

Experience with HB&L Uroquattro instrument for rapid diagnosis of Urinary Tract Infections in Ambulatory Patients

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INTRODUCTION

The urinary tract infections (UTIs) are one of the most common community and hospital acquired infections. The rapid diagnosis and the adequate etiological therapy are factors with direct impact on the morbidity and mortality associated with these infections.

OBJECTIVE

The study evaluates the HB&L Uroquattro instrument (ALIFAX, Italy) and the Residual Antimicrobial Activity test (RAA) for rapid and correct diagnosis of UTIs in ambulatory patients in Varna city, Bulgaria during a seven-month period (October 2020 - April 2021).

MATERIAL AND METHODS



A total of 1620 urine samples, collected prospectively from 842 ambulatory patients with symptoms of UTIs were studied. All patients report an information about recent antimicrobial treatment. All samples were screened for bacterial growth using 4 – hour protocol and were tested for RAA by HB&L Uroquattro. *Staphylococcus epidermidis* is used as a growth control strain.

Simultaneously each urinary sample was inoculated on blood agar (Himedia), CLED (bioMerieux), Mac Conkey (bioMerieux) and Colorex™ Orientation agars (E&O labs, UK). Bacterial isolates were identified using the routine biochemical identification method and were confirmed by VITEK (bioMérieux, France). Gram microscopy was performed for all positive samples directly from URO-Quick Screening broth vial of HM&L instrument (Alifax, Italy)

RESULTS

A total of 343 urine samples (21.2%) were positive for bacterial growth by the rapid screening method. The standard cultural method was positive in 22 % (n=352)

RAA was detected in 5.6 % (n=91).

Among these positive RAA samples, 69.2 % (n=63) were positive for bacterial growth and 30.7 % (n=28) were with negative culture results (table 1). In our study, a total of 113 patients (13.4%) reported recent therapy with antimicrobial agents or substances with potential antimicrobial activity. In this patient group, RAA test was positive in 64.6% but was found negative in 35.3% (table 2).

Patients with RAA positive test result	RAA test result	Bacterial growth
n=63 (69.2 %)	+	+
n=28 (30.7 %)	+	-

Table 1. RAA result and presence of bacterial growth in the urine samples.

Patients with recent antimicrobial therapy	RAA test result
n=40 (35,3 %)	-
n=73 (64,6%)	+

Table 2. Association between recent antimicrobial therapy and RAA test result

CONCLUSIONS

A very good correlation between the results from the automated HB&L Uroquattro instrument and those from the traditional cultural method was found. The RAA positive results were detected in patients, receiving antimicrobial treatment. The RAA test result is of great value for correct interpretation of the culture test and help to avoid the reporting of false negative results.

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