Clinical Experience in Children
Y. de Prost

Introduction

Atopic dermatitis in children has become an important public health concern. The prevalence of the condition has trebled in the past 20 years, reaching 15%-20% in Western countries [16], and this continuing upward rise shows no signs of being reversed. Atopic dermatitis affects primarily infants and children, with the age of onset typically between 3 and 6 months old, and this is one of the major challenges in contemporary paediatric dermatology.

The fundamental causes for the increasing prevalence of atopic dermatitis are unclear, highlighting the fact that our understanding of the aetiology and pathogenesis of the disease remains incomplete. Recent epidemiological data have raised the possibility that infections in early life may protect individuals from subsequent atopic dermatitis, such that the relatively sterile modern Western environment that we now live in may be implicated in the increasing prevalence of the disease [11]. Thus environmental factors including crowded houses, increased family size and exposure to viral or bacterial diseases may possibly decrease the risk of atopy in infants and young children [11].

The management of atopic dermatitis in children requires special consideration [5, 6, 24]. It is very important for the clinician to develop a trusting relationship with the patient's parents during the atopic child's first visit. It is particularly important to explain that the primary aim of the therapy is to control pruritus and the eczematous lesions, but that complete cure of the disease is currently not possible. The education of both the child and the family often requires considerable time due to preconceived misconceptions about the nature of atopic dermatitis. The chronic course of the disease must be explained carefully and its potential psychological impact adequately considered, with every attempt made to ensure that the life of the affected child remains as normal as possible.

The clinical management of atopic dermatitis should address the three major components of active disease, namely infection, inflammation, and xerosis. Within the traditional management paradigm, infection is treated with topical antibiotics (or systemic antibiotics in the case of acute flares), inflammation with topical corticosteroids (short-term therapy) and xerosis with emollients. In addition to specific medical therapies, a wide range of simple measures should be deployed to reduce factors that could otherwise increase both the xerosis and the scratching process.
Tacrolimus ointment is the world's first steroid-free topical immunomodulator.

For instance, a humidifier in the child's bedroom, cotton clothing and avoidance of wool clothes as well as synthetic fabrics may all be helpful. Baths should be of short duration (no more than 5 min) and taken in temperate water, as hot water induces xerosis.

Topical corticosteroids are the mainstay of conventional therapy for atopic dermatitis, but their limitations have been recognised since they were first introduced [8, 12, 13, 18]. The main side effect of local corticosteroid therapy in children and adults alike is skin atrophy, characterised by skin thinning, striae, visible veins and bruising. Other local side effects include telangiectasia and pigmentation disorders. These adverse effects occur more frequently with the persistent use of potent corticosteroids and are most likely to occur in vulnerable locations such as the face and gluteal area. In adolescents, the risk of striae on the breasts and thighs necessitates careful use of corticosteroids in these areas.

In addition to local side effects, corticosteroid use is associated with a theoretical risk of systemic side effects in children, including adrenal suppression, failure to thrive (growth retardation), Cushing's syndrome, glaucoma and benign cephalic hypertension [3, 23, 29]. Young children and infants are at a higher risk of systemic effects than adults or adolescents because they have a greater body surface area to volume ratio. Reports of such serious adverse effects due to topical corticosteroid use are rare, but to minimise the potential for both local and systemic side effects, these agents must be used for short-term treatment only and on limited body areas without occlusion.

Tacrolimus ointment (Protopic®; Fujisawa) is the world's first steroid-free topical immunomodulator (TIM), and promises to have a transforming impact on the management of atopic dermatitis and its associated symptoms. In direct contrast to corticosteroids, tacrolimus ointment provides efficacy without atrophogenicity [25]. Indeed, in the paediatric population in whom mild topical corticosteroids are typically used as a first-line therapy, topical tacrolimus provides superior efficacy and can be used for extended periods without the risk of corticosteroid-associated side effects. This chapter will review the series of clinical studies that have demonstrated the safety and efficacy of tacrolimus ointment in children and describe for dermatologists, paediatricians and general practitioners when and how tacrolimus ointment should be used in childhood atopic dermatitis.

**Early Clinical Development**

To date, the use of tacrolimus ointment in the paediatric population is indicated for children aged 2 years and above. Although it is anticipated that tacrolimus ointment will prove safe and effective in infants, this question has not yet been addressed in clinical trials.