



Emergency Medical Abstracts



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Prednisolone versus dexamethasone for croup: a randomized controlled trial

Parker CM, Cooper MN. Pediatrics. 2019;144(3):e20183772.

SUMMARY:

- Steroid treatments for croup have been shown to significantly decrease the rate of hospital admission, hospital length of stay, return visits, intubation, and ICU admission.
- This study compares what the authors call the gold standard of croup therapy—dexamethasone at 0.6 mg/kg—with low-dose dexamethasone at 0.15 mg/kg and prednisolone at 1 mg/kg.
- This was a prospective, double-blind noninferiority RCT at 2 EDs in Perth, Australia.
- The participants comprised a convenience sample of 1,231 children >6 months old with a clinical diagnosis of croup.
- Children with a known dexamethasone or prednisolone allergy, immunosuppressive disease, ongoing steroid treatment, enrollment in the same study within the previous 14 days, or high suspicion of an alternative diagnosis (eg, bacterial tracheitis) were excluded.
- The noninferiority margin was 0.5 on the croup score, which the authors note is actually a narrower margin than that traditionally used in research (and is good for a noninferiority trial).
- No significant difference was observed in croup scores between groups at 1 hour (changes from baseline of 1.05, 1.07, and 1.03), but the baseline scores were all approximately 1.5, thus indicating very mild croup.
- ED reattendance rates were low at 5.9% (dexamethasone), 8.8% (low-dose dexamethasone), and 7.5% (prednisolone); the median length of stay was 124 minutes across groups.
- Overall, the authors show noninferiority of their primary outcome(s), but there was a notable worsening in the low-dose dexamethasone group at 2 and 3 hours that still fell within the upper limit of the CI of the noninferiority margin.

PMID: [31416827](#)

EDITOR'S COMMENTARY: *This is a relatively well-done 3-arm RCT showing the noninferiority of low-dose dexamethasone and prednisolone to dexamethasone at 0.6 mg/kg in clinical improvement and revisit rates. I am a little concerned about the clinical worsening at 3 hours, and kids tend to spit a lot of it up anyway, so for now I will stick to 0.6 mg/kg as an initial dose and not stress if they don't take it all. I may also change my discharge second dose to be taken in 2 days to 0.15 mg/kg.*