

How should head lice be treated in a breastfeeding mother?

Prepared by UK Medicines Information (UKMi) pharmacists for NHS healthcare professionals
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Summary

- ◆ Wet combing or dimeticone may be used to treat head lice in breastfeeding mothers. Malathion may be used as an alternative if a traditional insecticide is required in the case of treatment failure.
- ◆ No studies on the passage of any of the parasitocidal agents used to treat head lice into human breast milk following topical application have been located.
- ◆ Wet combing has achieved cure rates of up to 57% after 14 days. It is very time consuming, but may be preferred by people wishing to avoid using chemicals.
- ◆ Dimeticone has a physical action, coating the lice and disrupting their ability to manage water. There is very little or no absorption of dimeticone through the skin.
- ◆ Absorption of malathion through the skin is low, which one study showed was insufficient to have any systemic effect.
- ◆ Theoretical considerations would indicate that the amount of malathion passing into milk after topical application would be too low to present a hazard to the breastfeeding infant.
- ◆ Other preparations (isopropyl myristate/cyclomethicone or isopropyl myristate/isopropyl alcohol) are not contra-indicated during breastfeeding, but use should be with caution and only after other treatment options have failed.

Background

Head lice are bloodsucking, wingless insects (*Pediculus humanus capitis*) that live on the hairs of the head and feed on the scalp. Individuals usually present with less than 20 adult lice on the scalp but up to 5% of patients can have more than 100 on presentation (1).

People with head lice only require treatment if active infestation has been confirmed by isolating one or more live lice. All affected members of a household should be treated at the same time (2).

The British National Formulary (BNF) states that head lice should be treated using lotion or liquid formulations. Shampoos are diluted too much in use to be effective (3). Dimeticone is effective against head lice and acts on the surface of the organism. It is less active against eggs and treatment should be repeated after 7 days. Malathion, an organophosphorus insecticide, is an alternative, but resistance has been reported (3). Permethrin is active against head lice but the formulation and licensed methods of application of the current products make them unsuitable for the treatment of head lice (3).

The NHS Clinical Knowledge Summaries (CKS) recommend the use of dimeticone, wet combing, isopropyl myristate and cyclomethicone solution, isopropyl myristate and isopropyl alcohol aerosol, or malathion 0.5% aqueous liquid for the treatment of head lice (4).

Answer

Wet Combing

Fine toothed combs are designed to remove head lice and their eggs; examples are the combs used in the Bug Buster[®] pack which are intended for use in wet combing with normal conditioner. Several clinical studies on systemic louse removal using the Bug Buster[®] kit have found cure rates of up to 57% after 14 days (2). However, the regimen is time consuming. For example, a treatment session may take around 20-30 minutes and needs to be repeated four times over a 2 week period (4).

Dimeticone

A wide range of dimeticone-containing products for the treatment of head lice are available, some of which are classified as medical devices.

Dimeticone is generally regarded as a relatively nontoxic and nonirritant material. In pharmaceutical formulations it may be used in oral and topical preparations. Dimeticones are also used extensively in cosmetic formulations and in certain food applications (5).

Solutions containing 4 to 95% dimeticone are used in the treatment of head lice, and act by physically coating the lice and disrupting their water management by preventing excretion of water (3,6). Recent data on dimeticone 4% showed similar efficacy to previously published studies, of around 70% cure rate. No resistance towards dimeticone has been documented (2). Dimeticone is likely to be less irritant than other chemical treatments and it is not absorbed through the skin (7).

Since dimeticone is not absorbed orally or through the skin, excretion into breast milk, or absorption by the breast fed infant is highly unlikely. It is considered to be safe and compatible with breast feeding.

No studies on the passage of dimethicone into human breast milk could be located.

Malathion

Derbac M Liquid[®] (malathion 0.5%) is licensed for the eradication of head lice, pubic lice and their eggs and for the treatment of scabies. The SPC for Derbac M Liquid states that there are no known effects in pregnancy and lactation. However, as with all medicines, caution with use is advised (8).

