

Bronchiolitis

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Bronchiolitis is the most common lower respiratory tract infection in infants. It is the leading cause of hospitalization of infants younger than age 1, and more than 80% of children hospitalized are younger than 6 months of age. Disease severity is directly related to the size and maturity of the infant. In Canada between 1980 and 2000, the rate of hospitalization for bronchiolitis increased, especially among children younger than 6 months of age. The risk of death for a healthy infant with bronchiolitis is less than 0.5%, but the risk is much higher for children with congenital heart disease (3.5%) and chronic lung disease (3.45%). Respiratory syncytial virus (RSV) is responsible for 70% of bronchiolitis; this figure rises to 80% to 100% in winter epidemics.

- Each year, 1% to 2% of children younger than 12 months of age are hospitalized for bronchiolitis. Only 1% of hospitalized children die of the illness.
- The mean duration of hospital stay is 3 to 4 days.
- Bronchiolitis occurs mainly during winter.
- The incidence of bronchiolitis is increasing.
- Around 70% of cases are due to RSV.

Clinical course and diagnosis

Bronchiolitis is a virally induced bronchiolar inflammation. Its diagnosis is purely clinical and tests are of little value. A wheezing infant is assumed to have bronchiolitis; tachypnea, expiratory wheezing, flaring of the nostrils, and intercostal chest wall retractions are typical. Mean duration of illness is approximately 10 days.

- Mean duration of illness is 10 days.
- Consider hospitalization if any of the following qualities apply to the infant:
 - premature,
 - <3 months old,
 - respiratory rate of >70 breaths/min,
 - oxygen saturation of <92%,
 - cardiopulmonary disease,
 - immunodeficient, or
 - lethargic.

Treatment

Systematic reviews conclude that there is little evidence for any drug in treating patients with bronchiolitis.

Antibiotics. As bronchiolitis is almost always caused by infection of susceptible children with RSV, antibiotics are of no use.

β -Agonists and anticholinergic therapy. Reviews conclude that β -agonists produce only a modest short-term improvement; their use has no effect on hospitalization rate. There is insufficient evidence to support the use of epinephrine for bronchiolitis. The combination of ipratropium and a β_2 -agonist produced some improvement, but there is not enough evidence to support the uncritical use of anticholinergic therapy for wheezing infants.

Corticosteroids. The evidence for beneficial effects of corticosteroids for treating bronchiolitis is weak compared with that for treating croup. Any beneficial effect is likely to be small and must be weighed against the acute adverse effects of corticosteroids. A meta-analysis (Garrison et al) suggests corticosteroids can be effective. A Cochrane Review (Patel et al) that suggested they had no benefit was subsequently withdrawn. Two studies have found that the combination of dexamethasone and salbutamol result in a swifter resolution of bronchiolitis symptoms than either agent alone.

Antiviral and immunoglobulin agents. Administration of the antiviral ribavirin compared with placebo does not reduce rates of respiratory deterioration or death. Immunoglobulin agents have been tried for children at high risk of underlying congenital heart disease or bronchopulmonary dysplasia. The incidence of hospitalization (number needed to treat = 17) and the incidence of admission to the intensive care unit (number needed to treat = 50) were halved, but there was no reduced hospital stay, duration of ventilation, or duration of treatment with supplementary oxygen. There is currently no good evidence for the use of these agents to treat moderate or severe cases of bronchiolitis.

Other therapies. Supportive therapy is the mainstay of treatment. Most children have only mild infections and recover with nursing care alone. Severely ill children require oxygen supplementation, intubation, and assisted ventilation. When confronted with an infant who has symptoms of bronchiolitis, the FP needs to assess whether or not the child is ill enough to go to hospital.

- Possible effective treatments include the following:
 - nebulized epinephrine,
 - β -agonists,
 - ipratropium,
 - corticosteroids, and
 - oxygen.
- Treatments of little value include the following:
 - ribavirin,
 - antibiotics, and
 - nursing measures.

Prophylaxis

Apart from small and limited groups of at-risk children who might benefit from passive immunoglobulins, there seems to be no effective way of preventing bronchiolitis due to RSV infection in most children. There is no effective RSV vaccine.

In severely at-risk children, immunization with RSV immunoglobulin or monoclonal antibody reduces rates of admission to hospital and intensive care. The American Academy of Pediatrics currently recommends that monoclonal antibody (palivizumab) or RSV immunoglobulin should be given to the following:

- children <2 years of age with chronic lung disease;
- preterm infants born <28 weeks;
- infants born at 29 to 32 weeks' gestation when experiencing their first RSV season; and
- infants born at 32 to 35 weeks who are attending a child care centre, have school-aged siblings, are exposed to environmental pollution, or have abnormalities of the airways or severe neuromuscular problems.

- Possible prophylaxis in premature and high-risk infants includes the following:
 - monoclonal antibody, and
 - RSV immunoglobulin.
- No effective RSV vaccine exists.

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Competing interests

None declared

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