



Cochrane
Library

Cochrane Database of Systematic Reviews

Glucocorticoids for croup (Review)

Russell KF, Liang Y, O'Gorman K, Johnson DW, Klassen TP

Russell KF, Liang Y, O'Gorman K, Johnson DW, Klassen TP.
Glucocorticoids for croup.
Cochrane Database of Systematic Reviews 2011, Issue 1. Art. No.: CD001955.
DOI: [10.1002/14651858.CD001955.pub3](https://doi.org/10.1002/14651858.CD001955.pub3).

www.cochranelibrary.com

Glucocorticoids for croup (Review)
Copyright © 2012 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

WILEY

[Intervention Review]

Glucocorticoids for croup

Kelly F Russell¹, Yuanyuan Liang², Kathleen O'Gorman¹, David W Johnson³, Terry P Klassen⁴

¹Department of Pediatrics, University of Alberta, Edmonton, Canada. ²Department of Epidemiology and Biostatistics, University of Texas Health Science Center at San Antonio, San Antonio, Texas, USA. ³Department of Pediatrics, Faculty of Medicine, University of Calgary, Alberta Children's Hospital, Calgary, Canada. ⁴Manitoba Institute of Child Health, Winnipeg, Canada

Contact address: Terry P Klassen, Manitoba Institute of Child Health, 513-715 McDermot Avenue, Winnipeg, Manitoba, MB R3E 3P4, Canada. tklassen@mich.ca.

Editorial group: Cochrane Acute Respiratory Infections Group.

Publication status and date: Edited (no change to conclusions), published in Issue 1, 2012.

Citation: Russell KF, Liang Y, O'Gorman K, Johnson DW, Klassen TP. Glucocorticoids for croup. *Cochrane Database of Systematic Reviews* 2011, Issue 1. Art. No.: CD001955. DOI: [10.1002/14651858.CD001955.pub3](https://doi.org/10.1002/14651858.CD001955.pub3).

Copyright © 2012 The Cochrane Collaboration. Published by John Wiley & Sons, Ltd.

ABSTRACT

Background

Since the initial publication of this systematic review in 1997, several randomized trials examining the benefit of glucocorticoids have been published. The objective of this review is to provide evidence to guide clinicians in their treatment of patients with croup by determining the effectiveness of glucocorticoids and to identify areas requiring future research.

Objectives

To determine the effect of glucocorticoids for children with croup.

Search methods

We searched CENTRAL (2010, Issue 3), which contains the Cochrane Acute Respiratory Infections Group's Specialized Register, MEDLINE (1966 to July week 2, 2010) and EMBASE.com (1974 to July 2010). We also contacted authors of identified croup trials published in the last 10 years to inquire about additional published or unpublished trials.

Selection criteria

Randomized controlled trials (RCTs) that examine children with croup and objectively measure the effectiveness of glucocorticoids.

Data collection and analysis

Two review authors identified studies for potential relevance based on the review of the title and abstract (when available). Two review authors independently reviewed studies for relevance using a priori inclusion criteria and assessed trial quality. Differences were resolved by consensus. One review author extracted data using a structured form and another review author checked the results for accuracy. We performed standard statistical analyses.

Main results

Thirty-eight studies were included (n = 4299). Glucocorticoids were associated with an improved Westley score (maximum 17 points) at six hours with a mean difference of -1.2 (95% confidence interval (CI) -1.6 to -0.8) and at 12 hours -1.9 (95% CI -2.4 to -1.3); at 24 hours this improvement was no longer significant (-1.3, 95% CI -2.7 to 0.2). Fewer return visits and/or (re)admissions occurred in participants treated with glucocorticoids (risk ratio (RR) 0.5; 95% CI 0.3 to 0.7). Length of time spent in accident and emergency or hospital (mean difference 12 hours, five to 19 hours) was significantly decreased for participants treated with glucocorticoids. Use of epinephrine decreased for children treated with a glucocorticoid (risk difference 10%; 95% CI 1 to 20).

Authors' conclusions

Dexamethasone and budesonide are effective in relieving the symptoms of croup as early as six hours after treatment. Fewer return visits and/or (re)admissions are required and the length of time spent in hospital is decreased. Research is required to examine the most beneficial method for disseminating croup practice guidelines and to increase the uptake of evidence.

PLAIN LANGUAGE SUMMARY**Glucocorticoids for croup**

Croup is common in children and is thought to be triggered after a viral infection. Croup causes swelling in the throat and windpipe (trachea) and causes hoarseness, a barking cough and noisy breathing. Croup usually gets better by itself but sometimes drugs are used to try and improve this condition. The review looked at trials of one type of steroid drug, glucocorticoids. Glucocorticoids can reduce the swelling and make it easier for the child to breathe. We found that glucocorticoids can start improving croup in children within six hours (14 studies, 1031 children). The effect lasts about 12 hours (eight studies, 532 children), lessens the need for other drugs, and shortens hospital stays by 12 hours (eight studies, 795 children). There were no adverse events associated with glucocorticoids. Additional studies are needed to determine the best dose of glucocorticoids.