



REVIEW ARTICLE

Update on the approach of urinary tract infection in childhood[☆]



Ana Cristina Simões e Silva^{*}, Eduardo Araújo Oliveira

Department of Pediatrics, Unit of Pediatric Nephrology, Interdisciplinary Laboratory of Medical Investigation, Faculty of Medicine, Universidade Federal de Minas Gerais (UFMG), Belo Horizonte, MG, Brazil

Received 16 April 2015; accepted 6 May 2015

Available online 7 September 2015

KEYWORDS

Urinary tract infection;
Renal scarring;
Ultrasonography;
CAKUT;
Hydronephrosis;
Obstructive uropathy

Abstract

Objective: Urinary tract infection (UTI) is the most common bacterial infection in childhood. UTI may be the sentinel event for underlying renal abnormality. There are still many controversies regarding proper management of UTI. In this review article, the authors discuss recent recommendations for the diagnosis, treatment, prophylaxis, and imaging of UTI in childhood based on evidence, and when this is lacking, based on expert consensus.

Sources: Data were obtained after a review of the literature and a search of Pubmed, Embase, Scopus, and Scielo.

Summary of the findings: In the first year of life, UTIs are more common in boys (3.7%) than in girls (2%). Signs and symptoms of UTI are very nonspecific, especially in neonates and during childhood; in many cases, fever is the only symptom.

Conclusions: Clinical history and physical examination may suggest UTI, but confirmation should be made by urine culture, which must be performed before any antimicrobial agent is given. During childhood, the proper collection of urine is essential to avoid false-positive results. Prompt diagnosis and initiation of treatment is important to prevent long-term renal scarring. Febrile infants with UTIs should undergo renal and bladder ultrasonography. Intravenous antibacterial agents are recommended for neonates and young infants. The authors also advise exclusion of obstructive uropathies as soon as possible and later vesicoureteral reflux, if indicated. Prophylaxis should be considered for cases of high susceptibility to UTI and high risk of renal damage.

© 2015 Sociedade Brasileira de Pediatria. Published by Elsevier Editora Ltda. All rights reserved.

[☆] Please cite this article as: Simões e Silva AC, Oliveira EA. Update on the approach of urinary tract infection in childhood. J Pediatr (Rio J). 2015;91:S2–10.

^{*} Corresponding author.

E-mail: acssilva@hotmail.com (A.C. Simões e Silva).

PALAVRAS-CHAVE

Infecção do trato urinário;
Cicatriz renal;
Ultrassonografia;
CAKUT;
Hidronefrose;
Uropatia obstrutiva

Atualização da abordagem de infecção do trato urinário na infância**Resumo**

Objetivo: A infecção do trato urinário (ITU) é a infecção bacteriana mais comum na infância. A ITU pode ser o evento sentinela para alteração renal subjacente. Ainda há muitas controvérsias com relação ao tratamento adequado da ITU. Neste artigo de revisão, discutimos as últimas recomendações para diagnóstico, tratamento, profilaxia e imagiologia da ITU na infância, com base em comprovação e, na sua ausência, com base no consenso de especialistas.

Fonte de dados: Os dados foram coletados após uma revisão da literatura e pesquisa no Pubmed, Embase, Scopus e Scielo.

Resumo dos dados: No primeiro ano de vida, as ITUs são mais comuns em meninos (3,7%) que em meninas (2%). Os sinais e sintomas da ITU são muito inespecíficos, principalmente em neonatos e durante a infância, sendo a febre o único sintoma em muitos casos.

Conclusões: O histórico clínico e exame físico podem sugerir ITU, porém a confirmação deve ser feita por urocultura. Antes da administração de qualquer agente antimicrobiano, deve ser feita coleta de urina. Durante a infância, a coleta de urina adequada é essencial para evitar resultados falso-positivos. O diagnóstico e início do tratamento imediatos são importantes na prevenção de cicatriz renal de longo prazo. Neonatos febris com ITUs devem ser submetidos a ultrassonografia renal e da bexiga. Agentes antibacterianos intravenosos são recomendados para neonatos e neonatos jovens. Recomendamos também a exclusão de uropatias obstrutivas o mais rápido possível e posterior refluxo vesico-ureteral, caso indicado. A profilaxia deve ser considerada em casos de elevada susceptibilidade a ITU e risco elevado de danos renais.

© 2015 Sociedade Brasileira de Pediatria. Publicado por Elsevier Editora Ltda. Todos os direitos reservados.

Introduction

Urinary tract infection (UTI) is the most common bacterial infection in childhood,¹⁻⁴ and up to 30% of infants and children experience recurrent infections during the first 6–12 months after initial UTI.^{5,6} UTIs may be the sentinel event for underlying renal abnormality, although normal anatomy is more common.⁷ Prompt diagnosis and initiation of treatment is important in preventing long-term renal scarring. However, increasing antibiotic resistance may delay initiation of appropriate therapy.

In young infants, symptoms of UTI differ from those in older children.^{8,9} The prevalence of UTI is higher in infants than in older children, with a male predominance.^{7,10,11} Most infections are caused by *Escherichia coli*, although, in the first year of life, *Klebsiella pneumoniae*, *Enterobacter* spp., *Enterococcus* spp., and *Pseudomonas* spp. are more frequent than later in life, and there is a higher risk of urosepsis compared with adulthood.^{7,8,10-12}

In 30% of children with congenital anomalies of the kidney and urinary tract (CAKUT), UTI can be the first sign.¹³ If pediatricians fail to identify patients at risk, the upper urinary tract may be damaged. Up to 85% of infants and children with febrile UTI may have visible alterations on technetium Tc 99-labeled dimercaptosuccinic acid (DMSA) scanning. Of these children, 10–40% have permanent renal scarring,¹⁴⁻¹⁶ which may lead to poor renal growth, recurrent pyelonephritis, impaired glomerular function, early hypertension, and, eventually, end-stage renal disease.^{14,15,17-20}

Therefore, identifying children at risk of renal parenchymal damage and follow-up imaging after UTI is a very difficult task. Furthermore, the use of antibiotic prophylaxis

also remains controversial. In this review article, the authors discuss recent recommendations for the diagnosis, treatment, prophylaxis, and imaging of UTI in childhood based on evidence, and when this is lacking, based on expert consensus.

Urinary tract infection in pediatrics: general considerations

The incidence of UTIs depends on age and sex. In the first year of life, UTIs are more common in boys (3.7%) than in girls (2%). This is even more pronounced in febrile infants in the first 2 months of life, with an incidence of 5% in girls and 20.3% in uncircumcised boys, as demonstrated in one prospective study including over 1000 patients using urine specimens obtained by catheterization.¹⁰ Later, the incidence changes, and approximately 3% of prepubertal girls and 1% of prepubertal boys are diagnosed with UTI.^{10,11,13}

The first step for the diagnosis of UTI is medical history. Indeed, the patient's history normally allows for the identification of the site, episode, symptoms, and complicating factors.^{7,9,11,12} This includes questions on primary or secondary infection, febrile or non-febrile UTIs; history of malformations of the urinary tract (e.g., pre- or postnatal ultrasound [US] screening); previous surgeries; drinking and voiding habits; family history; whether there is constipation or presence of lower urinary tract symptoms; and sexual history in adolescents.

Signs and symptoms of UTI are very nonspecific, especially in neonates and during childhood. Fever may be the only symptom of UTI, especially in young children.^{1,21-23}

Download English Version:

<https://daneshyari.com/en/article/4153952>

Download Persian Version:

<https://daneshyari.com/article/4153952>

[Daneshyari.com](https://daneshyari.com)