

# Should topical antibacterials be routinely combined with topical steroids in the treatment of atopic dermatitis?

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Since Leyden et al showed in 1974 that 90% of patients with atopic dermatitis (AD) have their skin colonized with *Staphylococcus aureus* (SA),<sup>[1]</sup> the increased incidence of a carrier state of SA in patients with AD has been a subject of interest. Several studies in children<sup>[2-4]</sup> and adults<sup>[5,6]</sup> with AD have demonstrated an increased carrier state of SA in both involved and uninvolved skin. AD is reported to be exacerbated when the density of SA is greater than  $10^6$  CFU/cm<sup>2</sup> (CFU, colony forming unit).<sup>[6]</sup>

Although *Staphylococcus aureus* can be isolated from the anterior nares in approximately 30% of normal individuals and less commonly from the flexures, it is rarely a member of the normal resident flora in human skin.<sup>[7]</sup> Hence, while there may not always be any evidence of frank infection, the staphylococcal superantigens produced by SA may actually perpetuate the eczema and produce steroid insensitivity.<sup>[8]</sup> Topical and/or systemic antibiotics reduce the quantity of SA colonizing the skin and nasal mucosa, and thus improve the eczema.<sup>[4-7]</sup> Topical mupirocin is highly effective against all strains of SA and is effective in clearing SA from the skin and nasal mucosa.<sup>[9,10]</sup>

One can therefore presume that a combination of a moderately potent topical corticosteroid like fluticasone and an antibiotic like mupirocin should tackle atopic dermatitis more effectively than fluticasone alone. In this issue, Khobragade reports that

two weeks of treatment with a combination of fluticasone and mupirocin led to a significant improvement in AD in 90% of patients in an open label uncontrolled study.<sup>[11]</sup> However, until randomized controlled trials establish the superiority of this combination to fluticasone alone over a longer period, this combination should be judiciously used by dermatologists.

In the majority of patients with AD, SA colonizes eczematous and normal looking skin without any overt signs of infection.<sup>[1,2,4-6]</sup> Whenever there is improvement in eczema due to treatment with a potent topical steroid, the SA count also goes down.<sup>[12,13]</sup> Hence, it may be expected that addition of a topical antibacterial may bring about faster improvement in eczema. However, when there is evidence of frank infection, an oral rather than a topical antibiotic should be used. It is important to remember that mupirocin or a mupirocin-fluticasone combination should not be used over large areas of skin because this can lead to the emergence of resistance to this very useful topical antibiotic.<sup>[14]</sup> In patients with widely distributed eczematous lesions, a course of an oral anti-staphylococcal antibiotic is preferable to a topical steroid-antibiotic combination. Several studies, including one by our group, have found that such a course improves the eczema even in patients without evident infection.<sup>[4-6,15]</sup> Once the lesions become localized, application of a topical steroid alone to the

residual lesions should suffice. In my experience, a topical steroid-antibiotic combination is most appropriate for treating eczematous lesions close to the anterior nares, flexures, perianal areas, and finger or toe web spaces.

In another article in this issue, Sharma reports contact allergy to neomycin, gentamicin and chiniform in patients with AD.<sup>[16]</sup> The risk of sensitization is the main reason why most dermatologists do not prefer neomycin as a topical antibiotic in patients with AD.<sup>[17]</sup> In India neomycin-containing topical antibacterials are commonly prescribed for cuts, abrasions, minor burns, furuncles, etc. The incidence of cross-sensitivity between neomycin and gentamicin is as high as 40%.<sup>[18]</sup> Topical betamethasone in combination with gentamicin has been successfully used to treat AD for the past two decades.<sup>[19]</sup> However, it is quite possible that gentamicin might induce sensitization in many patients with AD and that patients who cease to respond to a topical steroid-gentamicin combination are actually developing sensitivity to gentamicin rather than tachyphylaxis to steroids (which is what we usually suspect). The sensitization potential of mupirocin does not appear to be a major issue presently. However, with increasing usage mupirocin allergy may become more common.<sup>[20,21]</sup>

The combination of mupirocin and fluticasone is currently available only as an ointment. In India, where the climate is hot and humid for most of the year, a cream, which is non-greasy and more acceptable to patients, would be preferable to an ointment. A preparation combining mupirocin and hydrocortisone may also be useful.

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