HHS Public Access

Author manuscript

J Pediatr. Author manuscript; available in PMC 2024 October 01.

Published in final edited form as:

J Pediatr. 2023 October ; 261: 113320. doi:10.1016/j.jpeds.2022.12.021.

Topical antibiotics and artificial tears associated with reduced infective-conjunctivitis symptoms

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Abstract

Question—Among children with infectious conjunctivitis, what is the therapeutic efficacy of topical antibiotics, compared with placebo or no antibiotics, in conjunctival symptom-duration reduction?

Design—Randomized controlled trial (RCT) and meta-analysis (MA).

Setting—RCT: Primary health care in Oulu, Finland.

Participants—RCT: 6 months – 7 years with acute infective conjunctivitis. MA: 1 month – 18 years.

Intervention—RCT: Moxifloxacin eye drops, placebo (carboxymethylcellulose sodium – artificial tears) eye drops, or no intervention.

Outcomes—RCT: Days to clinical cure. MA: Proportion of participants with conjunctival symptoms on days 3 to 6.

Main Results—RCT: 30, 27, and 31 participants were randomized to moxifloxacin, placebo, and no intervention, respectively. Moxifloxacin, compared with no intervention, significantly reduced time to cure, 3.8 vs 5.7 days, difference, −1.9 days (95%CI, −3.7 - −0.1 days). Survival analysis demonstrated that both moxifloxacin and placebo (artificial tears) significantly shortened the time to clinical cure relative to no intervention. MA: Antibiotics reduced the proportion of participants with conjunctival symptoms on days 3 to 6, odds ratio 0.59 (95%CI, 0.39 – 0.91).

Conclusions—Topical antibiotics, and artificial tears, reduced conjunctivitis symptom duration.

Commentary

Spontaneous resolution of acute infectious conjunctivitis is a common clinical observation. Inconsistencies in the literature on the effects of antibiotic therapy on reducing severity or duration of symptoms, however, have sustained the long-term debate whether such therapy is indicated, and if so, its appropriate duration. The current trial sought to address the potential antiseptic effect of placebo when comparing treatment effects of moxifloxacin 0.5% with carboxymethylcellulose sodium (an artificial tear) by including a third group that received no treatment. Results of pair-wise comparisons revealed that placebo containing non-antiseptics may still provide therapeutic benefits by presumably reducing local pathogen

loads. As identified in a recent updated Cochrane review,[1] the main sources of heterogeneity exist in the trial design and conduct, contributing to the inconsistent evidence observed. These heterogeneities include a variety of antibiotic classes (fluoroquinolone or non-fluoroquinolone); different timepoints at which outcomes are assessed relative to duration of treatment ("end-of-therapy" or "test-of-cure"); and different analytic approaches (intention-to-treat (ITT) or modified ITT population). Quality head-to-head comparisons are needed to ensure fair assessment of clinical efficacy whether by comparing different classes of antibiotic drugs or different durations of the same treatment.

Reference

1. Chen Y, Liu S, Nurmatov U, van Schayck OCP, Kuo IC. Antibiotics versus placebo for acute bacterial conjunctivitis. Cochrane Database Syst Rev 2022.