 patients were randomised into three groups, drug therapy alone, drug therapy plus training on the use of nasal spray and a third group of drug therapy, nasal spray training and a lesson on rhinitis and asthma. The rate of dropout was highest in the untrained patients. Although no difference in nasal symptoms was seen among the three groups, the third group had significantly fewer asthma symptoms and less salbutamol use than the untrained group, and the trained group used less rescue medication than either of the other groups.
Put together, these studies suggest that intervention programs may be effective, provided they set specific goals and strategies, address patients’ expectations, and contain advice, not only regarding medication use and technique, but also discuss underlying aspects of the disease itself. However, do commonly available education leaflets have these characteristics?

**EDUCATIONAL LEAFLETS FOR ALLERGIC RHINITIS**

A short evaluation of the materials available on the internet reveal a wide range of websites and pamphlets. These vary widely in style, content and comprehensiveness. For example, the patient.co.uk site aimed at patients is quite rudimentary, whereas that aimed at doctors is more comprehensive but not particularly goal oriented or engaging. A UK study that assessed the quality of information leaflets on hayfever, available from general practices and community pharmacies, found that they were all written for adults rather than children and required high degrees of literacy, or at least secondary education. Forty-seven percent of the leaflets had no publication date and a third of those that were dated were at least 5 years old. In general, the leaflets were very attractive but did not score well on the assessment of management and treatment. Less than half contained information on the full range of management and treatment options, many being biased towards a single or limited range of interventions. Seventy-nine percent were produced or sponsored by pharmaceutical companies and gave prominence to their own products. At least one factual inaccuracy was identified in four-fifths of leaflets!

It seems clear from these studies that education is important, but there is a relatively small corpus of knowledge and fragmented data. There are some very good results from holistic intervention studies, but there is no uniformity of goals or key messages, and most of the materials for patient education are of poor quality.

**LESSONS FROM ASTHMA EDUCATION**

Asthma education, on the other hand, is exceedingly well studied, has a highly effective strategy and the components of successful education programs are generally accepted and freely available. It may be instructive to see whether successful aspects of asthma education may be relevant to rhinitis education programs.

Asthma education has selected specific key messages thought to be effective. For example “use of your reliever more than twice a week indicates poor asthma control and the need to visit your doctor to assess adherence, technique and to possibly make changes to your controller medication.” This simple phrase contains a number of key messages aimed at changing expectations, adherence and health seeking behaviour.

Educational material around asthma always mentions the importance of the correct diagnosis and that non-responsiveness to therapy may indicate the wrong diagnosis, a concomitant diagnosis or progression of the disease. This message has not penetrated to the same degree in either doctors’ or patients’ assessment of rhinitis.

In asthma education, it is acknowledged that the patient’s expectations are important. It is necessary to educate patients about what control of asthma is and how to assess control. It is also necessary to educate patients that the asthma can be controlled, with no need to have persistent symptoms, limitation of activity or effects on their quality of life. The same message has not permeated into rhinitis care, perhaps because of the difficulty in rating rhinitis control in a rigorous way.

Patients’ expectations affect symptom reporting. Patients with asthma or rhinitis who expect to have wheeze or blockage, may not report these as problems to their provider. This may affect adherence to treatment in that they may stop medication, despite having symptoms, if they do not expect those symptoms to go away. We therefore need to teach patients how to recognise symptoms, by detailing the full range of possible symptoms. We need to teach patients to recognise symptoms that are based predominantly on histamine release such as itching, running and sneezing and educate them that they may be responsive to antihistamines. We may also detail those symptoms based on allergic inflammation such as blockage and chronic post nasal drip that may not be remedied by antihistamines and may require intranasal corticosteroids.

Asthma education considers an understanding of the underlying inflammatory pathophysiology of asthma to be critical to foster regular controller therapy. A similar idea is absent in most educational interventions regarding rhinitis. Yet I strongly believe that it may be an effective strategy for patients with persistent allergic rhinitis, and that without addressing this issue, we cannot be said to have adequately educated our patients in a way that will make them realise why we want them to be adherent. In other words, without this, we are relying on the patients “natural” compliance, although we know patients are not naturally compliant, without attempting to foster adherence to our therapy.
Remember to tell patients it may take up to two weeks of using a steroid nasal spray before they notice the full effects.

Because blockage is an important and under-appreciated symptom and it takes adherence and time for intranasal corticosteroids to be effective, perhaps we should refer to intranasal corticosteroids as the “controller treatment” for the nose, much like we refer to inhaled corticosteroids as “controller therapy” for the lungs. Antihistamines can be used as “reliever therapy” for acute symptoms such as sneezing, running and itching, but are also used as long term treatment for persistent allergic rhinitis. In addition, perhaps we should teach our patients what to do for a “flare” of rhinitis, like we do for a “flare” or “attack” of asthma, such as perhaps increasing their therapy with saline washouts, addition of therapy such as aqueous intranasal steroid preparations, or other strategies.

<table>
<thead>
<tr>
<th>Table II: Steps for administration of nasal medication</th>
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<tbody>
<tr>
<td>Use nasal irrigation or saline spray if it has been prescribed</td>
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<tr>
<td>Blow out nose as thoroughly as possible</td>
</tr>
<tr>
<td>Shake bottle</td>
</tr>
<tr>
<td>Remove cap</td>
</tr>
<tr>
<td>Lean slightly forward</td>
</tr>
<tr>
<td>Keep nasal spray upright</td>
</tr>
<tr>
<td>Close one nostril</td>
</tr>
<tr>
<td>Insert into nostril, aiming posteriorly and slightly laterally, avoiding the septum with the nasal spray (which will come out at between 25 and 35 degrees)</td>
</tr>
<tr>
<td>Actuate spray while breathing very gently in through the nose</td>
</tr>
<tr>
<td>Do NOT sniff contents into throat and swallow</td>
</tr>
<tr>
<td>Repeat for the other side</td>
</tr>
<tr>
<td>Close nose by pinching nostrils between fingers and lean further forward (or kneel with head between the knees)</td>
</tr>
<tr>
<td>Wait for at least 30 seconds</td>
</tr>
<tr>
<td>When resuming an upright position, resist the urge to sniff medication and swallow. Do not blow your nose after using the spray.</td>
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Asthma management strongly targets addressing technique of administration of inhaled medication as being essential to prevent non-intentional improper use of medication, leading to non-delivery of an effective dose. Although the issue of technique of nasal sprays does receive a large amount of focus, the exact steps required to deliver nasal medication are seldom spelled out in as much detail as with asthma medication, and are less uniformly agreed upon. Steps that may require educational focus are detailed in Table II.

Asthma education acknowledges the central role of allergic and non-allergic triggers for guidance of avoidance strategies and immunotherapy, yet low numbers of patients with allergic rhinitis are tested for their allergic triggers.

Asthma education often addresses side effects and patients concern regarding medication, in order to counter “steroid phobia” before it affects adherence to therapy.

Finally asthma education programs have developed simple educational pamphlets, symptom diaries, adherence diaries and action plans that form resources in brochures, in posters or in websites. Similar materials should be developed and disseminated for rhinitis.

DECLARATION OF CONFLICT OF INTEREST: SPONSORSHIPS AND FUNDING.
The UCT Division of Paediatric A ergy has received support in 2013 from Adcock Ingram, Akacia Healthcare, Ashtas, Nest e, Nycomed, Pharma Dynamics and ThermoFisher. There are no conflicts with funding, speaker or conference attendance relevant to the content of this article.

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