PEDIATRICS

Modest effect of prophylactic antibiotics on UTI in children

Current clinical guidelines recommend that children who are at risk of recurrent urinary tract infection (UTI) should receive long-term antibiotic treatment to prevent renal damage, despite conflicting evidence from clinical trials. Jonathan Craig and colleagues, from multiple centers in Australia, now provide evidence that sustained use of low-dose trimethoprim-sulfamethoxazole is associated with a modest reduction in the incidence of UTI in predisposed children. “Since adequately powered and well-designed, placebo-controlled trials of long-term antibiotics for the prevention of UTI in children are lacking,” explain the authors, “[this] practice has been widely questioned.”

The researchers randomly assigned 576 children with previous UTI—42% of whom had vesicoureteral reflux—to receive either trimethoprim-sulfamethoxazole or placebo for

12 months. The median age at enrollment was 14 months, and 64% of patients were girls. The investigators observed a small but significant reduction in the incidence of symptomatic UTI (the study’s primary outcome) in children receiving antibiotic therapy when compared to individuals receiving placebo (13% versus 19%; hazard ratio 0.61, 95% CI 0.40–0.93). The incidence of UTI with fever (a secondary outcome) was also significantly reduced in antibiotic-treated patients (7% versus 13%). Children in the placebo group tended to be more likely than those in the antibiotic group to receive additional antibiotics for a cause other than UTI.

The researchers stress that although prophylactic antibiotics decreased the incidence of symptomatic UTI in predisposed children, the risk of symptomatic UTI caused by bacteria resistant to trimethoprim-sulfamethoxazole increased. “It

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would be reasonable for clinicians to recommend the use of trimethoprim-sulfamethoxazole in children who are at a high risk of infection,” conclude the researchers; however, “in children who had a single symptomatic UTI, prophylaxis with trimethoprim-sulfamethoxazole should be considered but not routinely recommended.”

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Original article Craig, J. C. *et al.* Antibiotic prophylaxis and recurrent urinary tract infection in children. *N. Engl. J. Med.* 361, 1748–1759 (2009)