Absorption of malathion through the skin is limited. In vitro studies in isolated skin suggest the percutaneous absorption of malathion from a topically applied aqueous ethanolic solution to be approximately 10% (9). Similarly in a study of human volunteers, approximately 4% of the dose applied to the skin was absorbed and this proportion did not change with repeated daily application to the same site for 8 days (10).

Malathion is hydrolysed and detoxified by plasma carboxylesterases much more rapidly in humans than in insects, giving rise to selective toxicity and a low potential for toxicity in humans (11,12).

A small, open study investigated the safety of four malathion head lice preparations by applying a dose to the scalp. Only small amounts of malathion were absorbed which were insufficient to have any systemic effect. This was irrespective of single or repeat dose treatment, or whether applied to damaged or intact skin (13).

Isopropyl myristate/cyclomethicone (Full Marks Solution[®])

Full Marks Solution[®] is classified as a medical device. The manufacturer states that as the product has not been tested on pregnant or breastfeeding women they are unable to advise if it will be suitable or not (14).

Isopropyl myristate is absorbed fairly readily by the skin and is used as a basis for relatively nongreasy emollient ointments and creams. It is widely used in cosmetics and topical pharmaceutical formulations, and is generally regarded as a nontoxic and nonirritant material. Therapeutically, isopropyl myristate 50% has been shown to be an effective pediculicide for the control of head lice (5).

Cyclomethicone is generally regarded as a relatively nontoxic and nonirritant material. Although it has been used in oral pharmaceutical applications, cyclomethicone is mainly used in topical pharmaceutical formulations. It is also widely used in cosmetics. Studies of the animal and human toxicology of cyclomethicone suggest that it is nonirritant and not absorbed through the skin (5).

No studies on the passage of isopropyl myristate or cyclomethicone into human breast milk could be located.

Isopropyl myristate/isopropyl alcohol (Vamousse®)

Vamousse® is classified as a medical device. The manufacturers are unable to advise if it is suitable to use during pregnancy or breastfeeding (15)

Isopropyl alcohol is widely used in cosmetics and topical pharmaceutical formulations (5) It may be slowly absorbed through intact skin, and prolonged direct exposure to the skin may result in systemic adverse effects (5).

No studies on the passage of isopropyl alcohol into human breast milk could be located.

Limitations

There is very limited clinical data on the use of pediculocides in human lactation. Where studies have documented the passage of these agents into breast milk, it has been in the context of aerial insecticide sprays or powders used in gardening.

The above information applies to maternal monotherapy and a full-term, fit and healthy infant only. Should the infant be premature, unwell, or the mother taking multiple medications, an individual risk assessment is required. Please contact the UK Drugs in Lactation Advisory Service for advice on 0116 258 6491/0121 424 7298 or ukdilas.enquiries@nhs.net.

References

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Search Strategy

- Embase
[lactation or breast feeding or breast milk] + [louse or pediculosis]
[lactation or breast feeding or breast milk] + [dimeticone]
[lactation or breast feeding or breast milk] + [malathion]
[lactation or breast feeding or breast milk] + [myristic acid isopropyl ester]
[lactation or breast feeding or breast milk] + [cyclomethicone]
[lactation or breast feeding or breast milk] + [2 propanol or isopropyl alcohol]
- Medline
[milk,human or breast feeding or lactation] + [pediculus or lice or lice infestations]
[milk,human or breast feeding or lactation] + [malathion]
[milk,human or breast feeding or lactation] + [pyrethins]
[milk,human or breast feeding or lactation] + [dimeticone or silicones]
[milk,human or breast feeding or lactation] + [myristic acids]
[milk,human or breast feeding or lactation] + [2-propanol]
- Medical Information, Reckitt Benkiser. Email communication 11/02/2020.
Customer Services, Ceuta Healthcare. Email communication 06/02/2020
- UKDILAS In-house database/resources



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