Review: topical mupirocin or fusidic acid may be more effective than oral antibiotics for limited non-bullous impetigo

Koning S, Verhagen AP, van Suijlekom-Smit LW, *et al*. Interventions for impetigo. *Cochrane Database Syst Rev* 2004;(2):CD003261.

Clinical impact ratings Dermatology ★★★★★★☆ GP/FP/Primary care ★★★★★☆☆

Q Which treatments are effective for impetigo?

METHODS

Data sources: Cochrane Skin Group Specialised Trials Register (March 2002), Cochrane Central Register of Controlled Trials (Issue 1, 2002), National Research Register (2002), Medline (1966 to January 2003), EMBASE/Excerpta Medica (1980 to March 2000), LILACS (November 2001), and *meta*Register of Controlled Trials on the Current Controlled Trials website; hand searches of *Yearbook of Dermatology* (1938–66) and *Yearbook of Drug Therapy* (1949–66); reference lists; and contact with trial authors and pharmaceutical companies.

Study selection and assessment: published and unpublished randomised controlled trials (RCTs) in any language that assessed any intervention for impetigo (non-bullous, bullous, secondary, and impetiginised dermatoses) in patients with diagnosed impetigo, preferably confirmed by bacterial culture; studies that assessed patients with broadly defined bacterial skin infections or pyoderma were included if results for patients with impetigo were reported separately. 2 independent reviewers assessed the methodological quality of individual trials.

Outcome: clinical cure or improvement (eg, clearance of crusts, blisters, and redness) assessed by investigators at 1 week after initiation of treatment.

MAIN RESULTS

57 trials (3533 evaluable patients) met the selection criteria. 38 different treatments (20 oral and 18 topical) were assessed. 12 of 57 trials were assessed as good quality (scores of ⩾50% on both quality scales).

Non-bullous impetigo. Data were sparse. *Topical antibiotics* (fucidic acid and mupirocin) had better cure rates than placebo, oral erythromycin, and disinfecting agents (table). No single topical antibiotic was superior to any other. *Oral antibiotics.* Oral penicillin did not differ from placebo (1 study). Several single studies compared different oral antibiotics, and significant differences in cure rates were found for the following: cefuroxim *v* erythromycin (1 trial); erythromycin *v* penicillin (2 trials); amoxicillin plus clavulanic acid *v* amoxicillin alone (1 trial); cloxacillin *v* penicillin (2 trials). *Disinfecting treatments* (hexachlorophene) did not differ from placebo or oral antibiotics (penicillin) (1 trial).

Bullous impetigo. *Topical antibiotics* (neomycin/bacitracin or chloramphenicol) had lower cure rates than oral antibiotics (erythromycin) (1 trial). A comparison of different topical antibiotics found that fusidic acid had higher cure rates than neomycin/bacitracin or chloramphenicol (1 trial). A comparison of 2 oral antibiotics (cephalexin *v* dicloxacillin) found no difference in cure rates.

CONCLUSIONS

Topical antibiotics (mupirocin or fusidic acid) may be slightly more effective than oral antibiotics (erythromycin) for patients with limited, non-bullous impetigo. Disinfecting treatments are not effective.

A modified version of this abstract appears in Evidence-Based Nursing.

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Source of funding: not stated.

Topical antibiotics *v* various treatments for clinical cure (or improvement) of non-bullous impetigo at 1 week*

Comparison	Number of trials (n)	Weighted event rates	RBI (95% CI)	NNT (CI)
Topical antibiotic *v* placebo	5 (365)	58% v 21%	179% (108 to 274)	3 (3 to 4)
Topical mupirocin *v* oral erythromycin	10 (581)	91% v 85%	7% (1 to 13)	17 (9 to 100)
Topical antibiotic *v* disinfecting treatment	2 (292)	72% v 62%	15% (1 to 32)	Borderline significance

*Abbreviations defined in glossary; RBI, NNT, and CI calculated from data in article.

Commentary

Impetigo is a common skin infection. It is usually a minor illness that may be self limiting. Unless severe, it is managed in primary care. For many children, the problem (or perceived benefit!) is that it is contagious and necessitates a minimum of 2 days off school. The more visible, but often less serious, non-bullous form, which typically forms yellow crusts on exposed surfaces, is more commonly encountered.

Management guidance and high quality research have been in short supply. The updated systematic review by Koning *et al* and a recent review by George and Rubin[1] have been published in an attempt to address these deficiencies. These 2 reviews were similarly elegant and rigorous, with high concordance between chosen studies, despite minor differences in inclusion criteria. The conclusions were similar.

Mupirocin and fusidic acid appear to be the most effective topical antibiotics. They seem preferable to erythromycin in localised disease, based on both efficacy and side effects.

There are, of course, further twists! Placebo response rates are high (suggesting natural resolution). Fusidic acid is most commonly used in orthopaedics, and as bacterial resistance develops rapidly and in clusters, there is some concern about the implications for its use in orthopaedics. As mupirocin is recommended for control of methicillin resistant *Staphylococcus aureus* in the UK, increased use for impetigo could reduce its effectiveness in this important area. Flucoxacillin is listed as the first choice for widespread disease in the British National Formulary, but evidence for its use in preference to topical treatment or alternative oral antibiotics is scanty, and definitions of widespread disease are also lacking.[1] Thus, the usefulness of erythromycin or non-antibiotic disinfecting agents cannot be discounted despite their disadvantages.

Both reviews indicate that more research, properly powered and assessing a single disease, is needed. Studies should be targeted at relevant outcomes (clinical, yes, but what about length of contagiousness?) and primary care, where the action happens! In the meantime, I'll use more fusidic acid, perhaps mupirocin, and fewer oral antibiotics for localised disease.

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1 George A, Rubin G. *Br J Gen Pract* 2003;**53**:480–7.

Evid Based Med: first published as 10.1136/ebm.9.6.176 on 30 November 2004. Downloaded from http://ebm.bmj.com/ on June 16, 2021 by guest. Protected by copyright.