ATOPIC DERMATITIS - PREVENTION AND EDUCATION OF PATIENTS

Robin J Green, *PhD, DSc,* **Adéle Pentz,** Dip Allerg(SA)

Correspondence:
Department of Paediatrics and Child Health, University of Pretoria

Email: adele.pentz@gmail.com

ABSTRACT
Why an article on prevention of atopic dermatitis and education of patients and their families? Well one might consider these two topics the two extremes of management of patients at risk from, or with, the condition. A physician might be called to intervene when families with risk factors for atopy consult at a very early stage (possibly even in pregnancy), and then again when a child has the disease expression. Without education in the management plan, all therapies for skin care are doomed to fail. Therefore, both these steps might be considered educational principles – education to avoid the condition if possible, and education to prevent flares of the condition. We are firm believers that the management of atopic and chronic conditions is centered on patient education.

PREVENTION OF ATOPIC DERMATITIS

INTRODUCTION

Prevention of atopic dermatitis (AD), next to a cure for the condition, would be first prize for practitioners treating and researching this condition. A number of exciting strategies for prevention are being investigated but need further research. Our existing advice has not met with much progress in the last decade of investigation. Prevention may be considered as primary (prevention of an allergic diathesis), secondary (prevention of subsequent expression of an atopic condition even though allergy has been established) and tertiary (prevention of exacerbations [in this case flares of AD]).

PRIMARY PREVENTION:

If some cases of AD have an allergic basis, then attempts to prevent this phenomenon may be helpful. Attempts to provide allergen-free diets to pregnant mothers, so popular in the early 1990's, have failed to prevent the development of allergy or AD. Food allergen avoidance during pregnancy and early life is unhelpful and may even promote atopy.[1] Even allergen avoidance in breast-feeding mothers (avoiding potentially allergenic foods), and even in the case of high-risk infants, is unhelpful.[2] Cigarette exposure is now conclusively linked to atopic aetiology, and it is a major factor in cause of flares of AD.[3,4] Whilst all components of the 'Hygiene Hypothesis' may contribute to a rising prevalence of allergic disorders, it must be remembered that they are epidemiologically linked to atopy but would certainly not be important or useful in individual families. Such factors include birth by vaginal delivery, living on a farm, reduced consumption of antibiotics in infants, living in less hygienic circumstances, day care attendance and living within the context of more siblings.[5]

The current role of probiotic supplementation is unclear. Unfortunately, there are studies supporting benefit of probiotics in prevention,[6-8] and studies that fail to support benefit.[9-11] A very recent meta-analysis of all available studies has, however concluded that probiotic supplementation, both in-utero and in neonatal life may reduce AD risk.[12] That analysis revealed an absolute risk reduction of 21% (OR = 0.79 CI: 0.71-0.88).[12] The ultimate answer to the probiotic strategy may well depend on actual bacterial strains (not all organisms have equal benefit), dose, viability and timing of intervention. There is insufficient evidence at present to give a clear recommendation.

The role of breast feeding is also unclear. Studies of exclusive breast feeding are equivocal in their findings, some studies revealing protection and some suggesting harm.[13-15] There is now mounting evidence that the most valuable allergy prevention strategy is 4 months of exclusive breast feeding followed by weaning between 4 and 6 months of age, to a diet that incorporates gradual and consistent introduction of a wide range of foods, even foods know to be allergenic (cows milk, egg, peanut, wheat and fish).[16,17] In high risk infants who cannot be breast fed, there is evidence that hypo-allergenic milk formulae may be beneficial.[18,19] These include partially hydrolysed whey formulae and extensively hydrolysed casein and whey based formulae. Where cost

is an important consideration there is one study that documented benefit of partially hydrolysed whey milk.[19] There is evidence that supplementation during pregnancy of omega-3 polyunsaturated fatty acids (n-3 PUFA) will reduce some food allergy sensitivities.[20] However this effect was not seen for supplementation of maternal diet during lactation.[20] There is no clear evidence for prevention of AD by supplementing the neonatal or infant diet with n-3 PUFA.[21]

The only practical advice that can be given to the parents of soon to be born, or newly born, high-risk infants, is to exclusively breast feed for the first four months of life, and not to smoke during pregnancy or around young children.

