Evidence that parent-initiated oral prednisolone for school-age child asthma exacerbation may reduce symptoms, health resource use, and school absenteeism

Brittney Terry, DO and Jenny Rose, MD

Date of Initial Appraisal: 10/14/2010

Clinical Question: In pediatric patients with acute asthma, does parent-initiated prednisolone improve outcomes as compared to placebo?

Clinical Bottom Line

1. Double blind, randomized, placebo-controlled crossover trial found that use of parent-initiated prednisolone therapy may modestly reduce asthma symptoms, health resource use, and school absenteeism.
2. Inclusion criteria: children 5-12 years of age, who had experienced 4 or more episodes of acute asthma requiring at least 24 hours of bronchodilator therapy in the preceding 12 months.
3. There is good evidence that oral corticosteroids are effective in school age children with asthma, though previous trials have not shown benefit of parent initiation.
4. Of placebo-treated group, 45% were brought to medical attention; of those, 78% required physician-initiated oral corticosteroids. This validates that parents were able to judge severity of episodes accurately.

Evidence Summary

1. Single center, population based, double blind, randomized, placebo controlled, crossover trial in which episodes of asthma (rather than participants) were randomized to treatments.
2. Conducted in Barwon region of Victoria, Australia from March 2005-May 2008. Total of 230 children; 205 identified via asthma survey, with additional 25 identified through Geelong Hospital.
3. Participants randomly assigned to one of 4 sequences of study medications, and each discrete episode of acute asthma was treated with prednisolone 1 mg/kg/day or placebo (max 8 episodes/participant).
4. Of 230 children, total of 308 asthma episodes required parent-initiated treatment with study medication.
5. Daytime symptom scores, nighttime symptom scores, and absenteeism from school or work were primary outcomes assessed.
6. Daytime symptom scores 15% lower in episodes treated with parent-initiated prednisolone, with a similar reduction in nighttime symptom score. Children missed 0.4 fewer days of school with parent-initiated prednisolone, but no difference in amount of work missed by parents.

Comments

1. Authors noted study was limited by not measuring severity of episodes or appropriateness of parents’ decisions to initiate study medications. Lung function was not assessed.
2. High dose inhaled corticosteroids are not as effective as oral corticosteroids in the management of acute asthma.²

3. From a health resource viewpoint, parent-initiated oral corticosteroids are cheap and seem to be associated with a reduction in health resource use. However, symptom benefit is modest and a relatively large number of episodes will have to be treated to prevent the need for medical review or hospital admission.

4. Detrimental effects of even short courses of oral corticosteroids may be significant, thus modest benefits of this strategy must be balanced against potential side effects of repeated courses of systemic steroids.³,⁴,⁵,⁶

5. Outcome of study is novel in that it supports use of parent-initiated oral corticosteroid treatment for acute asthma in school-aged children when compared to previous studies⁷,⁸,⁹. This difference may have resulted because prior studies included mostly pre-school age children and did not emphasize co-administration of high-dose beta-agonists (steroids up-regulate beta-receptors in the airways as an early effect) as done in this study.

References


