

# Oral prednisolone reduced exacerbation of symptoms in children with virally induced lower airway disease










Csonka P, Kaila M, Laippala P, *et al.* Oral prednisolone in the acute management of children age 6 to 35 months with viral respiratory infection-induced lower airway disease: a randomized, placebo-controlled trial. *J Pediatr* 2003;143:725–30.

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Clinical impact ratings GP/FP/Primary care ★★★★★☆ Paediatrics ★★★★★☆ Respiriology ★★★★★☆ Emergency medicine ★★★★★☆

**Q** In children 6–35 months of age with virally induced lower airway disease (VILAD), is oral prednisolone (OP) more effective than placebo for reducing exacerbation of symptoms, hospital length of stay, and duration of symptoms?

## METHODS

-  **Design:** randomised placebo controlled trial.
-  **Allocation:** concealed.\*
-  **Blinding:** blinded (participants and healthcare providers).\*
-  **Follow up period:** 14 days.
-  **Setting:** a university hospital in Tampere, Finland.
-  **Patients:** 248 children 6–35 years of age who presented to a paediatric emergency department with VILAD (acute tachypnoea, wheezing, or use of accessory respiratory muscles). Exclusion criteria included asthma, inspiratory stridor, epiglottitis, foreign body aspiration, and chronic pulmonary diseases. 230 children (mean age 17 mo, 65% boys) were included in the analysis.
-  **Intervention:** OP (2 mg/kg body weight per day) (n = 113) or placebo (n = 117) for 3 days. 61 children in the OP group and 62 in the placebo group were subsequently admitted to hospital.
-  **Outcomes:** development of severe respiratory symptoms requiring additional asthma medication, hospital length of stay, and duration of symptoms.
-  **Patient follow up:** 93%.

\*See glossary. <http://ebm.bmjournals.com/cgi/content/full/9/4/128>

## MAIN RESULTS

Analysis was by intention to treat. Among children in hospital, fewer in the OP group than in the placebo group needed additional asthma medication or were in hospital for ≥3 days (table). Among all children, duration of symptoms was shorter in the OP group than in the placebo group (p<0.001).

## CONCLUSION

In children 6–35 months of age with virally induced lower airway disease, oral prednisolone was more effective than placebo for reducing exacerbation of symptoms, hospital length of stay, and duration of symptoms.

## Commentary

The randomised controlled trial by Csonka *et al* showed some dramatic reductions in duration of symptoms and hospital stay and need for additional asthma medications in children with VILAD who received OP. A major difficulty in interpreting the study was the mixed population. Enrolling children with a previous history of wheezing and age ≤ 36 months (most of whom actually had asthma) is likely to lead to a systematic overestimate of benefits from including those known to benefit from steroids. However, subgroup analysis by history of wheezing showed that the effect of steroids may be greater in the subgroup of children without previous wheezing. This finding contradicts previous trials<sup>1</sup> as well as a meta-analysis by Patel *et al*<sup>2</sup> on steroids in this population.

Most of the endpoints are not strictly objective, including the indication for hospital admission, requirement for additional medications, and the decision to discharge. However, it is important to note that by design and definition, “need for additional medication on the ward” was determined for only a hospitalised subset, because children not admitted to hospital were not treated on the ward but discharged directly from the emergency room.

Although more adverse events were observed in the OP group than in the placebo group, the only notable one was vomiting because of the bitter taste. Long term adverse events will need to be considered in decisions regarding recurrent use of such agents in young children. These concerns will be even greater as ever younger infants with wheezing are considered for steroid courses.

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- 1 Klassen TP, Sutcliffe T, Watters LK, *et al.* Dexamethasone in salbutamol-treated inpatients with acute bronchiolitis: a randomized, controlled trial. *J Pediatr* 1997;130:191–6.
- 2 Patel H, Platt R, Lozano JM, *et al.* Glucocorticoids in hospitalised infants and young children with acute viral bronchiolitis. *Cochrane Database Syst Rev* (in press).

### Oral prednisolone (Pred) v placebo in children with virally induced lower respiratory airway disease\*

Outcomes at 14 days	Group of children	Pred	Placebo	RRR (95% CI)	NNT (CI)
Need for additional asthma medication	Hospitalised	18%	37%	51% (11 to 74)	6 (3 to 31)
Hospital stay ≥3 days	Hospitalised	48%	68%	30% (5 to 49)	5 (3 to 38)

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

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