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Letters to the editor

Re: Treatment of Parasitic Skin Diseases with Dimeticones A New Family of Compounds with a Purely Physical Mode of Action

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Abstract: The article on use of dimeticone for treatment of epidermal parasitic skin diseases is potentially confusing and misleading because, in a practical sense, only head louse infestation can be treated with this material. Scabies mites are unaffected by silicones and use of dimeticone against other ectoparasites may have unwanted side effects such as anaphylactiform reactions or increased risk of pathogen transmission.
Key words: Ectoparasites, dimeticone, treatment

Sir,

I am writing to you because I feel the article by Professor Feldmeier on the treatment of parasitic diseases with dimeticones [1] over simplifies the issues of treating what he refers to as epidermal parasitic skin diseases (EPSD) and as a result is potentially misleading and likely to cause confusion and distress in some circumstances.

Dimeticone products of the type to which he refers were introduced specifically for treatment of head louse infestation and to that end have been successful in most territories where they have been used [2, 3]. Products have different formulations and different levels of efficacy but essentially work in a similar manner by occluding the spiracles of the insect respiratory system, although the actual mechanism of action is still unclear to a degree, with differences of academic opinion [4, 5].

Where the article is misleading is in relation to the other EPSD referred to. Scabies mites, *Sarcoptes scabiei*, do not have spiracles nor do they have any form of discernible opening in the cuticle, contrary to what Prof. Feldmeier implies in his statement, "Scabies mites breathe through very small pores distributed over the body." As such there is no respiratory system per se to occlude and it is well known amongst physicians that scabies mites removed from the skin by skin scrapings and mounted in oil for diagnosis do not die for days on end. In dimeticone they have no problem surviving because dimeticone is highly oxygen permeable and so the mites simply "swim" around in the fluid if they are immersed. Furthermore, since the adult mites that are the primary target of treatment are all hidden in burrows in the epidermis, there is no direct exposure access to a dimeticone treatment. So the best that could be achieved by means of a dimeticone treatment is possibly immobilising a few larvae and nymphs in the fluid that would then be removed as the oily fluid is washed off, not much different in terms of effectiveness than having a reasonably thorough bath.

As for using dimeticone for treatment of tungiasis, Prof. Feldmeier has quoted from the small study in which a certain degree of effectiveness was demonstrated [6]. However, I would advise anyone intending to use dimeticone in this way to proceed with caution because killing a large cluster of fleas all at once could have the same potentially hazardous effect as using a conventional insecticide for the same purpose. In dealing with dermal infestations, elimination of all the arthropods at one time potentially releases a large amount of immunogenic material into the body. In some cases this can lead to Jarisch-Herxheimer-like reactions, which in the developing world could prove worse than the problem being solved. Consequently, any treatment of tungiasis by this approach should be cautious and step-wise in order to avoid releasing too much antigen at one time.

Finally, I believe it important to raise one point not addressed by Prof. Feldmeier. I am often asked about the use of dimeticone products to kill ticks attached to the skin. These large arachnids can be killed by dimeticone in much the same way as insects like lice, by occlusion of their large spiracles. However, this poses many risks be-

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cause ticks treated in this way undergo stressful contractions of the gut, which can result in regurgitation of ingested blood, and also trigger increased production of coxal fluid, both of which can increase the risk of transmission of pathogenic microorganisms from the tick to the host. It is far more efficient and safer to physically remove the tick using an appropriate device or by means of finger and thumb.

In conclusion, therefore, dimeticone-based products do have potential for use in the treatment of EPSD, but this is necessarily limited by the fact that some organisms do not respond to the treatment and for others there is a balance of benefits and harms to consider. Additionally, the relatively high cost of silicones in general would probably limit or preclude the mass use of dimeticone and other similar compounds in most local initiatives in developing communities.

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