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A non-chemical therapeutic modality for head lice

*To the Editor:* I wish to share my experience with a therapy for head lice that was not included in the recent continuing medical education article on pediculosis.

As a dermatologist, but also as a parent, I have not been particularly impressed with the efficacy of available chemical pediculicides in the treatment of head lice. A few years ago I was faced with treatment failure from different pediculicides including permethrin 1% and multiple different formulations of pyrethrin and piperonyl butoxide (including R&C, A-200, RID, and Clear Lice System) for my two young daughters. Treatment directions had been assiduously followed, including appropriate re-treatment, but the lice persisted. I assumed I was confronted with therapeutic resistance because re-infestation was unlikely for a few reasons. My children were on vacation, all of their stuffed animals, brushes, and headbands were placed in a sealed bag for more than 2 weeks, every inch of things that could be vacuumed was vacuumed, all linens and bedcovers were thoroughly and repeatedly washed/dry cleaned, and all family members were treated. The children were upset because they not only couldn't have their favorite stuffed animals, they hated the odors of the various pediculicides and found metal nit combing painful on their thick-haired heads. In addition, my wife began doubting my therapeutic abilities and sent me back to the drug store for "something that works." While looking for some other company's version of an "effective" pediculicide, I chanced upon what has now become my treatment of choice for head lice—the LiceGuard Robi-Comb (ARR Health Technologies, Mass). The Robi-Comb is a fine-toothed metal comb that is connected to a single AA battery. The comb is used on dry hair and once it is turned on it emits a high-pitched humming sound. When the insulated teeth of the comb make contact with a louse, the humming sound stops indicating that a small electrical charge has been issued and the louse has been killed. (The manufacturer warns in their instruction booklet that individuals with "epilepsy or seizure disorders, heart disease, or persons with a pacemaker or other neurostimulator" should not use their product.) The dead louse is brushed away with an included small fine-bristle brush and then combing may be resumed. Treatment takes anywhere from 5 to 10 minutes and is done daily for 2 weeks to destroy all newly hatched lice. The instructions recommend using the comb thereafter 2 or 3 times a week for an additional month to prevent re-infestation. This product's effectiveness depends on killing the lice while they are sexually immature and takes advantage of the louse life cycle. A sexually mature louse can lay approximately 50 to 150 eggs in its lifetime. Those eggs are housed within nits and hatch in 5 to 9 days. The resultant nymphs undergo 3 molts over a period of about 7 days in order to achieve sexual maturity. This nymphal stage is the therapeutic target of the Robi-Comb because recently hatched lice are incapable of laying eggs.

This non-chemical therapeutic modality is not only painless and odorless, it has also been efficacious each of the 6 times that I have used it. Furthermore, therapeutic resistance does not seem to be a consideration because the mechanism of action is fundamentally electrocution.

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