

Review: Topical quinolones are better than systemic antibiotics for chronic suppurative otitis media at up to 2 weeks

Macfadyen CA, Acuin JM, Gamble C. Systemic antibiotics versus topical treatments for chronically discharging ears with underlying eardrum perforations. *Cochrane Database Syst Rev.* 2006;(1):CD005608.

Clinical impact ratings: GIM/FP/GP ★★★★★☆☆ Infectious Disease ★★★★★☆☆

QUESTION

In patients with chronic suppurative otitis media (CSOM), how do systemic antibiotics compare with topical antibiotics or antiseptics for ears with chronic discharge and eardrum perforations?

METHODS

Data sources: Cochrane ENT Disorders Groups Specialised Register, Cochrane Central Register of Controlled Trials, EMBASE/Excerpta Medica, MEDLINE, 9 other databases, conference abstracts, and bibliographies of relevant studies.

Study selection and assessment: Randomized controlled trials (RCTs) in any language that compared topical and systemic treatments in patients with CSOM. Studies with steroid treatments were excluded. 9 RCTs (*n* = 833, age range 6 to 83 y) met the selection criteria but were of poor quality. Quality assessment was based on sequence generation, allocation concealment, blinding, and patient follow-up. Where possible, an intention-to-treat analysis was used.

Outcomes: Resolution of CSOM (clearing discharge) at 2 to 4 weeks and > 4 weeks. Secondary outcomes included healing of perforation, hearing improvement, and adverse events.

MAIN RESULTS

Topical quinolones were better than systemic quinolones, systemic nonquinolones, and topical chloramphenicol plus systemic nonquinolones; systemic plus topical quinolones

were better than systemic quinolones; and systemic plus topical quinolones did not differ from topical quinolones for clearing discharge at up to 2 weeks (Table). Systemic nonquinolone therapy was equivalent to topical nonquinolone therapy at 4 weeks (Table). No RCTs reported results for healing of perforation. Compared with topical quinolones, topical chloramphenicol plus systemic nonquinolones increased ototoxicity and hearing loss (Table), and this was attributed to chloramphenicol. Other adverse events were mild.

CONCLUSION

In patients with chronic suppurative otitis media, topical quinolone antibiotics are better than systemic antibiotics for clearing discharge at up to 2 weeks.

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For correspondence: Ms. C. Macfadyen, Liverpool School of Tropical Medicine, Liverpool, England, UK. E-mail carolynn@liv.ac.uk. ■

Topical vs systemic antibiotics for chronic suppurative otitis media*

Outcomes	Number of trials (n)	Follow-up	Comparisons	Weighted event rates	RRR (95% CI)	NNT (CI)
Persistent discharge	2 (152)	2 to 4 wk	Sys antibiotic vs top antiseptic	50% vs 62%	19% (-8 to 39)	Not significant
	1 (31)	4 wk	Sys NQ vs top NQ	62% vs 83%	26% (-19 to 54)	Not significant
					RRI (CI)	NNH (CI)
	2 (116)	1 to 2 wk	Sys NQ vs top quinolone	65% vs 20%	221% (88 to 449)	3 (2 to 4)
	3 (175)	1 to 2 wk	Sys quinolone vs top quinolone	48% vs 15%	218 (87 to 443)	4 (3 to 5)
	2 (90)	1 to 2 wk	Sys quinolone vs systemic + top quinolones	49% vs 18%	175% (38 to 446)	4 (3 to 8)
	2 (115)	1 to 2 wk	Sys + top quinolones vs top quinolone	16% vs 14%	17% (-52 to 186)	Not significant
	1 (89)	2 wk	Sys NQ + top chloramphenicol vs top quinolone	62% vs 23%	174% (52 to 394)	3 (2 to 5)
Ototoxicity (bone conduction)	1 (89)	2 wk	Sys NQ + top chloramphenicol vs top quinolone	44% vs 4.5%	878% (143 to 3837)	3 (2 to 5)

*Sys = systemic; top = topical; NQ = nonquinolone. Other abbreviations defined in Glossary; weighted event rates, RRR, RRI, NNT, NNH, and CI calculated from data in article using a fixed-effects model.

COMMENTARY

The review by Macfadyen and colleagues included 9 small, poor-quality RCTs. These RCTs, however, represent the best evidence available regarding treatment of CSOM with eardrum perforations. The review concludes that topical quinolone antibiotics are the treatment of choice for short-term resolution of persistent discharge and no benefit existed from combining systemic and topical treatment. It is important to note that no evidence of ototoxicity was found with topical quinolones, unlike topical chloramphenicol plus systemic nonquinolones. The longer-term outcomes of antibiotic therapy and the treatment of complicated CSOM are less clear. Patients with CSOM taking antibiotics should have regular follow-up to monitor potential adverse events and complications.

The current standard of care for CSOM includes, in addition to antibiotic drops, aural toilet and control of granulation tissue. Because the external auditory canal and areas adjacent to the middle ear may contain desquamated epithelium and exudative material, antibiotic ear drops may not be able to reach the site of infection without mechanical removal of cellular debris. The studies in the review varied considerably in their approach to aural toilet, a critical aspect in the successful treat-

ment of CSOM, and we do not know how these differences might have affected the results. Early use of antibiotic drops can also help control formation of granulation tissue in the middle ear and external auditory canal—another issue not assessed in this review. No RCT evidence exists to support the use of decongestants for CSOM.

Based on the RCT evidence in this review, primary care providers should prescribe topical quinolones for CSOM with eardrum perforations. An earlier review provides more evidence when alternative topical antibiotics were compared with topical antiseptics for CSOM (1). A referral to an ear, nose, and throat specialist should be considered for patients who have signs of mastoiditis, have persistent high fevers, or require micro-instrumentation for aural toilet or removal of granulation tissue.

Jørgen Lous, MD
University of Southern Denmark
Odense, Denmark

Reference

1. Macfadyen CA, Acuin JM, Gamble C. *Cochrane Database Syst Rev.* 2005;(4):CD004618.