

FROM THE FAMILY PRACTICE INQUIRIES NETWORK

What is the best treatment for bronchiolitis?

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■ EVIDENCE-BASED ANSWER

Nebulized epinephrine decreases oxygen requirements, respiratory rate, wheezing, and retractions and may lower hospitalization rates and length of stay (Grade of Recommendation: **A**, based on consistent randomized controlled trials [RCTs] and systematic reviews). At best, other beta-2 agonists provide modest short-term improvement in mild to moderate bronchiolitis (Grade of Recommendation: **A**, consistent RCTs and systematic reviews), and may be indicated in patients with preexisting asthma. Discontinue bronchodilators if patients do not respond quickly, because the bronchodilators may cause respiratory deterioration (Grade of Recommendation: **D**, expert opinion). Supplemental oxygen for low oxygen saturation and suctioning may improve respiratory status (Grade of Recommendation: **D**, expert opinion). Chest physiotherapy (Grade of Recommendation: **D**, expert opinion), cool mist (Grade of Recommendation: **D**, expert opinion), and aerosolized saline (Grade of Recommendation: **A**, based on RCTs) are not recommended. Steroids, routine antibiotics, ribavirin, and pooled immunoglobulins play no role in previously healthy children (Grade of Recommendation: **A**, systematic review, RCT and meta-analysis). See the **Table** for a summary of therapeutic interventions for bronchiolitis.

Therapeutic interventions for bronchiolitis

| Intervention | Usefulness | Grade of recommendation | Notes |
|-----------------------|------------|-------------------------|--|
| Nebulized epinephrine | Beneficial | A | Should be discontinued promptly in the absence |

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| | | | of response |
| Beta-2 agonists | Not beneficial | A | May be useful in patients with preexisting asthma |
| Corticosteroids | Not beneficial | A | Not shown to impact clinical score or length of hospital stay |
| Supplemental oxygen, suctioning | Beneficial | D | Initiate at 91% and wean at 94% |

■ EVIDENCE SUMMARY

Most trials of bronchiolitis treatment suffer from 2 constraints: possible inclusion of patients with asthma and inconsistent outcome measures. Five trials of nebulized epinephrine, involving 225 children, have been published in the last decade. All have shown clinical improvement in measures such as respiratory rate, wheezing, retractions, hospital admission rates, and length of stay.¹

Data from other clinical trials, meta-analyses, and a comprehensive Cochrane systematic review do not support the routine use of selective beta-2 agonists. Studies with unselected patients noted some benefit, which may reflect the inclusion of asthmatic children, or the effects of suctioning in combination with inhalational therapy. Large proportions of patients admitted to hospital with bronchiolitis receive bronchodilators, and many physicians continue to advocate their use.² The cost of routine bronchodilators for children with bronchiolitis may be as high as \$37.5 million per year.²

One systematic review and 8 RCTs found conflicting evidence on the effects of corticosteroids.³ Steroid therapy, given as inhalations, intravenously, orally, or intramuscularly, does not have a consistent effect on clinical status or on length of stay.⁴

A 1997 systematic review showed that ribavirin had no significant effect on mortality or the risk of respiratory deterioration in children admitted to hospital with respiratory syncytial virus (RSV) bronchiolitis.³ In fact, cohort studies and randomized trials have shown that ribavirin use is associated with an increase in the number of days of mechanical ventilation, intensive care unit stay, and hospitalizations.⁴

Passive immunotherapy with pooled immunoglobulins remains controversial and is undergoing intense study.⁴ Three RCTs failed to show any effect on length of hospital stay, and subsequent studies of an RSV-specific humanized monoclonal antibody (palivizumab) have not shown improvements in outcome.

The evidence supporting the use of supplemental oxygen and suctioning of respiratory secretions is limited to expert opinion.⁵

■ RECOMMENDATIONS FROM OTHERS

Most pediatric infectious diseases specialists surveyed in Europe recommend bronchodilators. However, bronchodilators are seldom used to treat bronchiolitis in the United Kingdom.² The present consensus from the American Academy of Pediatrics⁶ states that ribavirin should be considered in infants with underlying congenital heart disease, lung disease, or immunosuppression, or for infants requiring mechanical ventilation.

CLINICAL COMMENTARY

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Wheezing children are usually hospitalized when they have hypoxemia, lethargy, and fatigue associated with tachypnea and decreased oral intake. Because of the difficulty in differentiating between “bronchiolitis” and a first episode of “asthma,” many wheezing children will continue to receive bronchodilators. Discontinuing bronchodilators seems prudent if oxygenation and respiratory rate do not improve after 6 hours. Supportive care with fluids, oxygen, and suctioning of secretions is usually all that is required in even moderately sick patients. As in other situations involving sick children, the temptation to intervene is overwhelming, hence the many ineffective treatments available. RSV is by far the most common viral pathogen causing bronchiolitis; effective immunization for RSV would probably markedly decrease hospitalizations from bronchiolitis.

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