

Prevalence of ESBL E. coli Susceptibility to Oral Antibiotics in Outpatient Urine Culture: Multicentric, Analysis of Three Years Data (2019-2021)

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Abstract : Objectives: The main aim of this study is to Find the rate of susceptibility of ESBL E. coli causing UTI to oral antibiotics. Secondary objectives: Prevalence of ESBL E. coli from community urine samples, identify the best empirical oral antibiotics with the least resistance rate for UTI and identify alternative oral antibiotics for testing and utilization. Methods: This study is a retrospective descriptive study of the last three years in five major hospitals in Oman (Khowla Hospital, AN'Nahdha Hospital, Rustaq Hospital, Nizwa Hospital, and Ibri Hospital) equipped with a microbiologist. Inclusion criteria include all eligible outpatient urine culture isolates, excluding isolates from admitted patients with hospital-acquired urinary tract infections. Data was collected through the MOH database. The MOH hospitals are using different types of testing, automated methods like Vitek2 and manual methods. Vitek2 machine uses the principle of the fluorogenic method for organism identification and a turbidimetric method for susceptibility testing. The manual method is done by double disc diffusion for identifying ESBL and the disc diffusion method is for antibiotic susceptibility. All laboratories follow the clinical laboratory science institute (CLSI) guidelines. Analysis was done by SPSS statistical package. Results: Total urine cultures were (23048). E. coli grew in (11637) 49.6% of the urine, whereas (2199) 18.8% of those were confirmed as ESBL. As expected, the resistance rate to amoxicillin and cefuroxime is 100%. Moreover, the susceptibility of those ESBL-producing E. coli to nitrofurantoin, trimethoprim+sulfamethoxazole, ciprofloxacin and amoxicillin-clavulanate is progressing over the years; however, still low. ESBL E. coli was predominating in the female gender and those aged 66-74 years old throughout all the years. Other oral antibiotic options need to be explored and tested so that we add to the pool of oral antibiotics for ESBL E. coli causing UTI in the community. Conclusion: High rate of ESBL E. coli in urine from the community. The high resistance rates to oral antibiotics highlight the need for alternative treatment options for UTIs caused by these bacteria. Further research is needed to identify new and effective treatments for UTIs caused by ESBL-E. Coli.

Keywords : UTI, ESBL, oral antibiotics, E. coli, susceptibility

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