BACTERIURIA AND LEUKOCYTURIA AS INDICATORS OF URINARY TRACT INFECTION IN CHILDREN

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Background and aims: Paediatricians prescribe empirical antibiotics for urinary tract infections (UTI) taking into account the clinical presentation and urinalysis while waiting for the result of the urine culture. The aim of this study was to evaluate the diagnostic benefit of bacteria and leukocyte counts to urinalysis in comparison with urine culture as the reference method.

Methods: Urine samples were collected from children aged 6 weeks-6 years with suspected UTI from August - December 2011. A gold standard of a positive urine culture was used. Sensitivity and specificity were calculated for positive nitrite and leukocyte esterase (LE) and bacteria and leukocyte counts performed with the Sysmex UF-1000i.

Results: A total of 366 consecutive clean-void bag and catheter urine specimens were collected from children (median age 18 months) of both genders (56.0% females). A combination of more than 30 bacteria/microL and 40 leukocytes/microL had a sensitivity of 98.0% (higher when compared with LE, positive nitrite or a combination of both) and a specificity of 84.5%. 48 (13.1%) urine cultures were positive. Escherichia coli was the most common bacterial pathogen (66.6%) followed by Proteus mirabilis (22.9%). 18.7% of Escherichia coli were resistant to trimethoprim-sulfamethoxazole (n=32), 12.5% to amoxicillin/clavulanate (n=16) and 12.5% to cefuroxime (n=8). All Proteus mirabilis were resistant to amoxicillin/clavulanate.

Conclusions: The data support the use of bacteria and leukocyte counts as a reliable screening method, which can help the presumptive diagnosis and empiric treatment of UTI in children. Cefuroxime axetil as empiric antibiotic seems adequate in our region.