

Antibiotic prophylaxis of symptomatic urinary tract infections in children is modestly effective in preventing recurrences

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Urinary tract infection (UTI) is a common disease, which affects up to 5% of young children; girls are affected twice as common as boys. UTI can lead to renal damage in 5% of cases, so the current medical practice is to administer long-term antibiotic prophylaxis to all children with a history of UTI, especially if they have documented vesicoureteral reflux. However, several recent clinical trials suggested that antibiotic prophylaxis did not reduce recurrence of UTI, but these trials are biased by a lack of adequate statistical power, lack of placebo control group, and other methodological issues. Therefore, the practice of antibiotic prophylaxis in children with a history of symptomatic UTI is not well supported by adequate evidence-based data.

The PRIVENT study included 576 children aged ≤ 18 years (mean age 14 months, 2 thirds were girls) with a history of at least one microbiologically confirmed symptomatic UTI, who

were randomized to receive either trimethoprim-sulfamethoxazole (2 and 10mg, respectively, per kg of body weight) or placebo. The primary outcome was recurrence of symptomatic UTI within one year. Antibiotic prophylaxis was associated with a 39% relative risk and a 6% absolute risk reduction of symptomatic recurrence of UTI (13% vs. 19%, 95% CI 0.40 – 0.93, $p = 0.02$). Thus, the number of children needed to be treated in order to prevent one episode of symptomatic UTI was 14. The efficacy of antibiotic prophylaxis was similar whether the children had or not vesicoureteral reflux.

In conclusion, antibiotic prophylaxis of symptomatic UTI in children is modestly effective, but the current practice of administering prophylaxis should continue. The question whether treatment of vesicoureteral reflux would determine additional benefit to antibiotic prophylaxis in children with UTI will be answered by the results of several ongoing clinical trials.

Comment on a paper:

Craig JC, Simpson JM, Williams GJ, Lowe A, Reynolds GJ, McTaggart SJ, Hodson EM, Carapetis JR, Cranswick NE, Smith G, Irwig LM, Caldwell PHY, Hamilton S, Roy LP, for the Prevention of Recurrent Urinary Tract Infection in Children with Vesicoureteric Reflux and Normal Renal Tracts (PRIVENT) Investigators – Antibiotic Prophylaxis and Recurrent Urinary Tract Infection in Children. *N Engl J Med* 2009;361:1748-59.