

Spinosad (Natroba) for Head Lice

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STEPS new drug reviews cover Safety, Tolerability, Effectiveness, Price, and Simplicity. Each independent review is provided by authors who have no financial association with the drug manufacturer.

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Spinosad (Natroba) is a prescription topical pediculicide labeled for the treatment of head lice in patients four years and older.¹ In addition to its pediculicidal activity, spinosad has also been shown to have ovicidal activity.² Unrelated to other insecticides, spinosad is produced by a bacterium, *Saccharopolyspora spinosa*.^{1,2} Although it is neurotoxic to lice, it does not seem to have a similar effect on humans or animals.

Drug	Dosage	Dose form	Cost of full course*
Spinosad (Natroba)	One treatment (if warranted, a second treatment may be used seven days later)	Topical suspension (0.9% strength, 120 mL per bottle)	\$147

*—Estimated retail price of one treatment based on information obtained at <http://www.lowestmed.com> (accessed May 2, 2013).

SAFETY

Spinosad does not have any major adverse effects because topical application does not result in systemic exposure.¹ Unlike lindane, spinosad has not been shown to cause neurologic toxicities, such as seizures and death. Additionally, spinosad does not have the potential to cause cholinergic symptoms or adverse effects from systemic alcohol absorption that are associated with malathion (Ovide) therapy.

However, spinosad does contain benzyl alcohol in its formulation. Benzyl alcohol has been linked to serious adverse effects and death when used as a bacteriostatic preservative in intravenous fluids administered to newborns. For this reason, the manufacturer recommends avoiding spinosad in children younger than six months. Furthermore, breastfeeding mothers who are being treated with spinosad should not use breast milk that is produced during the eight hours following treatment. Spinosad is a U.S. Food and Drug Administration pregnancy category B drug.¹

TOLERABILITY

Spinosad is generally well tolerated. The most common adverse effects are erythema at the site of application (3.1%), ocular hyperemia (2.2%), and irritation at the site of application (0.9%).^{1,2}

EFFECTIVENESS

Published data regarding the effectiveness of spinosad are limited. In a study involving 120 children two years and older, 86.1% of patients in the spinosad treatment group were free of live lice 14 days after a single treatment vs. 25.6% of patients who were given placebo (number needed to treat = 2).³ The authors of two studies with a total of 1,038 participants six months and older randomized patients to receive one treatment of spinosad 0.9% crème rinse without nit combing or permethrin 1% crème rinse (Nix) with combing at baseline. If live lice were present at day 7, patients received an additional application.² Those treated with spinosad were more likely to be lice-free two weeks after the final dose than patients ►

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treated with permethrin (86% vs. 44%, respectively; $P < .001$).² A single treatment was adequate for most patients treated with spinosad (74%), but not for those treated with permethrin (38%).² Spinosad has not been compared with pyrethrins 0.33%/piperonyl butoxide 4% shampoo or mousse (Rid), malathion, lindane, benzyl alcohol, or ivermectin.

PRICE

One treatment (a 120-mL bottle) of spinosad will cost patients approximately \$147.⁴ Nonprescription options, such as permethrin or pyrethrins/piperonyl butoxide shampoo, cost between \$14 and \$20 for two treatments.

SIMPLICITY

Treatment of head lice involves applying up to one bottle of spinosad to sufficiently cover the scalp and hair, and leaving it on for 10 minutes before rinsing off completely.¹ Nit combing is not necessary. A second treatment should occur if live lice (not simply nits) are present seven days later.

Bottom Line

Spinosad is safe and effective for the treatment of head lice; most patients will be lice-free after a single treatment. Nit combing following treatment is not necessary. These benefits must be weighed against its prescription-only status and higher cost compared with nonprescription treatments. Spinosad should be considered as an alternative if nonprescription treatments are not effective or otherwise cannot be used.

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