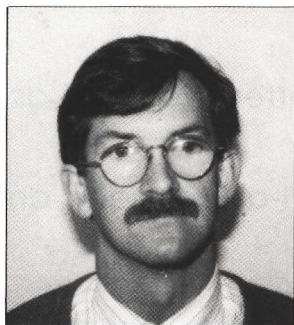


Patient Education – Avoidance and Self Management

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Curriculum Vitae

Adrian Morris graduated from the UCT Medical School in 1983. After his housemanship at Groote Schuur Hospital, his subsequent posts included paediatrics at Red Cross Children's Hospital and Emergency Medicine at Groote Schuur Hospital. He then completed GP Vocational Training in Surrey, England, before returning to Cape Town in 1988 to join a group family practice in Newlands.

He obtained the DCH(SA) in 1989 and the MFGP(SA) in 1990. Allergy and Clinical Immunology are his special interests. He is a member of the British Society for Allergy and Clinical Immunology, and was a delegate at their last three annual conferences.

Whilst in England, he attended the BSACI GP Training Course in Allergy. He has served on the Executive Committee of the Allergy Society of South Africa since 1991, running the Patient Education portfolio.

He also works as a part-time Allergologist at the Allergy Clinic at Red Cross Children's Hospital in Cape Town.

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Summary

A basic understanding of the nature of allergy and the way treatment works, will ensure better patient compliance. Where only 10% of the population manifested atopy 20 years ago, it has now increased to 25% – a major problem for the GP. Better understanding and new research findings in this field are given, with very practical advice which would help both doctor and patient who suffers from an allergic reaction.

Introduction

A clear but simple understanding of the nature of allergy and the benefits of treatment need to be imparted to the patient in an empathetic and sensitive manner, so as to ensure compliance to treatment.

Insight into the condition will ensure compliance

The 3 tasks for patient education are to increase:

- Awareness of the existence and prevalence of allergic disorders.
- Understanding of the nature, avoidance and early interventional measures for the various ingested, inhaled and injected allergens.
- Familiarity and understanding of simple stepwise allergy self management plans.

Up to 25% of the general population now manifest atopy – the so-called "Allergy March" (compared with a 10%

S Afr Fam Pract
1991;15:569-75

KEYWORDS:

Allergy and Immunology;
Physicians, Family;
Patient Education;
Patient Compliance.

prevalence 20 years ago). There has been a steady increase in the incidence despite a better understanding of the nature of allergy and the newer treatments available.

Possible Contributory Factors Include:

- A greater general awareness of allergic disorders which are now more readily diagnosed by GPs as well as asthma being a more socially acceptable diagnosis to parents (The “bronchial chests” of the past).
- Pollutants – Adjuvants are agents that promote allergic sensitisation such as sulphur dioxide, nitrogen dioxide, diesel fuel particulate, ozone and tobacco smoke (particularly passive smoking in pregnancy and childhood which results in raised IgE levels). City children are more likely to develop allergies to pollen and furry animals than children living in the country. In Zimbabwe, there is a 5,9% prevalence of asthma in Harare, whilst in rural Wedza 150km away the prevalence is only 0,1%.
- Occupation – with increasing industrialisation, there are certain at-risk sub-populations such as those people working in the plastics, paint, electronics, pharmaceutical and food processing industries. They comprise mainly of asthma and contact dermatoses (isocyanates, solder flux, penicillin antibiotics and hairdressing chemicals are the common sensitising agents).
- Genetics – There is probable inheritance of an “allergy gene” in an Autosomal Dominant manner.

Allergens: Their Nature and Avoidance Measures

There is a great need to target “at risk” families using family history, family allergy scores and neonatal cord IgE level estimation. Expectant mothers should be prepared for adjuvant and allergen avoidance and lifestyle modification in the antenatal period if they fall into the “at risk” group. The importance of these avoidance measures in the first year of life, the period of transient vulnerability, cannot be over emphasised. Male infants are more likely to develop atopy than females, however, this trend seems to be reversed in Africans. The month of birth, especially spring-time, places the neonate at risk for pollen allergy. During the first year of life there should be no furry pets in the home of the at-risk infant. Day care centres should be avoided in infancy as repeated viral infections may act as adjuvants promoting allergic sensitisation.

