

FPIN's Help Desk Answers

Antibiotic Prophylaxis for UTIs in Patients with Neurogenic Bladder

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Clinical Question

Does antibiotic prophylaxis safely prevent urinary tract infections (UTIs) in patients with spinal cord injuries and neurogenic bladder?

Evidence-Based Answer

Daily antibiotic prophylaxis should not be used in patients with acute and nonacute spinal cord injuries. (Strength of Recommendation [SOR]: A, based on a meta-analysis of randomized controlled trials [RCTs].) It does not reduce the incidence of symptomatic UTIs and moderately increases the percentage of resistant cultures. However, in patients with frequent recurrent UTIs that significantly affect daily functioning, prophylaxis using a weekly oral cyclic antibiotic regimen may be beneficial. (SOR: C, small cohort study with historical controls.)

Evidence Summary

A 2002 meta-analysis compared the effects of antimicrobial prophylaxis on weekly UTI rates in patients 13 years and older with neurogenic bladder caused by acute (eight RCTs; N = 510) or nonacute (seven RCTs; N = 356) spinal cord injury.¹ All patients required intermittent catheterization. Several antibiotic regimens with various dosing schedules were compared with placebo. Antibiotics included oral trimethoprim-sulfamethoxazole (TMP-SMX), oral nitrofurantoin, oral methenamine (Mandelamine), oral ciprofloxacin, and bladder instillation of neomycin plus polymyxin B.

Two-thirds of the studies used TMP-SMX or nitrofurantoin for prophylaxis, which did not significantly decrease the incidence of acute symptomatic UTI compared with placebo. Of the five RCTs that evaluated for the development of antibiotic resistance, three showed a significant increase in cultures resistant to the chosen antibiotic.

A 2006 cohort study (n = 38) evaluated a weekly oral cyclic antibiotic regimen in adults with spinal cord injury who performed intermittent self-catheterization and had recurrent UTIs (more than three per year) that affected daily function.² The average age of participants was 46 years (range: 32 to 60 years), and 58% were male. Antibiotics (amoxicillin, 3,000 mg; cefixime [Suprax], 400 mg; fosfomycin [Monurol], 6,000 mg; nitrofurantoin, 300 mg; or TMP-SMX, 320 to 1,600 mg) were given once per week for at least two years. Patients alternated between two antibiotics taken for a week at a time. Each patient served as his or her own historical control, using at least two years of infection history before the initiation of weekly cyclic antibiotics. To guide the choice of antibiotic, urine culture results were obtained weekly for six weeks before initiating prophylaxis. After two years, the weekly cyclic regimen reduced the number of symptomatic UTIs per patient-year compared with the historical control (1.8 vs. 9.4; $P = .0002$). Antibiotic prophylaxis reduced the number of febrile UTIs per patient-year from 0.74 to 0.31 ($P = .04$). The total days requiring antibiotics for curative treatment decreased from 111 days per patient-year before weekly cyclic antibiotics to 14 days per patient-year during the two years of the study ($P < .0001$). There was no significant difference in drug-resistant colonization of the urine.

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References

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2. Salomon J, et al. Prevention of urinary tract infection in spinal cord-injured patients. *J Antimicrob Chemother*. 2006;57(4):784-788. ■

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