

P1730

Paper Poster Session

E.coli and Proteus virulence

Beta-lactam resistance and integrons prevail in recurrences compared to single attacks of childhood urinary tract infection caused by *Escherichia coli*

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Background: Urinary tract infection caused by *Escherichia coli* is one of the most common bacterial infections in childhood, which often may recur after a primary infection.

The aim was to characterize phylogenetic groups, antibiotic resistance, containment of class 1 integrons and *sul* genes of *E. coli* in the first attack of pyelonephritis of recurrent urinary tract infections (RUTI) compared to a single pyelonephritis episode in children.

Material/methods: Altogether 49 urine *E. coli* isolates from 26 patients (6 boys and 20 girls; median age 38 months) with an initial episode of RUTI and from 23 patients (5 boys and 18 girls; median age 24 months) with a single pyelonephritis episode were studied. The phylogenetic groups were determined by triplex PCR. The *intl* gene and *sul1*, *sul2* and *sul3* genes were detected also by PCR. The minimal inhibitory concentrations of ampicillin, cefuroxime, cefotaxim, TMP-SMX, gentamycin and ciprofloxacin were detected by E-test.

Results: The most frequent phylogenetic group was B2 both in cases of RUTI and UTI. Integrons were found in 30/49 (61%) of *E. coli* isolates. Among RUTI initial isolates the integron containment was higher compared to UTI isolates ($p=0.003$). The presence of integrons was higher in RUTI B2 strains than in UTI ($p=0.049$). *Sul* genes were detected in 28/49 (58%) of initial *E. coli* isolates. The initial isolates with *sul* genes in RUTI patients showed more often phenotypic resistance to TMP-SMX compared to UTI isolates ($p=0.006$; OR 15.0, CI 2.26 – 99.64). Besides, initial *E. coli* isolates from RUTI patients were more frequently resistant to betalactame antibiotics, particularly cefuroxime compared to UTI patients ($p=0.039$ and $p=0.011$, respectively).

Conclusion: The phylogenetic group B2 prevails in initial episodes of RUTI and UTI. The class 1 integron positivity and resistance to cefuroxime are characteristic to *E. coli* strains that tend to give later recurrences in children.