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SHORT COMMUNICATION

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Urinary Tract Infection: A Common Problem in Pediatrics

Vivel Zareth Arrieta Diaz[1]*, Erick Kim Berrocal[2], Liliana Del Carmen Mercado Villamizar[3], Orlando Andres Velandia Gonzalez[2]

[1]GINUMED Research Group, Medicine Program. Rafael Núñez University Corporation, Cartagena de Indias, Colombia

[2]Faculty of Medicine, Rafael Núñez University Corporation, Cartagena de Indias, Colombia

[3]Faculty of Medicine, University of Sinú, Cartagena de Indias, Colombia

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Urinary tract infections (UTI) are among the most common bacterial infections in children [1]. Its prevalence usually varies with age, peaking in infants, young children, and older adolescents [2]. Studies confirm that up to 8% of children will experience at least one UTI between the first month and 11 years of age, with Hispanic and white children being the most prevalent (two to four times higher) than black children [1,3]. This is more frequent in boys in the first three months of life and there is a progressive increase with a predominance of girls from the first year of life, this mainly produced by the high concentration of bacterial flora under the diaper in in childhood and in girls due to the short urethral distance [4].

The majority (91 to 96%) of UTI is due to the ascent of bacteria from the periurethral area, which migrate retrograde through the urethra to reach the bladder and potentially the upper urinary tract, an important factor is colonization periurethral with uropathogenic bacteria that facilitate infection [3].

As for the most common infectious microorganism in uncomplicated Urinary Tract Infections is Escherichia coli, this causes approximately 85% of community-acquired infections and approximately 50% of nosocomial infections. Other gram-negative microorganisms that cause UTIs include Klebsiella, Proteus mirabilis, Enterobacter, Citrobacter, and Pseudomonas spp. Additionally, gram-positive pathogens can also infect the urinary tract, such as Enterococcus faecalis, Staphylococcus saprophyticus, and group B Streptococcus [5]. Likewise, viruses such as adenoviruses, enteroviruses, coxsackieviruses, and echoviruses can cause UTIs, but they are usually limited to the lower urinary tract. Fungi such as Candida, Cryptococcus neoformans, and Aspergillus spp., Are rare and mainly affect children with indwelling urinary catheters, urinary tract abnormalities, long-term use of broad-spectrum antibiotics, or children with impaired immune systems [3].

We speak of relapse with two or more UTI episodes in a six-month period, this usually occurs two weeks after the end of treatment; on the other hand, relapse is called as the repetition of the infection with the pathogen of the previous infection; it should be added that recurrence occurs when there are two types of relapse and reinfection. However, reinfection is considered when the infection reoccurs with a pathogen other than the previous infection episode, this occurs months after the first infection episode [5]. It is estimated that up to 30% of infants and children will experience recurrent infections during the first 6 to 12 months after the initial UTI, being especially more common in girls [1]. Common risk factors for recurrence include vesicoureteral reflux, lower urinary tract dysfunction, and constipation [2].

For the investigation of UTI, it is important to carry out a systematic approach mainly in newborns and children younger than 2 years with fever, since this age group generally lacks typical clinical signs (frequency, dysuria, and fever) [6]. Its early and timely diagnosis is essential to start treatment, limit morbidity and kidney damage, since among the early complications of UTI are septicemia or bacteremia and in the late ones, hypertension, chronic renal failure and nephropathy due to reflux [1, 5]. Clinically, a newborn may present signs of sepsis, such as temperature instability, peripheral circulatory failure, seizures, apnea, or metabolic acidosis, but we must bear in mind that UTI in newborns and Infants can be related to poor diet, growth retardation, lethargy or irritability, it can even present without fever. A UTI is considered when there are clinical signs and symptoms in combination with pyuria and significant bacteriuria (more than 100,000 colony-forming units [CFU/ml] per spontaneous urination, of any bacterial growth by suprapubic puncture, or 10,000 to 50,000 CFU per urinary catheter) [3, 6].

Contact Vivel Zareth Arrieta Diaz ✉ varrietad10@curnvirtual.edu.co GINUMED Research Group, Medicine Program. Rafael Núñez University Corporation, Cartagena de Indias, Colombia

The infection can affect the upper urinary tract (pyelonephritis) or the lower urinary tract (cystitis or urethritis) [3]. Pyelonephritis can cause substantial morbidity and is characterized by the presence of fever (>38.5 °C) associated with signs of inflammation such as increased acute phase reactants such as C-reactive protein, erythrocyte sedimentation rate and is a potential risk for kidney damage with possible cortical scarring. On the other hand, cystitis occurs when there is localized involvement of the urinary bladder, in which fever does not usually occur, voiding symptoms such as dysuria, frequency and absences of lumbar pain are present; In addition, it does not represent a risk of kidney damage. Finally, there is urethritis, which is a rare pathology in pediatric age, and can manifest itself in the same way with voiding symptoms without fever. On occasions, an exudate can occur that is more frequent in adolescence; in the smallest it can be part, practically indifferent of the symptoms, of balanitis or vulvovaginitis [4]. Unfortunately, it can be difficult to distinguish pyelonephritis from cystitis based on clinical signs and symptoms, especially in infants and young children; but those with bacteriuria and fever should be considered as having acute pyelonephritis rather than cystitis [3, 6].

A urinalysis and urine culture should be performed when a Urinary Tract Infection is suspected; this in children younger than 3 years with unexplained fever and in children 3 years and older with dysuria, suprapubic pain, increased urinary frequency, foul-smelling urine, and new-onset daytime enuresis [3]. The laboratory culture is the gold standard for the diagnosis of UTI. Because the urine is sterile, the presence of sufficient bacteria, with concurrent evidence of active infection, suggests a Urinary Tract Infection [2].

The main goal of treatment is to prevent repetitive infections and their complications. This requires taking into account different factors such as age, sex, and underlying diseases [5]. In addition, meticulous genital hygiene and adequate fluid intake should be encouraged. Most children with a UTI can be treated at home with oral fluids and specific antibiotics. Only a small percentage will require admission for intravenous therapy, including very young children, those with significant renal tract abnormalities, and children who do not respond to oral therapy. In children younger than 60 days, parenteral use should be considered [2].

In conclusion, Urinary Tract Infections are very common bacterial infections in pediatrics, and their prevalence varies with age, being more frequent in the first months of age in men and after one year in girls. Its clinical diagnosis is not reliable and a urine sample is required for its diagnosis. Prompt diagnosis and proper treatment are very important to reduce the morbidity associated with this condition.

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