Ingested Allergens

Is breast still best for allergy prevention? There is little evidence that maternal diet is important in pregnancy, but during lactation potential food allergens such as cow’s milk, fish and eggs should be avoided as traces can be passed into breast milk. If these measures cannot be implemented, the baby is probably better off on soya milk! Beware the nurse that mistakenly gives the neonate “top-up” feeds of formula milk in the nursery. Recent evidence now suggests that breast feeding may merely delay the onset of allergy.

It is best to delay the introduction of solids until six months of age, with cow’s milk and wheat being

Understanding his own condition will ensure better compliance.

Up to 25% of population manifest atopy (it was 10% about 20 years ago).

introduced at 12 months and eggs and fish at 18 months. Dietic advice may be sought to ensure a nutritionally balanced diet. Nevertheless, parents tend to experiment with their children's diets and commonly exclude milk, wheat and tartrazine. Occasionally under dietic supervision oligo-allergenic diets consisting of lamb, rice, pears, sunflower oil and water may be used for short periods when no one obvious food is implicated and slowly other foods are reintroduced one at a time until the allergy provoking one is identified.

Food allergy may manifest as eczema, rhinitis, asthma or an enteropathy. In certain cases migraine and hyperactivity have been implicated but this is a contentious issue and there are the "believers and non-believers".

Most importantly, not all adverse reactions to food are allergy – for instance histamine, which occurs naturally in food, can cause non-allergic or pseudo allergic reactions.

Inhalants

Inhalant allergy may manifest as asthma, hayfever, conjunctivitis or as all three.

Housedust Mite (HDM) Allergy

The common mites (*Dermatophagoides pteronyssinus* and *D farinae*) are endemic in coastal homes and 80% of asthmatics are HDM allergic. They are more common in western style furnished homes (feather pillows, mattresses, soft furniture, carpets and curtaining). The average bed contains up to 10 000 mites – a veritable "mite cemetery". Patients need to be educated that it is the airborne mite faecal protein Der

p1, and not the dust itself that is allergenic.

Interventional measures include concentrating on specific areas of the house especially the bedroom, and the aim is to reduce the levels of Der p1 to below 10µg per gram of dust.

- Pillow – avoid natural fibre and feather pillows, even replacing synthetic ones every 6 months.
- Mattress – vacuum-clean regularly, sun exposure will kill mites, apply occlusive or microporous mattress covers, use electric blankets to limit mite growth, and apply Acarosol to mattress and carpets (best applied over a weekend while vacating the room).
- Fitted carpets should be removed and replaced with linoleum, floor tiles or polished wooden floors.
- All clutter should be removed particularly clothing and soft toys. If needed, a favourite teddy can be washed and left in the freezer overnight to kill the mites.
- Bulky curtains should be replaced with window shades.
- Damp dusting, regular vacuuming with micro-filters, good ventilation and the washing of linen at high temperatures should reduce mite levels.

There is no point in carefully stabilising a brittle asthmatic in hospital, only to return him to a mite infested bedroom. House mite levels in furniture can be monitored by using the Acares test (a commercially available guanin assay).

Pet Allergy

The cat allergen (Fel d 1) is most commonly implicated animal allergen and is found in their saliva and skin scales. Up to 40% of asthmatics are

City children are more likely to develop allergies.

A probable inheritance of an allergen gene.

cat allergic. The allergen is small, remains airborne for prolonged periods, passes through vacuum cleaners and persists in homes for years after the cat has been removed. The cat allergen can even be found in the classroom setting – presumably carried in on children's clothing.

Avoidance measures include: Not having a cat in the first place or immediate removal of the cat from the home. If this is not possible, the cat should be washed weekly to limit the allergen load, together with damp wiping of bedroom walls to remove adherent allergen and fitting of an exhaust microfilter to the vacuum cleaner.

The dog allergen (Can f 1) is less commonly implicated and also found in saliva and skin scales. Other potential allergenic animals include rats, guinea pigs, rabbits, gerbils, hamsters, mice, horses and cows, which release allergens in their skin scales, saliva and urine. Even the cockroach, not usually considered a "domestic pet" is a source of allergic sensitisation in the home.

