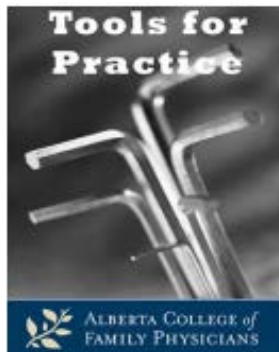


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Dexamethasone Versus Prednisone for Pediatric Asthma: Will the results take your breath away?

Clinical Question: Are 1-2 doses of dexamethasone as effective as the standard five day prednisone regimen for treatment of pediatric asthma exacerbations?

Bottom-line: Treatment of pediatric asthma exacerbations with short-course dexamethasone (0.6 mg/kg x 1-2 doses) is a safe and effective alternative to traditional five day courses of prednisone. For every ~20 children treated with dexamethasone, there will be one less vomited dose.

Evidence:

- Systematic review of six Randomized Controlled Trials (RCTs) of pediatric asthma exacerbations: 1-2 doses of oral/intramuscular dexamethasone versus daily oral prednisone x5 days.¹
 - No difference in relapse rates (visit to Emergency Department (ED), clinic, or hospitalization) at any time.
 - Dexamethasone statistically significantly reduced vomiting in ED: 1.2% versus 5.3, Number Needed to Treat (NNT)=25.
 - Also, NNT=26 vomiting at home.
 - Limitations of systematic review: Study heterogeneity (dosages and routes of administration), most RCTs small, not blinded.
 - Largest RCT in systematic review: 628 children aged 2-18 years with ED asthma exacerbation.² Oral dexamethasone 0.6 mg/kg/day x2 days versus oral prednisone 2 mg/kg/day x5 days.
 - No difference in relapse, symptom improvement or re-hospitalization at day 10.
- 2015 RCT not in systematic review: 245 children aged 2-17 years with ED asthma exacerbation.³ Single dose oral dexamethasone 0.3 mg/kg versus oral prednisolone 1 mg/kg/d x3 days.
 - No difference:
 - Primary outcome: Day four Pediatric Respiratory Assessment Measure: 0.91 versus 0.91.

- Hospital admission, length of admission, return to care, number of school or parental work days missed.
- Vomiting of first dose: 0% dexamethasone versus 5.7% prednisolone, NNT=18.

Context:

- Systemic corticosteroids (versus placebo) for asthma exacerbations within one hour of ED presentation decreases hospital admissions (NNT=8).⁴
- In a palatability study, liquid dexamethasone scored 8.2 (out of 10, higher better) versus 5.0 for liquid prednisolone.⁵
- Two studies^{6,7} report that 79-88% of caregivers prefer 1-2 day over five day courses of steroids.
- Injectable dexamethasone solution may be given orally. Elixir (0.5 mg/ml) available by prescription.^{8,9}
- The Canadian Pediatric Society lists both prednisone/prednisolone and dexamethasone as options for acute pediatric asthma exacerbations.¹⁰

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Disclosure:

Authors do not have any conflicts to disclose.

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