

# Combined permethrin (PER) and trimethoprim/sulfamethoxazole (TMP/SMX) was better than PER alone but not better than TMP/SMX alone for treating head lice infestation in children

Hipolito RB, Mallorca FG, Zumiga-Macaraig ZO, et al. *Head lice infestation: single drug versus combination therapy with one percent permethrin and trimethoprim/sulfamethoxazole. Pediatrics* 2001 Mar;107:E30.

**QUESTION:** Is combined permethrin (PER) and trimethoprim/sulfamethoxazole (TMP/SMX) better than either PER or TMP/SMX alone for treating head lice infestation (HLI)?

## Design

Randomised (unclear allocation concealment), blinded (unclear), controlled trial with 4 weeks of follow up.

## Setting

3 private paediatric and family practices in San Joaquin County, California, USA.

## Patients

115 children who were 2–13 years of age (70% girls) and had HLI (confirmed by inspection of scalp and hair for the presence of adult lice and nymphal stage or eggs). Children with hypersensitivity to TMP/SMX or 1% PER, or a history of parental non-compliance or neglect were excluded. 97% of children completed follow up.

## Intervention

For all groups, parents were instructed to wash the child's hair with regular shampoo, rinse with water, and then comb thoroughly using a LiceMeister or fine toothed comb. 39 children were allocated to 1% PER creme rinse, which was applied to the scalp and hair for 10 minutes, rinsed with water before combing, and repeated at 1 week if HLI was still evident. 36 children were allocated to TMP/SMX, 10 mg/kg per day for 10 days. 40 children were allocated to combined 1% PER and TMP/SMX. Parents were asked to comb the child's hair using as many strokes as they could during the course of treatment.

## Main outcome measure

Incidence of HLI.

## Main results

Combined PER and TMP/SMX was better than PER alone (table) but was not better than TMP/SMX for reducing HLI at 2 weeks (5.0% v 16.7%, {p = 0.10}\*) and 4 weeks (7.5% v 22.2%, {p = 0.07}\*). PER alone was not better than TMP/SMX at 2 weeks (20.5% v 16.7%, {p = 0.67}\*) and 4 weeks (28.2% v 22.2%, {p = 0.55}\*). No major adverse events were reported, but 3 children with an allergic appearing rash from TMP/SMX use were excluded from the analysis. Children with mild scalp irritation (n = 3) from 1% PER use, or transient pruritis (n = 9) or nausea and vomiting (n = 3) from TMP/SMX use were not excluded.

## Conclusions

Combined permethrin (PER) and trimethoprim/sulfamethoxazole (TMP/SMX) was better than PER alone but was not better than TMP/SMX alone for reducing head lice infestation at 2 and 4 weeks. PER was not better than TMP/SMX.

\*p Values calculated from data in article.

## COMMENTARY

For the previous 30 years, HLI has been the most widespread and frustrating school health problem.<sup>1</sup> The study by Hipolito *et al* cites evidence that this problem is now even more difficult to contain because lice have become resistant to the more common antipediculosis medications. Recognising that some methods to treat resistant lice are dangerous (eg, kerosene) or have not been documented in clinical trials to be effective or safe for children, the authors designed this study to investigate a combined drug treatment to be used when lice are resistant to first line treatments.

Although the findings indicate that the combined drug treatment is effective, the setting and patient selection criteria may limit our ability to generalise results to all school aged children. The patients were recruited from private paediatric and family practices and children with a history of parental non-compliance were excluded from the study. Therefore, the effect of cost (1 of the drugs is prescription) and ease of use on parental compliance with the combined treatment might be the focus of future research.

The results are especially relevant to public health nurses, school nurses, and paediatric nurse practitioners. Because the authors specifically recommend that the combined treatment not be used as the first treatment choice, it is essential that nurses assess whether initial treatment failure is related to motivational non-compliance, misunderstood directions (eg, language barrier or illiteracy), or resistant lice. This assessment and subsequent interventions may require collaboration between the public health nurse and the nurse practitioner or family doctor. In addition, the authors caution that there are potential side effects, especially from TMP/SMX. Therefore, nurses need to monitor children receiving the combined treatment for allergic or toxic reactions.

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Source of funding: not stated.

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1 Newton J, Adams R, Marcontel M. *The new school health handbook: a ready reference for school nurses and educators*. Third edition. Paramus, NJ: Prentice Hall, 1997.

Combined 1% permethrin creme rinse (PER) and trimethoprim/sulfamethoxazole (TMP/SMX) v PER alone for head lice infestation (HLI) in children†

| Outcomes       | Combined | PER   | RRR (95% CI)   | NNT (CI)     |
|----------------|----------|-------|----------------|--------------|
| HLI at 2 weeks | 5.0%     | 20.5% | 76% (6 to 94)  | 7 (4 to 117) |
| HLI at 4 weeks | 7.5%     | 28.2% | 73% (20 to 92) | 5 (3 to 25)  |

†Abbreviations defined in glossary; RRR, NNT, and CI calculated from data in article.