

When an Organism Causing a UTI Is Resistant to the Antibiotic Used, Can There Still be Clinical Improvement?

January 23, 2020

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Article type: [Pediatrics Blog](#)



In this era of antibiotic stewardship, there is a need to target antibiotic therapy. Yet due to the increase in antibiotic resistant organisms to our first-line strategies, we find ourselves broadening our spectrum of coverage even when starting antibiotics. With urinary tract infections (UTIs), however, the concentration of antibiotic that arrives in the bladder may exceed the minimal inhibitory concentration even when an organism might be considered to be resistant. Wang et al.

([10.1542/peds.2019-1608](#)) have explored the degree to which a resistant UTI might still be effectively treated in a retrospective study of children less than 18 years of age presenting at 5 children's hospitals with a urinary tract infection (UTI) of *E. coli* or *Klebsiella* spp. found to be resistant to ceftriaxone in vitro and yet who were treated with a first or second generation cephalosporin antibiotic. Did the use of that antibiotic, despite resistance, still eradicate the UTI? The authors found that 83.5% of the 230 patients from 6 months through 6 years experienced clinical improvement despite resistance. If repeat urines were obtained, pyuria improved in 84% and urine cultures were sterilized in 65%. Only 2.2 % of the 316 children diagnosed with UTIs had to change antibiotics due to lack of improvement.

Should we just continue to treat all children with a UTI with a narrow spectrum antibiotic even if the urine culture subsequently shows resistance to that class of antibiotics being used? We asked Drs. Tej Mattoo (nephrologist) and Basim Asmar (infectious diseases specialist) from the Children's Hospital of Michigan and Wayne State University to provide an accompanying commentary ([10.1542/peds.2019-3512](#)). Their commentary reminds us why antibiotic resistance has become more prevalent, mechanisms for why discordant antibiotics may work, how to assure that use of discordant antibiotics is effective, and perhaps most importantly, what we can do to be better stewards of antibiotics. Go with the flow of information shared in both this study and commentary to help remind you and your patients that narrower is better, and that perhaps discordant therapy is better than broader spectrum with good monitoring.

- [Randomized Trials in Children With UTI](#)

- [The Diagnosis of UTI: Concentrating on Pyuria](#)
- [Two-Step Process for ED UTI Screening in Febrile Young Children: Reducing Catheterization Rates](#)
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