Fluoroquinolones Resistant Escherichia Coli Isolated from Urine of Diabetics

Sir,

Amongst the common risk factors of urinary tract infection (UTI) is immunosuppressed status, such as diabetes mellitus (DM), a metabolic disorder of prolonged high blood sugar levels. Hyperglycemia and glycosuria account for dysfunctional neutrophils. Patients with diabetes are predisposed to UTIs and the most frequently encountered microorganisms are Escherichia coli, Klebsiella pneumoniae, and Candida spp.

During May-October 2018, overall 1,520 urine specimens from diabetic inpatients were received in Rehman Medical Institute, Peshawar for culture and sensitivity testing, among which 486 (32%) were catheterised patients. Seven hundred and ten specimens (46.7%) yielded consideration bacteriuria; 223 urine samples (14.6%) exhibited no growth and 587 urine specimens (38.6%) displayed mixed growth. The different organisms isolated from urine specimen culture were E. coli, which was the most dominant, accounting for 57.7% (n=410) of the uropathogens. Others were: 15.2% Klebsiella pneumoniae (n=108), 11.5% Pseudomonas aeruginosa (n=82), 6.2% Enterococcus species (n=44), 5.2% Proteus spp. (n=37), 2.7% Citrobacter spp. (n=19) and 1.4% Candida spp. (n=10).

Among total E. coli isolated, 56% (n=230) were recovered from female inpatients and the rest 44% (n=180) were from male admitted patients. Mean age of the patients was 58 years (age range on 40-75 years). One hundred and eighty four (45%) isolates were recovered from patients of Cardiac Care Unit (CCU), while the remaining 55% (n=226) were from patients admitted in different wards including Internal Medicine Ward (n=127, 31%), Urology Ward (n=41, 10%), Intensive Care Unit (n=37, 9%), and Surgical Ward (n=21, 5%). Primary susceptibility testing was performed in accordance with Clinical and Laboratory Standard Institute (CLSI) guidelines; 91% (n=373) were (norfloxacin and ciprofloxacin resistant and 9% (n=37) were fluoroquinolones sensitive. Among these, 85.2% (n=350) isolates of E. coli were MDR.

During investigation, empirical therapy was perceived to have commenced in all cases. Among which, (n=350) 82% received fluoroquinolones, ceftriaxone (n=37) 9%, and in the remaining few amoxicillin-clavulanate, nitrofurantoin and trimethoprin-sulfamethoxazole were used. In this study, 85.2% cultured E. coli were multi-drug resistant, which is relatively on rise when equated to others studies. Multidrug resistant E. coli was 52.9% in an Indian hospital setting, and 7.1% in another research study by Sahm et al. in USA. We perceived a substantial escalation in resistance to fluoroquinolones namely, norfloxacin and ciprofloxacin, that might be owing to empirical treatment practices for UTI. The same response was also noted in Uruguay, a state having widespread fluoroquinolones use for UTI empirical management. By this assessment, we have construed that fluoroquinolones will no longer be adequate for use against UTI due to E. coli in roughly next 20 years. The chief acumen for escalation in resistance is the lack of antibiotic stewardship measure, attributable to social and economic disputes in most nations. The escalating resistance to fluoroquinolones in E. coli from urinary tract infections may emerge from augmented prescription for UTI. E. coli resistance to these agents will probably upsurge further as fluoroquinolone use increases in future.

CONFLICT OF INTEREST:
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MK: Conception or design of the work.
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REFERENCES
Letter to the editor

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