

## **ON THE TREATMENT OF URINARY TRACT INFECTIONS IN SUCKLINGS AND EARLY INFANCY**

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The urinary tract infections (UTI) are considered to be the most frequent diseases in childhood. According to their distribution they are in the second place after respiratory infections and are 4—6 % out of all diseases (2—4). Recently, it is accepted that in most cases the primary UTI appears from an early age. In the presence of malformations or calculosis it is a danger to chronification and development of renal failure, hypertension, renal nanism or even lethal outcome due to pyelonephritically wrinkled kidney (6, 7). UTI take not rarely their recidivans course and tend to chronifying of the inflammatory process. It is due as well to the etiologic agent and predisposition factors, as to the choice and carrying out of the treatment (5, 6). A number of authors discuss the problems concerning the basic principles for UTI treatment (1, 3, 4, 7—10). The necessity of early active and individual treatment is outlined with recognizing the age of the child, the duration and character of the course of the disease, the state of renal function, the tolerance towards pharmacologic drugs and biochemical properties of the etiologic agent.

The treatment must be complex and long enough. It includes the organization of total living conditions, diet, the restitution of water-saline and acid-alkaline balance and the healing of focal infections.

The purpose of the present study is to follow-up the effectiveness of applied therapeutic means and of curative methods in cases of UTI in sucklings and small infants.

### **Material and methods**

The study covers the results from the treatment of 231 infants (132 girls and 99 boys) aged between 0 months — 3 years according to hospital and ambulatory protocols. The infants are observed in the hospital and ambulatory for the last 3 years in the Dept. of Pediatric Diseases, Higher Institute of Medicine, Varna city, and Children's nephrological polyclinical consulting room.

### **Results and discussion**

An acute pyelonephritis is found out in 58,4 % of the cases; a recidivans and chronic one in 16,8 %, and an inflammatory process of lower urinary tract in 24,8 %. UTI are accompanied with certain acute respiratory diseases, inflammatory processes of the lungs, ears, gastrointestinal tract and skin infections in 68,5 % of the children studied. The therapy is in conformity with the contemporary concepts concerning a long enough treatment and intermittent combined

application of antibiotics and chemotherapeutics, phytotherapy and sanatorial treatment.

The effectiveness of antibacterial therapy is evaluated in relation to the preparations used and the duration of treatment. The spectrum of drug action and the sensitivity of microflora isolated from urocultures is recognized. Monobacterial microflora is significantly isolated from 76,2 % of these urocultures. *E. coli* predominates in 56,1 %, urocultures with changeable species and bacterial number are established in 23,8 % and most frequent association is between *E. coli* and *Klebsiella* (in 43,9 % of these cases). The isolated strains of *E. coli* display high sensitivity towards Gentamycin, Carbenicillin, Kefline in 39,8 % and those of *Bact. proteus* in 70,2 %. Both agents have moderate susceptibility towards Chlornitromycin. Concerning Ampicillin *E. coli* susceptibility is quite low and that of *Bact. proteus* is even almost absent (see table 1).

Table 1

## Bacterial drug susceptibility and therapeutical effect

Drug susceptibility/ Bacteria	Gentamycin Carbenicillin Kefline	Chlornitro- mycin	Ampicillin	Nelidix	Biseptol	Antibac. eff.	Clin. Lab. effect
<i>E. coli</i>	38 (39,8 %)	25 (20,4 %)	15 (12 %)	24 (19 %)	20 (16 %)	65 (54 %)	95 (78 %)
<i>B. proteus</i>	76 (70 %)	25 (18 %)	8 (6 %)	15 (11 %)	9 (6 %)	90 (68,4%)	17 (18,8 %)

