

Corticosteroids not linked with reduced risk of death for children with bacterial meningitis

Use of corticosteroids in addition to other treatment for children with bacterial meningitis is not associated with a decreased risk of death or shorter hospital stay, according to a study in the May 7 issue of JAMA.

In adults, the use of corticosteroids (synthetic steroids used to reduce inflammation) in addition to primary therapy for bacterial meningitis reduces mortality, although in children the potential benefit of steroids remains unclear, with studies yielding mixed results, according to background information in the article.

Jillian Mongelluzzo, B.A., of the Children's Hospital of Philadelphia, and colleagues conducted a study to determine the effect of adjuvant (supplemental) corticosteroid therapy on death and length of hospitalization in children with bacterial meningitis. The study included 2,780 children treated for bacterial meningitis, with data from the Pediatric Health Information System, a database containing information from 27 tertiary care children's hospitals located in 18 U.S. states and the District of Columbia. The median (midpoint) age was 9 months; 57 percent of the patients were males. *Streptococcus pneumoniae* was the most commonly identified cause of meningitis. Adjuvant corticosteroids were administered to 248 children (8.9 percent).

The overall rate of death was 4.2 percent; the cumulative rates of death were 2.2 percent and 3.1 percent at 7 days and 28 days, respectively, after admission. There were 15 deaths (6.0 percent) in children who received corticosteroids and 102 deaths (4.0 percent) in children who did not receive corticosteroids. Additional analysis indicated the difference in time to death between the two groups was not statistically significant, and that adjuvant corticosteroids were not associated with reducing the risk of death in any age category.

The overall median length of stay was 11 days, with the median length of stay for children who received corticosteroids being 12 days, and the median length of stay for the children who did not receive corticosteroids being 10 days. The unadjusted difference in time to hospital discharge was not statistically significant. Length of hospital stay, analyzed as time to hospital discharge, was not associated with the administration of adjuvant corticosteroids for any age group.

"Our study results of no difference in mortality in children who received or did not receive corticosteroid therapy may differ from results of studies of adults for several reasons. First, adults may have different predisposing factors for meningitis or a different inflammatory response, either of which may alter the course of disease compared with children. Second, the case fatality rate in pneumococcal meningitis in children is lower in comparison with the case fatality rate in adults with pneumococcal meningitis (4.2 percent vs. 34 percent, respectively). Our study could have been underpowered to determine a difference in mortality when case fatality rates are low in children with bacterial meningitis," the authors write.

"... adjuvant corticosteroid use in the treatment of bacterial meningitis appears to be increasing. A randomized trial is warranted to explore the possible benefit of adjuvant corticosteroid therapy on both morbidity and mortality in children with bacterial meningitis before such corticosteroid use becomes routine," the researchers conclude.

Source: JAMA and Archives Journals

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