Is oral ivermectin as effective as topical malathion in the treatment of pediatric pediculosis capitis?

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Pediculosis capitis (head lice) is prevalent worldwide and typically affects children 3 to 11 years of age. While infestation produces little risk to the child, the diagnosis of head lice causes considerable anxiety among parents and school officials. While a number of products are available to treat head lice, treatment decisions should be based on patient age, safety, efficacy, ease of product use and alternative regimens should be considered in cases of treatment failure.

The OTC 1% permethrin or pyrethrin combined with piperonyl butoxide (contraindicated in those allergic to chrysanthemums or ragweed), both of which appear to be safe, and have been the mainstay of treatment for many years, but treatment failure due to drug resistance has been increasing. Topical 0.5% malathion, which is ovidical, is effective; however, this product is toxic if ingested and is flammable (treated hair should not be exposed to hair dryers or curling irons). It should not be used in those <2 years of age. Topical 0.5% ivermectin can be used in a single application, is effective and a shampoo form was recently approved by the FDA for those ≥6 months of age. The current AAP guideline\(^1\) also outlines use of benzyl alcohol products (>6 months) and spinosad suspension (>4 years). The efficacy of occlusive dressings has not been proven.

Oral ivermectin is recognized as an alternative treatment option for children weighing more than 15 kg, but the current guideline cautions providers to discuss use of this systemic pediculicide with parents as it has not yet been approved by the FDA. Three studies, published in 2010, compared standard treatment of head lice with oral ivermectin. Chosidow et al\(^2\) treated patients 3-11 years old who had failed topical therapy in the six weeks prior to enrollment. Of 811 subjects, eradication of head lice on day 15 was seen in 378/397 (95.2 percent) treated with 400 mcg/kg of ivermectin compared to 352/414 (85.0 percent) treated with 0.5 % malathion. Using a per-protocol analysis, 97.1 percent of patients in the ivermectin group were lice-free on day 15, compared with 89.8 percent of the malathion group (P=0.002). The authors conclude
that ivermectin could be used as alternative therapy in difficult to treat head lice infections.

Nofal et al\(^3\), in a study conducted in Egypt, randomized 80 patients to receive either 200 mcg/kg of ivermectin or 0.5% malathion. Eradication of head lice was seen in 77 percent of ivermectin treated and 87 percent of malathion treated patients after one dose of therapy and up to 92 percent and 95 percent respectively, after a second dose for non-responders. Bias for this study was difficult to judge due to incomplete reporting of randomization process, blinding and description of patients requiring a second dose.

The third study, a pilot study by Currie et al\(^4\), looking at the use of oral ivermectin to reduce head lice in a school setting, used 200 mcg/kg dose of ivermectin, but compared this to a parent-chosen treatment such as conditioner and combing, permethrin, malathion, etc. With only 40 total subjects, but no adverse events, the authors conclude that oral ivermectin is a feasible approach to reduce infestation rates, but a larger study is needed and planned.

**Conclusion:** Given the available evidence, it appears that oral ivermectin is an effective treatment choice for resistant pediculosis capitis. However, the evidence does not support significant benefit over topical 0.5% malathion. In cases of documented head lice resistant to therapy including malathion, oral ivermectin can be considered following discussion with the family. Weight-based dosing to provide the 200 mcg/kg dose is listed in a table in [Lexi-Comp’s Pediatric Dosage Handbook](#).

Remember that additional control measures (i.e. treatment of family pets, special handling of hair gear and environmental insecticide sprays) are not necessary. Children with head lice should not be sent home from school and “no-nit” policies have not been found to be effective.

Full literature appraisal as compiled by The Office of Evidence Based Medicine, Jacqueline Bartlett, RN, PhD, Evidence Based Practice Program Manager, and the Evidence Based Research Scholars, is available at [www.childrensmercy.org/cpg](http://www.childrensmercy.org/cpg).

**References:**