Mould Allergy

There are five common allergenic moulds – *Alternaria*, *Cladosporium*, *Epicoccum*, *Aspergillus* and *Penicillium*. They occur all year round, but especially in autumn, both indoors in damp humid homes, and out-doors in garden refuse. Other areas in which moulds proliferate include damp basements, greenhouses and grain stores. Levels above 3000 spores per cubic metre of air can give rise to asthma. Most asthma related sudden deaths occur during the *Alternaria* season (May to August). Intervention includes adequate ventilation of kitchens,

bathrooms and bedrooms as well as indoor moisture control. Jik scrubs can successfully remove indoor moulds found on walls and ceilings.

Pollen Allergy

Pollens are the most common inhalant allergens in the interior of the country and the most difficult to avoid. Grass pollen is the most common allergen (Bermuda, Perennial rye and Kikuyu), but imported trees (Oaks, Planes, Poplars, Willows and Acacias) and local weeds (Compositae, Plantain and Pigweed) are also implicated. Controversy exists regarding Pine, Jacaranda and Port Jackson tree pollens which although allergenic, were thought to be too heavy to be windborne. Pollens peak during spring and summer, symptoms will occur when levels exceed 50 grains per cubic metre of air and during thunderstorms starch granules may be released from the pollen grains themselves causing further allergen exposure.

Avoidance measures although not usually successful include: Keeping bedroom windows closed and remaining indoors when pollen levels peak, wearing of face masks, fitting of vent filters in cars, wearing of protective eye-glasses and avoiding grass cutting or walking in grasslands.

Injection

Bee and Wasp Stings

This form of allergy is most publicised, but despite its serious nature, it is a rare cause of fatal anaphylaxis – only 40 cases occur in the USA per year (300 million people). One is probably more likely to die in a motor car accident on the way to hospital. In South Africa the honey

Male infants more likely to develop atopy (except with Africans).

Breast feeding mothers with at-risk babies should be careful about their diet.

Not all adverse reactions to food are allergy.

bee – *Apis mellifera* is the main culprit. Other allergy inducing hymenoptera are the Yellow jacket wasp (*Vespula germanica*) and the Paper wasp (*Polistes emarginata*).

- Avoidance measures include: Avoid bee infested areas and if stung, immediately flick out the stinger to reduce the amount of venom injected, wear light coloured clothes as they do not attract bees, stay away from soiled picnic areas, do not eat food or take sugary drinks out of doors and if approached by a bee or wasp remain calm and do not swat at it. Keep an insecticide spray in the car and a “bee cloth” handy to trap insects.

Highly allergic people should carry an EpiPen or Anaguard pre-filled adrenaline injection and/or Medihaler Epi inhaler for self administration. Less allergic people should carry Phenergan tablets. Hyposensitisation injections can be most successful in this type of allergy.

Drugs

Certain drugs can cause allergic reactions and an adverse reaction usually implies life-long avoidance and the wearing of a medic alert bracelet. It is important that patients are aware of the drugs that commonly cause hypersensitivity reactions.

- Penicillin hypersensitivity is grossly over diagnosed, but it is very difficult to exclude a possible reaction as skin testing can be dangerous while a RAST test is not specific (cannot detect IgE to minor penicillin determinant).
- Sulphonamides are a common cause of allergic skin eruptions.
- Local anaesthetic agents may cause idiosyncratic reactions due

to the preservatives and adrenaline present.

- General anaesthetic muscle relaxants are an important cause of drug allergy and can be reliably identified by skin prick testing.
- Radiocontrast media can occasionally result in fatal anaphylaxis.
- Non-steroidal anti-inflammatory agents including aspirin are an important precipitant of asthma.
- Beware of latex, a recently recognised cause of fatal anaphylaxis and which is found in catheters, surgical gloves, dummies and condoms.

Self Management Plans

Models for self management of asthma and eczema.

Asthma

Asthma cannot be cured but with the right treatment most asthmatics can lead completely normal lives.

