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Research Article

CHARACTERISTICS OF URINARY TRACT INFECTION IN CHILDREN

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ABSTRACT

In this article, the author presents clinical and laboratory data and analysis of pathogenic flora in patients with surgical pathologies of the urinary tract, sensitivity to antibiotics and early empirical antibiotic therapy in children.

KEYWORDS

Antibiotic therapy, urinary tract infection.

INTRODUCTION

Despite the advances of modern medicine in the field of pediatric urology,in recent yearsdiagnosis and treatmentdiseases of the kidneys and urinary tract are increasingly attracting the attention of specialists, which is largely due to the fairly high prevalence of this pathology among children, the seriousness of the prognosis, the intensive search for ways of early diagnosis, new principles of treatment and prevention of possible complications [1,2,3,12, 17.23].

According to world literature, the prevalence of urinary tract infection (UTI) among children ranges from 5.6 to 27.5%. On average, it is 18 cases per 1000 children's population [16,18,22,24]. The outcomes of UTI can be different: from favorable (in the absence of congenital anomalies of UTI and timely treatment) to serious long-term consequences, including arterial hypertension, sclerosis, and impaired renal function, up to the development of chronic renal failure with loss of function requiring dialysis [5, 6,7,8,15,19,21,25]. Clinical manifestations of UTI in children vary from unclear fever to symptoms from the gastrointestinal tract (GIT), upper and lower parts of the UTI, which often complicates timely diagnosis and is the reason for late,

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delayed treatment. This is especially true for infants and young children [9,10,11,14,20,26].

In this regard, research aimed at identifying the most significant laboratory data and clinical symptoms in the diagnostic aspect is of considerable interest to pediatric urologists and clinicians, which allows them to correctly assess the patient's condition in the early stages of UTI development, prescribe the correct targeted treatment and reduce the risk of complications, improve quality of life of sick children [13,21,27]. .

PURPOSE OF THE STUDY

Study of clinical and laboratory features of urinary tract infection in sick children.

Materials and methods of research.We examined 46 children with UTI aged from 1 month to 17 years,who were undergoing inpatient treatment in the department of pediatric surgery and urology of the Bukhara Regional Multidisciplinary Children's Medical Center (BOMDMC), which is the clinical base of the Department of Pediatric Surgery of the Bukhara State Medical Institute for the period 2019 - 2022.The distribution of children by gender was as follows: 30 (65.2%) girls and 16 (34.8%) boys. Children of primary school age and teenagers predominated. All children underwent a complex of general clinical examinations, including analysis of complaints, history taking, objective examination, as well as clinical blood and urine tests.For early diagnosis of UTIs, screening test reagents were used, which allow determining the presence of leukocyte esterase, nitrites and protein in the urine.If necessary, additional instrumental examination methods were used (ultrasound, radiography, etc.)

RESULTS AND DISCUSSION

Of all 46 children with UTI examined, 29 (63%) sick children had cystitis, 8 (17.4%) sick children had pyelonephritis, 9 (19.6%) sick children had a combined pathology of the urinary system. In 12 (26%) sick children, a hereditary burden of the urinary system was established. Congenital anomalies of the genitourinary system were found in 5 (10.9%) of the examined: anomalies of the kidneys and pyelocaliceal system (4.3%) of sick children, anomalies of the genital organs (4.3%) of sick children, hydronephrosis (2.2%) sick children. In 19 (41.3%) patients, underlying conditions were identified (weight deficiency (19.6%), delayed physical development (21.7%) in sick children, anemia in (23.9%) sick children. Chronic ENT diseases - organs were found in 10 (21.7%) children, concomitant pathology of the gastrointestinal tract in 6 (13%) patients. Particular attention is required by the fairly high frequency in the anamnesis of acute intestinal infections among past diseases (60.8%) of sick children , as well as acute respiratory diseases of the upper respiratory tract (87%) of sick children. The leading in the clinical picture of UTIs were intoxication, pain and