The primary prevention strategies that could be employed in pregnancy to prevent atopy are included in Table 1.

Table 1: Prevention of allergy through interventions in pregnancy

- No benefit to allergen exclusion diet[2]
- Polyunsaturated fatty acid supplementation (fish oil supplementation) – Reduction in AD and wheeze in children (no post-natal benefit)[20]
- Probiotics – Controversial but 21% reduction AD in offspring[12]
- Vitamin D supplementation – Conflicting evidence for prevention of allergy but theoretical benefit from regular sunlight exposure
- Regular exercise / healthy diet
- Avoid smoking - Benefit to allergy, wheeze, asthma, infection
- Plan vaginal birth
- Start thinking of strategies for post-natal allergy prevention
- Keep her own allergic conditions well controlled (avoid preterm delivery)
- Maternal stress increases neonatal IgE/allergic disease

SECONDARY PREVENTION – PREVENTION OF THE ATOPIC MARCH:

The administration of newer anti-histamines to clearly atopic infants with eczema had initially shown some promise in the overall prevention of asthma but this is no longer the case. The ETAC Study found that a subset of atopic infants had a reduced prevalence of wheeze after receiving cetirizine.[22] A study of levocetirizine for asthma prevention, however, failed to provide benefit.[23] Specific immunotherapy shows promise but is clearly impractical unless orally available.[24] Newer immunotherapy vaccines and especially those that include bacterial products are showing promise.[24] The role of probiotics in secondary or tertiary prevention is unclear.[25] The use of aqueous creams on the skin of newborn infants has been linked to an increased rate of dermatitis in children.[26]

TERTIARY PREVENTION:

The avoidance of allergens, irritants and triggers in the established AD patient are important adjuncts to treatment and prevention of acute flares. Flares of AD, together with uncontrolled symptoms, are the main cost drivers in this disease and certainly impact significantly on the quality of life of the patient.[2] It should be stated that the successful treatment of AD could improve the outcome of other atopic conditions such as asthma.[27]

Avoidance of the following trigger factors is important in AD patients:

- Exposure to personal and/or second hand tobacco smoke;
- Avoid irritants and sensitisers in the home or in the workplace;
- Avoidance of proven allergens.

Since varicella infection is more common in eczematous skin varicella vaccine seems a prudent strategy in children with AD.[28]

EDUCATION OF PATIENTS AND FAMILIES WITH AD

INTRODUCTION

Education of patients with AD is an essential and unavoidable component of therapy.[29] Where the disease involves young children, education of parents is mandatory. Without adequate attention to education, all therapies are futile and the patient is doomed to an impaired quality of life. Practitioners treating individuals with AD must be aware that the disease is one of the most important medical conditions to affect quality of life.[30] Quality of life impairment usually involves the entire family.[31]

Whilst many of the educational principles center on an adequate explanation of the therapies and their appropriate application and timing, there are a number of messages that must be mentioned independently.[32] These include:

- An explanation of the disease process, its aetiology and its pathology;
- Avoidance of generic (cigarette smoke, irritants) and individual specific (allergens) trigger factors;
- Attention to skin hygiene and care;
- Attention to itch prevention (avoiding hot bedrooms, cutting of nails, avoidance of woolen clothing, avoidance of overdressing, avoidance of soaps and adequate moisturisation);
- An explanation of the chronic and relapsing nature of the disease;
- An explanation that all therapies are able, only to treat the condition, but not cure it;
- A discussion about the scientific basis of alternative therapies (homoeopathy, reflexology, naturopathy, acupuncture and herbal therapy). Such discussion should suggest that, whilst such therapies are not grounded by the same evidence required for allopathic medicine, many individuals feel compelled to try them when desperate. Such desperation can usually be overcome by careful attention to skin care and medicine use;
- Honest discussion about medication side effects.

Educational messages need to be frequently repeated. Patients and parents must be given adequate opportunity to raise concerns and ask questions. Atopic dermatitis consultations, even follow-up visits, usually require a long consultation.

Education is greatly aided by information leaflets (available at "http://www.allergysa.org" *www.allergysa.org)*, reputable website addresses and contact details for support groups.[33]

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