



Q/ What is the most effective treatment for scabies?

EVIDENCE-BASED ANSWER

A/ **TOPICAL PERMETHRIN** is the most effective treatment for classic scabies (strength of recommendation [SOR]: **A**, meta-analyses with consistent results).

Topical lindane and crotamiton are inferior to permethrin but appear equivalent to each other and benzyl benzoate, sulfur, and natural synergized pyrethrins (SOR: **B**, limited randomized trials).

Although not as effective as topical permethrin, oral ivermectin is an effective treatment compared with placebo (SOR: **B**, a single small randomized trial).

Oral ivermectin may reduce the prevalence of scabies at one year in populations with endemic disease more than topical permethrin (SOR: **B**, a single randomized trial).

Evidence summary

A 2007 Cochrane review on scabies treatment identified 11 trials that evaluated permethrin for treating scabies.¹ In 2 trials, 140 patients were randomized to receive either 200 mcg/kg of oral ivermectin or overnight application of 5% topical permethrin. Topical permethrin was superior to oral ivermectin with failure rates at 2 weeks of 8% and 39%, respectively (number needed to treat [NNT]=4; risk ratio [RR]=4.61; 95% confidence interval [CI], 2.07-10.26).

Two trials compared 5% topical permethrin with 10% topical crotamiton in 194 patients with follow-up at 28 days. Permethrin was superior to crotamiton with failure rates of 6% and 26%, respectively (NNT=6; RR=0.24; 95% CI, 0.10-0.55).

Five trials with 753 patients compared topical permethrin, 2.5% to 3.5%, with topical 1% lindane, but heterogeneity precluded pooling all the studies. In the 3 studies (554 patients) that were comparable, topical 3.5% permethrin was superior to lindane after a single application of each with failure rates of 9% and 15%, respectively (NNT=17; RR=0.59; 95% CI, 0.37-0.95).

Two trials that compared permethrin with topical benzyl benzoate (53 patients) and natural synergized pyrethrins (40 pa-

tients) showed no difference in treatment failures, but the trials were small and lacked sufficient statistical power.

Four additional studies included in the review compared crotamiton with lindane (100 patients), lindane with sulfur (68 patients), benzyl benzoate with sulfur (158 patients), and benzyl benzoate with natural synergized pyrethrins (240 patients). None demonstrated superiority, but all were small studies.¹ A single small trial of 55 patients that compared oral ivermectin 200 mcg/kg with placebo showed failure rates at one week of 21% and 85%, respectively (NNT=2; RR=0.24; 95% CI, 0.12-0.51).¹

Topical permethrin vs oral ivermectin

A 2014 systematic review of 5 studies included 2 new studies done after the 2007 Cochrane review.² The new RCTs compared a single application of 5% topical permethrin with a single dose or 2 doses of oral ivermectin given 2 weeks apart. No statistically significant differences were found in these studies.² Both underpowered studies favored topical permethrin, however.

The *P* value was .42 in one study of 242 adults and children, and this trial showed a clinical cure rate at 2 weeks of 93% us-

Jonathon J. Campbell, MD; Christopher P. Paulson, MD, FAAFP
United States Air Force Eglin Family Medicine Residency, Fla
Joan Nashelsky, MLS
University of Iowa, Iowa City

DEPUTY EDITOR

Rick Guthmann, MD, MPH
Advocate Illinois Masonic Family Medicine Residency, Chicago

➤ **The CDC and the *European Guideline for the Management of Scabies* both recommend topical permethrin as first-line therapy for classical scabies.**

ing topical permethrin vs 86% using oral ivermectin.²

The other study of 120 adults and children didn't report a *P* value or identify statistically significant differences between topical permethrin and oral ivermectin.² This study reported a clinical cure rate of 87% with topical permethrin, 78% with a single dose of oral ivermectin, and 67% with 2 doses of oral ivermectin 2 weeks apart.²

Ivermectin may control endemic scabies better than permethrin

A 2015 randomized controlled trial with 2051 patients compared mass treatments in a scabies-endemic population in Fiji.³ The trial had 3 arms: a standard-care group treated with 5% topical permethrin if symptoms were present and retreated at 2 weeks if symptoms persisted; a permethrin group in which all participants, whether infected or not, received 5% permethrin followed by a second dose at 7 to 14 days if symptoms persisted; and an oral ivermectin group in which participants were treated with 200 mcg/kg, repeated in 7 to 14 days for those with baseline scabies.

At 12 months, the relative risk reductions were 94% (95% CI, 83%-100%) for the ivermectin group, 62% (95% CI, 49%-75%) for the permethrin group, and 49% (95% CI, 37%-60%) for the standard-care group.³ The study had multiple limitations, and all groups were per-

mitted to receive standard care at any time during the 12-month follow-up period. Nevertheless, the findings suggest that endemic scabies control with ivermectin may be superior to topical permethrin.

Recommendations

The Centers for Disease Control and Prevention (CDC)⁴ and the *European Guideline for the Management of Scabies*⁵ both recommend topical permethrin as first-line therapy for classical scabies and note that oral ivermectin may be safe and effective but isn't licensed for scabies treatment in most countries. Ivermectin isn't approved by the United States Food and Drug Administration for treating scabies.

The CDC recommendations note that the safety of ivermectin in children weighing less than 15 kg and pregnant women hasn't been established.⁴

JFP

References

1. Strong M, Johnstone P. Interventions for treating scabies. *Cochrane Database Syst Rev*. 2007;(3):CD000320.
2. Johnstone P, Strong M. Scabies. *BMJ Clinical Evidence*. 2014;1707.
3. Romani L, Whitfeld MJ, Koroivueta J, et al. Mass drug administration for scabies control in a population with endemic disease. *N Engl J Med*. 2015;373:2305-2313.
4. Centers for Disease Control and Prevention. Scabies. Treatment. Available at: www.cdc.gov/parasites/scabies/health_professionals/meds.html. Accessed February 26, 2016.
5. Scott G, Chosidow O. European guideline for the management of scabies, 2010. *Int J STD AIDS*. 2011;22:301-303.