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dysuria syndromes. Intoxication syndrome was observed in 11 (23.9%) children and was manifested mainly by lethargy, weakness, decreased appetite, pallor of the skin and peri-orbital shadows. It was more often observed in patients with pyelonephritis or combined UTIs. Increased body temperature at the time of presentation was detected in 24 (52.2%) of the examined children. As a rule, these were sick children with dysuric syndromes. In patients with cystitis, regardless of its form, dysuric syndrome predominated. A number of patients experienced symptoms from the gastrointestinal tract: nausea (19.5%), vomiting (13%), unstable stool (15.2%) cases. A clinical blood test at the time of treatment revealed leukocytosis in 12 (26%) sick children, ESR was accelerated in 16 (34.8%) sick children. Changes in hemoglobin levels were observed in 11 (23.9%) sick children, erythrocytes in 12 (26%) sick children, platelets in 8 (17.4%) patients. According to a general urine test at the time of admission, only 8.7% of cases showed no pathological changes. Leukocyturia was detected in 30.4% of sick children, proteinuria in 6.5% of sick children, oxaluria in 32.6% of sick children, and uraturia in 17.4% of sick children. No bacteriuria was recorded in a single urine sample. The relative density of urine was changed in 2 (4.3%) sick children.

An ultrasound examination of the urinary system performed by the patient revealed changes in the walls of the collecting system as an ultrasonographic sign of pyelonephritis in 4 (8.7%) sick children. Changes in kidney size were detected in 5 (10.9%) sick children, congenital hydronephrosis - in 2 (4.3%) sick children, and the presence of stones in 3 (6.5%) patients.

A bacteriological examination of urine revealed an increase in microflora in 20 (43.5%) sick children. Escherichia coli predominated in the structure of the isolated bacterial flora - 46% of cases.The distribution of the remaining pathogens was as follows: Staphylococcus epidermidis - 2.2%, Staphylococcus aureus - 2.2%, Klebsiella pneumonia - 4.3%, Proteus mirabilis - 2.2%, Pseudomonas aeruginosa - 4.3%. Candida albicans was isolated from 1 (2.2%) sick child, Candida tropicalis was isolated from 1 (2.2%) sick child. Associations of pathogens were identified in 4.3% of crops.

According to many authors, bacteriuria is considered one of the obligatory symptoms of UTI, however, most pediatric nephrologists are unanimous that the frequency of positive results of bacteriological tests of urine for microflora does not exceed 50–55%, and is often even significantly lower [2,5]. We must not forget that the absence of microflora does not exclude the infectious onset of the disease. This fact may be associated with the transition of bacteria into L-forms and protoplasts [6]. In addition, the lack of growth of pathogens during bacteriological urine culture can also be explained by the start of taking broad-spectrum uroseptics and antibacterial drugs at the time of

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sample collection. When analyzing the dependence of microbial contamination of urine on gender, it was found that 70% of the inoculated microflora was found in girls, which is most likely due to the anatomical characteristics of the female body. Among the isolated uropathogens, the greatest sensitivity was registered to ciprofloxacin, but we must not forget that this drug is used in children over 14 years of age, only under strict indications. From the spectrum of antibacterial drugs frequently used in pediatrics, sensitivity to 3rd and 4th generation cephalosporins, gentamicin, and meropenem was optimal. The lowest sensitivity was noted to penicillin drugs.

Thus, the results of our study indicate that the modern course of UTI in children is characterized by a variety of clinical symptoms, the presence of a number of associated pathologies, as well as a high frequency of concomitant anomalies of the genitourinary system, which create the preconditions for a microbial inflammatory process in the urinary tract. A fairly large percentage of false negative results of bacteriological examination of urine, which can also be attributed to modern features of UTI associated with the widespread and uncontrolled use of antibacterial drugs, significantly complicates the diagnosis of the disease and is the reason for delayed etiotropic therapy, and also, as a consequence, significantly increases the risk of complications. .

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