Impact of oral corticosteroids on respiratory outcomes in acute preschool wheeze: a randomised clinical trial


SUMMARY:

- Wheezing is a common symptom among preschool-age children with viral upper respiratory infection, and the general practice has been to treat these patients similarly to older children or even adults with asthma exacerbation, by providing nebulized beta-agonists and adding steroids for moderate to severe cases.

- Several RCTs have shown that steroids are associated with a possible modest decrease in hospital length of stay. However, several recent meta-analyses, despite being difficult to interpret because of high study heterogeneity, have tended to show no benefit.

- The authors of this study believed that some of the variance in the results might have been due to largely subjective outcome assessments. Therefore, they designed the Wheeze and Steroids in Preschoolers (WASP) trial to examine respiratory distress at 24 hours, as measured by the Preschool Respiratory Assessment Measure (PRAM) score.

- This was a randomized, double-blind, placebo-controlled trial from 3 New Zealand EDs in children with acute wheeze who were 24-59 months of age.

- Patients were randomized to 3 days of 2 mg/kg oral prednisolone daily or placebo.

- Of 477 patients, primary outcome data were available for 82%. No baseline differences were found between groups: the patients were approximately 3 years of age, approximately 90% had wheezed in the past, and slightly less than one-third had asthma.

- Although at 24 hours, no difference was observed between groups in the change in PRAM score, the proportion of patients with a PRAM score of 0 was higher in the prednisolone group at both 4 and 24 hours (26.5% vs 25.4%, and 64.1% vs 53.9% respectively).

- Most of the secondary outcomes (ED length of stay, revisit rate, and condition at 7 days) were remarkably similar between groups, except for hospital admission, which was lower in the prednisolone group and had borderline statistical significance (23.5% vs 31.4%, P = .05), and the need for open-label prednisolone or IV medication, both of which were statistically significantly lower with prednisolone.

- One very interesting finding from the WASP trial was the breakdown of symptom severity at 24 hours: most children in both groups had complete resolution of symptoms, and only 2% of children in the prednisolone arm and 4.1% in the placebo arm had moderate or severe symptoms at 1 day.

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EDITOR’S COMMENTARY: In this randomized, double-blind, placebo-controlled trial from EDs in New Zealand, the authors found no benefit from steroids in terms of wheezing severity at 24 hours among kids 2-5 years of age, but did see a signal toward fewer hospitalizations and decreased escalation of care. We also learned that, regardless of treatment, the symptoms are better in 24 hours. My gut tells me that if you want to give steroids, 1 dose in the ED might be sufficient, but further studies are required to confirm what is for now just my best read of the literature.