

Prophylaxis After First Febrile Urinary Tract Infection in Children? A Multicenter, Randomized, Controlled, Noninferiority Trial

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OBJECTIVES. Febrile urinary tract infections are common in children and associated with the risk for renal scarring and long-term complications. Antimicrobial prophylaxis has been used to reduce the risk for recurrence. We performed a study to determine whether no prophylaxis is similar to antimicrobial prophylaxis for 12 months in reducing the recurrence of febrile urinary tract infections in children after a first febrile urinary tract infection.

METHODS. The study was a controlled, randomized, open-label, 2-armed, noninferiority trial comparing no prophylaxis with prophylaxis (co-trimoxazole 15 mg/kg per day or coamoxiclav 15 mg/kg per day) for 12 months. A total of 338 children who were aged 2 months to <7 years and had a first episode of febrile urinary tract infection were enrolled: 309 with a confirmed pyelonephritis on a technetium 99m dimercaptosuccinic acid scan with or without reflux and 27 with a clinical pyelonephritis and reflux. The primary end point was recurrence rate of febrile urinary tract infections during 12 months. Secondary end point was the rate of renal scarring produced by recurrent urinary tract infections on technetium 99m dimercaptosuccinic acid scan after 12 months.

RESULTS. Intention-to-treat analysis showed no significant differences in the primary outcome between no prophylaxis and prophylaxis: 12 (9.45%) of 127 vs 15 (7.11%) of 211. In the subgroup of children with reflux, the recurrence of febrile urinary tract infections was 9 (19.6%) of 46 on no prophylaxis and 10 (12.1%) of 82 on prophylaxis. No significant difference was found in the secondary outcome: 2 (1.9%) of 108 on no prophylaxis versus 2 (1.1%) of 187 on prophylaxis. Bivariate analysis and Cox proportional hazard model showed that grade III reflux was a risk factor for recurrent febrile urinary tract infections. Whereas increasing age was protective, use of no prophylaxis was not a risk factor.

CONCLUSIONS. For children with or without primary nonsevere reflux, prophylaxis does not reduce the rate of recurrent febrile urinary tract infections after the first episode.