Patients need to understand that there are two aspects to asthma. Reversible broncho-constriction which responds to bronchodilators and an ongoing inflammatory process (mucosal oedema and mucous production) which responds to anti-inflammatory medication. Asthma medication is neither habit forming nor dangerous to use over long periods of time.

Initial intervention includes allergen avoidance and removal of environmental irritants such as cigarette smoke and irritant gases.

Most asthmatics are treated with bronchodilators alone. Patients should be educated that if symptoms occur more than 3 times a week, then in addition to the use of a *reliever*

An average bed has
10 000 mites!

Not the dust itself, but it
is the airborne mite
faecal protein which is
allergenic.

Synthetic pillows are
better. And replace
them twice a year.

bronchodilator, **preventer** medicines such as Sodium cromoglycate, inhaled steroids and ketotifen should be introduced. Ensure patients are taught to use inhalers adequately and that they have age appropriate delivery devices. Metered dose inhalers can usually be effectively used from 6 years of age, while Spinhalers and spacer devices can be tried in younger children if adequately trained. Peak flow meters should be used wherever possible and diary cards kept to document asthma control. There is a need to educate people to continue to use preventer medicines even when symptom free. And that inhaled steroids at the recommended dose are completely safe.

Asthma is not a harmless transient airway spasm, but an ongoing inflammatory process that can progress to chronic irreversible airways disease. The use of bronchodilators alone may further aggravate the inflammatory process by allowing allergens greater access to the lower airways!

•• *An asthma management plan should be implemented in a stepwise manner, depending on the level of asthma severity and symptomatology.*

1. Initial broncho-dilator (**Reliever**).
2. Followed by Sodium cromoglycate or inhaled steroids (**Preventer**).
3. Then additional or increased dose of 1 & 2.
4. Followed by introduction of long acting oral Theophyllines
5. And in resistant cases, short courses of oral steroids or alternate day steroids if indicated.

• The Peak Flow (PF) Meter objectively measures airway

patency, is inexpensive, and can be used for day-to-day management of asthma and each assessment should be compared with patient's "personal best" recording.

"Traffic Light" System

- If PF 80 – 100% of predicted value. *Green Light Zone* – continue routine treatment.
- If PF 50 – 80% of predicted value. *Yellow Light Zone* – increase medication.
- If PF less than 50% expected value. *Red Light Zone* – immediately take additional bronchodilator and if PF doesn't move to Green or Yellow zone in 20 minutes, contact doctor or take oral steroids.

Certain at-risk patients should therefore have short courses of oral steroids at home to take if their peak flow drops dramatically despite adequate inhaler medication.

Advise asthmatics to avoid beta-blocker drugs and NSAIDs if Aspirin sensitive.

Atopic Eczema

The most important consideration is to preserve the barrier function of the skin by preventing dryness and avoiding allergen exposure.

Interventional steps include:

- Protection of skin with regular and liberal use of moisturising emollients such as UEA, HEB and Cetomacrogol.
- Attention to avoidance of any known dietary precipitants such as cow's milk, wheat, eggs, fish, peanuts, soya as well as food colourants or additives (tartrazine, sulphites, benzoates, nitrates and MSG).

Vacuum your mattress regularly.

Wash and leave favourite fluffy teddy in the freezer overnight.

Written instructions on use of medicines will improve compliance.

- Treatment and eradication of skin infections caused by staphylococci which may aggravate eczema.
- Avoidance of skin irritants such as enzymatic washing powders and synthetic clothes, rather using of cotton underclothes, and bathing in luke warm water with hypo-allergenic soaps.
- Making sure to use adequate amounts of steroid creams for exacerbated eczema and to dilute them when used for longer periods. Sedating antihistamines can be used to reduce nocturnal itch.
- Other medications such as ketotifen can be used as a preventer treatment in younger patients with eczema, while evening primrose oil and chinese herbal tea have also been tried with some success.

Remember: Written instructions on medication use improves compliance and therefore therapeutic effectiveness.

Finally, the Allergy Society of South Africa has a number of patient information booklets, pamphlets and sheets which cover most aspects of allergy prevention and self management. Please send a self addressed stamped A5 envelope to ALLSA, PO Box 88, Observatory, 7925 with requests or telephone/fax (021) 479019.

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Save
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