The therapy is started with Gentamycin with initial dose of 4 mg/kg b. w. followed by reduction on the 3<sup>rd</sup>—5<sup>th</sup> day till 3 mg/kg b. w. for a period of 7—10 days in cases when it was possible to wait for the results from antibioticograms. Carbenicillin was used with dose of 200 mg/kg b. w. for a period of 10—15 days; Kefline — 50 mg/kg b. w. (10—14 days); Chlornitromycin — 50 mg/kg b. w. (7 days) and Ampicillin — 100—200 mg/kg b. w. (10 days) (see fig. 1). During the first therapeutic course antibiotics were either combined, or later on followed by chemotherapeutic drugs such as Nelidix, Biseptol, Orafuran, Urovalidin-syrup, 5-Nitrox at well-known dosages to prevent recidives. Only an antibiotic therapy was applied in 40 hospitalized infants with an acute pyelonephritis but a combined treatment is carried out in the rest ones. The maintenance chemotherapy alternating with 10-days-application of corresponding antibiotics and phytotherapy in infants older than 18 months continued at home. The total duration of treatment reached most frequently 3 months for the acute pyelonephritis and even 12—18 months for the chronic one. Some vitamins such as A, C, B-group, general-stimulating drugs and sanatorial treatment in Hisar town, especially in children older than 2 years were also administered in the course of complex treatment. Surgical corrections were performed in cases of bladder neck obstruction (Marion's syndrome), stricture of pyelo-ureteral segment, urolithiasis and diverticle of the urinary bladder. One year long after the onset of the illness the leucocyturia disappeared in 92,8 % and the bacteriuria in 82,5 % of the cases.

Concerning the chronic pyelonephritis they remain, respectively, 7,2 % and 17,5 % of the cases. A total clinico-laboratory remission (lack of any clinical symptoms, bacteriuria and leucocyturia) is ascertained in 151 infants (65,4 %). 130 of them are with an acute pyelonephritis and 21 infants with a chronic one.

We have controlled 100 infants for the following three years; 70 ones — for 2 years and 61 ones one year to diagnose early enough any possible recidives by means of ambulatory dispensary observation. Based on our study the following conclusions could be made:

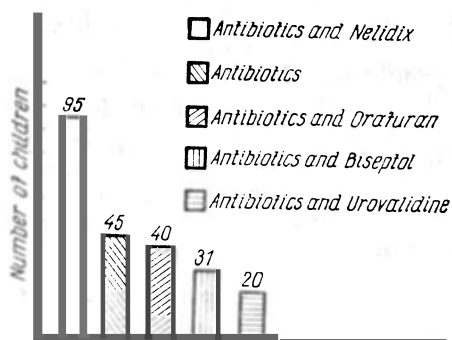


Fig. 1

with chronic pyelonephritis support the greater healing ability of the urinary tract at this age and oblige to early diagnosis and treatment.

The maintenance application of antibiotics and other chemotherapeutic drugs appropriate for the infancy dominates in the treatment of UTI in sucklings and early infancy. Initial treatment of acute pyelonephritis in sucklings has to be in less than 3 weeks to rely on further success. There is a favourable influence on UTI and a seldom exacerbation in cases with combined therapy of Carbenicillin and Gentamycin with Nelidix followed later on by application of Biseptol, Urovalidin-syrup and 5-Nitrox. The positive results from complex and long-term intermittent treatment of infants

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## О ЛЕЧЕНИИ УРОИНФЕКЦИИ В ГРУДНОМ И РАННЕМ ДЕТСКОМ ВОЗРАСТЕ

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### РЕЗЮМЕ

В работе сообщаются результаты лечения 231 ребенка — 132 девочек и 99 мальчиков в возрасте до трех лет. Дети наблюдались в стационаре и амбулаторно в течение трех лет. У 135 детей установлен острый пиелонефрит (58,4 %), а у 39 детей (16,8 %) — рецидивирующий и хронический. Проведено комплексное лечение в соответствии с длительностью и характером заболевания, а также и в соответствии с чувствительностью к медикаментам изолированных из мочи бактериальных возбудителей. Улучшение кленеческой картины и выздоровление с нормализацией параклинических показателей и отрицательным результатом при исследовании мочи установлено у 151 ребенка, что составляет 65,4 %.