

Invited Commentary on “Urinary Tract Infections in Children: the Never Ending Story” by Peco-Antić

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Urinary tract infections (UTI) create serious clinical problems resulting in significant acute morbidity among children, especially infants. There is also a risk of chronic consequences due to the development of permanent renal scars (10% to 40% of children after febrile UTI), which might result in proteinuria, hypertension and chronic kidney disease. The newest data indicate an association of single nucleotide polymorphisms of genes connected with innate immunity in some patients with recurrent acute pyelonephritis and/or renal scarring, which throw a new light on possible future UTI management (1).

During the last decade the attitude towards recognition, classification, diagnostic procedures, including imaging, management and prophylaxis, has changed. Also the recommendations vary in different countries.

It is crucial to identify children with complicated UTI, especially with existing structural and functional abnormalities of the kidneys and/or urinary tract, systemic diseases, prematurity, increased serum creatinine concentration and indwelling catheters/ or on chronic intermittent catheterization. A careful genitourinary examination is mandatory to exclude abnormalities of the urethra, genital adhesions, or local inflammation. An examination of the spine is important to rule out occult spinal lesions (2).

Peco-Antić, in a current review manuscript, discusses the most important topics of UTI's in childhood (3). The author underlines that renal and bladder ultrasound (RBUS) is necessary after the first febrile UTI, but voiding cystourethrography should be individually considered in children with risk factors and structural changes discovered by ultrasound. The promising role of contrast enhanced ultrasound voiding cystography was also mentioned. A DMSA scan, as the gold standard in recognition of renal scarring, should be performed in children with atypical or recurrent UTI, 4 to 6 months after treatment of the acute phase of UTI.

It is obvious that a urine culture must be taken before antimicrobial treatment. This is also mentioned in Millner and Becknell's (4) review manuscript in which they conclude that UTIs should be diagnosed using suprapubic aspiration or a catheterized specimen

for incontinent children, or by clean catch in older children. It is well-documented that a UTI is recognized by different amounts of uropathogens expressed as colony forming units per ml according to age, the mode of urine sample collection and the type of pathogen (3, 4).

Delay of treatment >48 hours increases the risk of scarring, so empirical therapy must be applied just after urine sampling and revised after culture results have been obtained. Parenteral treatment is reserved for children with UTIs who are under 3 months of age, severely ill or unable to receive oral medication. They should be switched if possible to oral therapy as soon as clinical improvement is observed. The daily dosage according to age and body weight is available in almost all reviews and recommendations on UTI management (2, 3, 4).

The diagnosis of upper or lower UTI guides the length of treatment. The choice of antimicrobial agent should take into account

known local epidemiology and susceptibility patterns as well (2). An open question is the prophylactic use of antimicrobial agents in the case of recurrent UTI to prevent kidney damage versus the growing number of multi-drug-resistant organisms.

Conflict of Interest: The author declares that she has no conflict of interest.

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