

**Objective.** To study the etiological structure of the UTI, dynamics, gender and age dependence in the child population of Chernovtsy region.

**Patients and Methods.** 2432 urine samples of the children patients of the medical network of the Chernivtsi region were investigated by means of bacteriology method with the purpose of verification of the diagnosis «urinary tract infections» (UTI) during 2009 - 2013.

**Results.** Among the examined children the proportion of children under 3 years accounted for 26.0%, 4 - 6 years for 24.8%, 7 - 14 years for 36.5% and 15 - 18 years for 12.7%, respectively. The number of female patients exceeded the number of male patients in 1.6 - 2.7 times in all age groups of the examined children.

655 strains of bacteria and fungi were extracted as etiological agents. Etiological spectrum of the extracted UTI pathogens included strains of the family *Enterobacteriaceae* (*E.coli*, *K.pneumoniae*, *C.freundii*, *P.mirabilis*, *P.rettgery*), pseudomonas (*P.aeruginisa*), staphylococci (*S.aureus*, *S.epidermidis*), enterococci (*E.faecalis*), streptococci (*S.pyogenes*), yeast fungi (*C.albicans*).

The first place among the UTI pathogens in terms of the frequency extraction of the research among children patients of both sexes was taken by the representatives of the family *Enterobacteriaceae* (excluding *Proteus*) – from 46.8% to 81.5% of the total number of cases where etiologically significant microflora was extracted. The second place was taken by the *Proteus* bacteria – from 7.7% to 35.6%. Pseudomonas, gram-positive cocci and yeast fungi were extracted from the urine of the examined patients with the same frequency: pseudomonas – 3.4 – 12.9 %, cocci – 1.0 – 12.5 %, fungi – 0.0 – 17.3 %.

The frequency extraction of the family *Enterobacteriaceae* representatives (excluding *Proteus*) was statistically valid for children of 4-6 years (n=105, t-criterion of Student 2.20; p<0.05) and for children of 7-14 years (n=113, t-criterion of Student 2.36; p<0.05).

For the extracted *Proteus* bacteria from the urine of the examined children age and gender dependence has its own peculiarities: the percentage of *Proteus* extractions was higher among male patients and statistically valid for boys of 4-6 years (n=34, t-criterion of Student 2.80; p < 0.01).

Distinct interdependence between age, sex and frequency of the extraction of the UTI agents for pseudomonas, gram-positive cocci and *Candida* yeast fungi was not ascertained in terms of the study.

The results of the study suggested the following: if the etiological spectrum of the UTI pathogens among children patients has gender and age peculiarities, then the resident microflora of the urine may reflect similar patterns; considering the fact that the resident microflora in the

presence of certain factors (decrease in the level of local or general immune defense, disorders of urodynamics) can itself cause the UTI development.

"The view" of the resident microflora in the examined children with the UTI has Coagulase negative strains of staphylococci, followed by Corynebacteria and enterococci according to their frequency extraction.

Coagulase negative staphylococci were significantly more frequent in extraction among male patients in the age group of 7-14 years ( $n = 405$ , t-criterion of Student 4.10;  $p < 0.001$ ). In adolescents Corynebacteria were extracted from the urine of male patients almost twice as likely as their peers ( $n = 104$ , t-criterion of Student 4.10;  $p < 0.001$ ). Enterococci were significantly more extracted from the urine of girls under 3 years ( $n = 109$ , t-criterion of Student 2.12;  $p < 0.05$ ). Lactobacilli were extracted only from the urine of girls as the resident microflora of the female genital tract. Enterobacteria were more often extracted from the urine of the girls under 3 years ( $n=86$ , t-criterion of Student 3.14;  $p < 0.01$ ), 7-14 years ( $n=63$ , t-criterion of Student to 5.05;  $p < 0.001$ ) and adolescents ( $n=21$ , t-criterion of Student to 2.70;  $p < 0.05$ ).

### **Conclusions.**

1. There were discovered gender differences in the species composition of the urinary tract infection pathogens in the children of the Chernivtsi region: the female children of preschool and school-age (4-14 years) were more likely to be described as to have the family *Enterobacteriaceae* representatives ( $p < 0.05$ ); whereas the male children of preschool age (4-6 years) could be characterized as to have Proteus bacteria ( $p < 0.01$ ).

2. There were discovered age and gender differences in the composition of the resident microflora of the urine characteristic of the children of the Chernivtsi region: the urine of the school age boys (7-14 years) was dominated by Coagulase-negative staphylococci ( $p < 0.001$ ), male adolescents (15-18 years) – by Corynebacteria ( $p < 0.001$ ) in young girls (under 3 years) – by enterococci ( $p < 0.05$ ).

3. Enterobacteria, as a part of the resident microflora of urine were more often extracted from the urine of the young girls ( $p < 0.01$ ), those of the school age ( $p < 0.001$ ) and adolescents ( $p < 0.05$ ), which is a prerequisite of the leading place of the pathogen in the etiology of the urinary tract infection in the female population.