Postnatal corticosteroids to treat or prevent chronic lung disease in preterm infants

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ABSTRACT

Postnatal corticosteroids have been used for prevention and treatment of neonatal chronic lung disease (CLD) (also known as bronchopulmonary dysplasia), a significant cause of mortality and morbidity in preterm infants. As both dexamethasone and hydrocortisone administration within the first seven days of life is associated with an increased risk of cerebral palsy, early postnatal corticosteroid therapy is not recommended to prevent CLD. After seven days of life, dexamethasone has been shown to decrease the rate of CLD at 36 weeks' postmenstrual age with less impact on neurodevelopmental outcome. No trials have examined whether the benefits of corticosteroids outweigh the adverse effects for infants at high risk of, or with, severe CLD. While routine dexamethasone therapy of all ventilated infants is not recommended, clinicians may consider a short course of low-dose dexamethasone for individual infants at high risk of or with severe CLD. There is no evidence that hydrocortisone is an effective or safe alternative to dexamethasone and little evidence to support routine use of inhaled corticosteroids for prevention or treatment. Inhaled corticosteroids may be considered as an alternative to dexamethasone for treating individual infants with severe CLD. This revision replaces a statement published jointly with the American Academy of Pediatrics in 2002.

Key Words: *Bronchopulmonary dysplasia; Chronic lung disease; Dexamethasone; Postnatal corticosteroids; Preterm infants*

RECOMMENDATIONS

The strength of recommendations are based on the Canadian Task Force on Preventive Health Care: <www.canadiantaskforce.ca>.

Based on available evidence:

1. Using postnatal corticosteroids – dexamethasone, hydrocortisone or inhaled corticosteroids – within the first seven days of life to prevent CLD is not recommended. (Grade A recommendation)
2. Administering high-dose dexamethasone (0.5 mg/kg/day) to prevent or treat CLD is not recommended. (Grade A recommendation)
3. The routine use of low-dose dexamethasone (0.15 mg/kg/day to 0.2 mg/kg/day) for all infants who require assisted ventilation after seven days of age to prevent or treat CLD is not recommended. (Grade A recommendation)
4. Hydrocortisone is not recommended for treating CLD. (Grade A recommendation)
5. The routine use of inhaled corticosteroids to prevent CLD is not recommended. (Grade A recommendation)
6. It is unclear whether the benefits of late dexamethasone therapy outweigh the adverse effects for infants who are at high risk of CLD or for those with prolonged ventilator-dependence. If clinicians choose, after parental agreement, to treat an infant who is ventilator-dependent, at risk of severe CLD or who has severe CLD, low-dose dexamethasone (initial dose 0.15 mg/kg/day to 0.2 mg/kg/day) should be used in tapering doses over a short course (seven to 10 days). Inhaled corticosteroids may be considered as an alternative to dexamethasone, but the most effective dose and duration of therapy is not known. (Grade C recommendation)
7. Randomized trials are needed to investigate low-dose dexamethasone treatment regimes, the treatment of infants at high risk for CLD and the impact of inhaled corticosteroids for the management of infants with CLD. It is imperative that all trials include long-term neurodevelopmental follow-up.

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