

A Novel Therapeutic Approach to Resistant Superficial Infections

Author: Michael A. Rossi, DVM, MNS, Dip. ACVD
Coastal Veterinary Dermatology & Ear Clinic, Houston, TX



What do you tell your clients when their beloved, four-legged family member has a superficial, bacterial infection that is not improving with their oral therapy? Most of us as practicing veterinary professionals have been in a situation where patients do not respond as expected with conventional antimicrobials. The worldwide emergence of bacterial strains resistant to virtually all antimicrobials available in veterinary medicine, namely methicillin-resistant *Staphylococcus pseudintermedius*, has complicated how we clinically manage bacterial infections. While the problem of antimicrobial resistance is increasing with alarming speed in both animals and humans, there has been a striking reduction in the number of new antimicrobial products in both of these fields. This has shifted focus away from systemic antimicrobial agents and put more pressure on the development of novel topical applications to manage superficial infections. These alternative methods are being highly utilized as either monotherapy or as part of a polytherapy program to prevent or treat superficial infections in the veterinary community.

Some of the most common patients needing help with controlling infections are those with atopic dermatitis or atopy. Atopic dermatitis is a chronic, immune-mediated disease

of cutaneous inflammation and barrier dysfunction that affects approximately 10-15% of the total canine population. The condition can be extremely frustrating and time consuming for both the pet owner and the veterinarian alike. Factors, such as diverse clinical presentations, variations in the extent of clinical lesions, and the presence of secondary infections, including those by *Malassezia* yeast, complicate its treatment and have a significant impact on the human-animal bond. Many recent studies, in both veterinary and human medicine, have highlighted the need, not only to address the systemic inflammation, but to correct the known skin barrier defect in the atopic patient. There is mounting data that shows that there is marked susceptibility of individuals with atopic dermatitis to develop infections on the skin with *Staphylococcus aureus* in humans and *Staphylococcus pseudintermedius* in dogs. These infections are thought to play a significant role in exacerbation of atopic dermatitis lesions. In theory, controlling the bacterial overgrowth in atopic patients could lead to better control of their underlying disease.

Recently, there has been increased interest in the use of topical sodium hypochlorite (bleach) solutions in the treatment and prevention of superficial infections in canine and human patients. Most of the dilute concentrations are low enough to be safely used in children while showing efficacy against bacteria. A recent report in *Veterinary Dermatology* showed excellent *in vitro* antimicrobial effectiveness of sodium hypochlorite at a dilution of only 0.00156% after 3 and 5 minutes of contact time! With little to no documented resistance, this makes this ingredient very effective in managing skin infections. We are very fortunate to have this agent commercially available in Command™ shampoo from Vetrimax. This product has shown efficacy against superficial infections caused by Staphylococcal bacteria, as well as those caused by *Malassezia* yeast. Using this product in conjunction with a sound long-term management plan, such as allergen-specific immunotherapy, has the potential to mitigate the number of atopic flares and secondary infections.

In addition to reducing the bacterial colonization on the skin, one of the other important factors in treating atopic skin disease is correcting the cutaneous barrier dysfunction. We know through numerous studies that the ceramide content within the skin of atopic patients is deficient. Many of the topical products that we utilize on a regular basis aim to replenish these crucial moisturizing factors in an attempt to normalize the barrier defect and reduce transepidermal water loss. AtopiCream™ HC Leave-On Lotion from Vetrimax is a rehydrating lotion that contains a steroid, as well as a ceramide complex and essential fatty acids to aid in restoring the normal function of the skin. Along with the moisturizing effects, this product also contains hydrocortisone. The benefits associated with this topical glucocorticoid have been well established in both canine and human patients diagnosed with atopic dermatitis. Some studies have even shown a >50% reduction in clinical lesions and pruritus scores when this compound was utilized

on lesional skin. This product also comes in a steroid-free version. This could lead to a significant benefit in patients suffering from this condition if used on a routine basis.

The field of veterinary dermatology continues to change at a rapid pace. As a whole, we are searching for cutting edge treatment options for controlling atopic dermatitis without over medicating patients. Most of us are doing this by advancing our knowledge of allergen-specific immunotherapy and through advancements of topical therapies. Incorporating Command™ shampoo and AtopiCream™ HC in a long-term, topical management plan should increase our ability to control superficial infections and increase patient comfort from atopic flares.

References

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