Urinary Tract Infections in a Tertiary Care Hospital in Al-Baha, Saudi Arabia

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ABSTRACT

Urinary tract infections (UTIs) represent one of most common infectious diseases worldwide and are increasingly complicated by antimicrobial resistance and recurrent infection, particularly in elderly and hospitalized populations. Data from several regions of Saudi Arabia, including Al-Baha, remain limited despite a high national disease burden. A retrospective cross-sectional analysis was conducted on 804 consecutive urine culture records obtained from symptomatic inpatients and outpatients attending a tertiary care hospital in Al-Baha, Saudi Arabia, between September 2023 and January 2025. Midstream and catheter urine samples were cultured using standard microbiological techniques. Pathogen identification and antimicrobial resistance profiling were performed using the VITEK-2 Compact automated system. Demographic variables, clinical setting (inpatient vs. outpatient), microbial distribution, antimicrobial resistance phenotypes (including ESBL and carbapenem resistance), recurrence patterns, and documented comorbidities were analyzed using descriptive statistical methods. Of the 804 isolates analyzed, 540 (67.2%) were from inpatients and 264 (32.8%) from outpatients. Females constituted the majority of cases, and more than half of patients were aged >65 years. Escherichia coli was the predominant uropathogen (31.4%), followed by ESBL-producing E. coli (14.4%), Klebsiella pneumoniae (12.9%), ESBL- and carbapenem-resistant Klebsiella species (13.8% combined), Pseudomonas aeruginosa (4.8%), and Candida species (~7%). Antimicrobial-resistant isolates accounted for 28.2% of all cultures, with significantly higher resistance among inpatients (31.7%) compared with outpatients (21.2%). ESBL-producing E. coli represented the most frequent resistant phenotype overall. Recurrent infection episodes constituted 40.2% of culture records, corresponding to 14.8% of unique patients, predominantly affecting elderly (>65 years) and female patients. Among diagnosed inpatients, diabetes mellitus (17.7%) and chronic kidney disease (15.2%) were the most frequent comorbid conditions. UTIs in the Al-Baha region are characterized by a high burden of antimicrobial resistance and recurrence, particularly among hospitalized and elderly patients. The predominance of ESBL- and carbapenem-resistant Enterobacterales underscores the urgent need for strengthened antimicrobial stewardship, continuous resistance surveillance, and targeted preventive strategies for high-risk populations.

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