Skin infections may be painful, lead to systemic sepsis and result in cosmetically unappealing scarring. Approximately 18% of patients have “mixed” infections consisting of combinations of bacteria, fungi and/or yeast. Obesity predisposes mixed infections because friction and maceration of intertriginous skin provides fertile territory for fungal, yeast and bacterial colonies. Up to 50% of obese people have cutaneous infections and ~23% have active skin-fold mycosis. There is a clear clinical need for a broad-based anti-infective agent, which targets infectious lesions of unclear or mixed origin and has the ability to prevent infection in vulnerable, irritated skin. Iodoquinol (Figure 1), the anti-infective ingredient in Alcortin®A (1% iodoquinol, 2% hydrocortisone-acetate) and Aloquin® (1% iodoquinol, 1% aloe polysaccharides) acts by chelating metals from all types of microbes, has no known microbial resistance and has an established history of topical use for common skin infections.

In a recent in vitro killing assay, 1% iodoquinol (Alcortin A) produced broader and better antimicrobial activity (by 3-log reduction) against fungi and bacteria compared to ciclopirox (Loprox®) and clotrimazole (Lotrisone®). Iodoquinol had stronger and faster killing effects than both ciclopirox and clotrimazole on all fungi tested (T. mentagrophytes, M. furfur, Microsporum canis, C. albicans, T. rubrum and E. floccosum). Iodoquinol also showed the best killing effect against bacteria (P. acnes, MRSA, P. aeruginosa and C. aquaticum). Ciclopirox showed better killing effect on only one organism, M. luteus.

Fungicidal Activity Against:
- Trichophyton rubrum
- Trichophyton mentagrophytes
- Epidermophyton floccosum
- Microsporum canis
- Malassezia furfur
- Candida albicans

Bactericidal Activity Against:
- Corynebacterium aquaticum
- Propionibacterium acnes
- Micrococcus luteus
- Pseudomonas aeruginosa

In large-scale, double-blind trials of patients with common dermatoses, iodoquinol and related compounds were effective vs placebo. Presenting conditions varied, and included primary bacterial,
fungal and yeast infections, mixed infections and secondarily infected dermatoses confirmed by culture. The most common pathogens recovered were S. aureus, C. albicans, T. mentagrophytes and T. rubrum. In each of these studies, clinical evaluation of lesion severity and patient ratings of comfort were significantly increased in patients given an in-oduo/steroid combination (improvement rated as excellent or very good in 60-70% of cases) compared to vehicle following 7-10 days of treatment. Importantly, the addition of the relatively low potency steroid hydrocortisone (HC) did not adversely affect microbiological conversion, suggesting that HC was not simply “masking” an active infection by suppressing active immune responses. A recent case study supported the notion that high potency steroids, even in combination with a topical azole antifungal can mask symptoms of tinea corporis, leading to long-lasting unresolved fungal infection. Infections, especially those on non-sterile areas can be successfully treated with Aloquin. For infections accompanied by inflammation and/or pruritus, HC-acetate may provide symptomatic relief while the underlying infection is treated with iodoquinol. In such cases, Alcortin A would be the preferred option.

The Unique Delivery System in Alcortin A and Aloquin: Biopetide Aloe Complex™ (BACTM) Many different chemical solutions have been used to increase the delivery of active ingredients for treatment of a variety of skin disorders. Topically applied drugs can penetrate skin in three basic ways: via sweat glands, through hair follicles and sebaceous glands or directly through the stratum corneum. Most polar molecules, such as steroids, penetrate through follicles, sweat and sebaceous glands. Other formulations can aid even polar molecules in penetrating the stratum corneum. These include lipophilic ion pairing, in which charged drugs are complexed with lipids, and super-saturated solutions, in which the solvent containing the drug evaporates on the surface of the skin thereby increasing the effective local concentration of a drug which promotes a greater uptake into the stratum corneum. In addition, complexes with cyclodextrins and liposomes or lipid vesicles can chaperone drugs through the lipid bilayers into the stratum corneum. Finally, lipid disruption with solvents that interact with lipids or keratin (i.e., alcohols, DMSO, fatty acids, terpenes, urea) have been shown to increase delivery of topically applied drugs. In all cases, hydration of the area by sealing with barrier such as petrolatum increases the residence of the drugs or drug complexes allowing increased delivery. The patented BAC (palmitoyl-peptide+aloe polysaccharide), contained in Alcortin A and Aloquin (Figure 2), represents a unique approach for delivery of actives.

Figure 2

Aloe vera gel is composed of proteins, polysaccharides, lipids, simple sugars, fibers and minerals and is known to soothe burns. A potent, highly purified, modified polysaccharide from aloe gel has shown to both anti-inflammatory activity and wound healing activity (Figure 2). The purified polysaccharide has been shown to be immunomodulatory and to stimulate microburst growth and activity. Additionally, the elegant based vehicle offers many patient benefit levels:

- **Elegant**
- **Easily spreadable**
- **Non-tacky**
- **Non-greasy**
- **Dries quickly**
- **Absorbs easily**
- **Well suited to large BSA, intertriginous or hairy areas.**

References


