

2nd International Congress on Bacteriology & Infectious Diseases

November 17-19, 2014 DoubleTree by Hilton Hotel Chicago-North Shore, USA

Prevalence and risk factors of multidrug resistant and carbapenemase producing *Enterobacteriaceae* among patients with urinary tract infection at Gondar University Hospital, Northwest Ethiopia

Setegn Eshetie, Chandrasekhar Unakal, Feleke Moges and Aschalew Gelaw University of Gondar, Ethiopia

Background: Nowadays, increased burden of multidrug resistant Enterobacteriaceae causing UTI compounded by harboring carbapenemase producing strains such as *E. coli* and *K. pneumoniae* becomes a serious threat to public health. Carbapenemase producing Enterobacteriaceae expresses enzymes that can break down the antibiotic carbapenem, which is the last resort, antibiotic to treat MDR strains. There are growing evidences of increasing prevalence of MDRE in different part of the world; however, data about the incidence of CPE in is not documented and this is presumed to be first of its kind in Ethiopia.

Objective: The aim of the study was to assess the prevalence, risk factors of MDR and CPE among patients with symptomatic UTIs.

Methods: A cross sectional study was conducted at the University of Gondar Hospital from February 2014 to May 2014. A systematic random sampling technique was carried out to enroll 442 patients with symptomatic UTIs. All participants were requested to provide a mid-stream urine sample for culture and data for socio-demographic and clinical information were obtained with interviewer administered structured questionnaire. Culturing, biochemical and disk diffusion methods were employed to characterize and antimicrobial susceptibility testing of bacterial isolates. In this particular study, CPE isolates were detected by phenotypic method (CHROMagar TM KPC medium).

Results: A total of 442 patients were enrolled and 183 (41.4%) patients had culture confirmed UTIs. The majority of participants were females (63.8%) and had mean age of 37.05 years; including 86 patients aged <16 years and 73 patients aged >60 years. A total of 183 Enterobacteriaceae isolates were identified, among the isolates 160 (87.4%) were MDRE, the principal MDR isolate were *E. coli* followed by *K. pneumoniae* and antibiotic resistances among MDRE were significantly greater than non-MDRE. Moreover, 5 (2.73%) of isolates were found to be carbapenemase producers, namely *E.coli* (2/5), *K. pneumoniae* (2/5), and *E. aerogenes* (1/5). Significant drug resistances were also observed among CPE compared to other MDRE isolates. Independent risk factors for MDRE UTIs were sex (female) (OR 4.46; P=0.018), age (OR 1.08; P=0.001), hospitalization in the past 12 months (OR 5.23; P=0.006), prior antibiotic use (OR 3.98; P=0.04).

Conclusion: Increased prevalence of MDRE and probably for the first time the incidence of CPE was indicated in this study. Attributing risk factors for MDRE were found to be sex, age, hospitalization, and history of antibiotic therapy. Therefore, efforts should be directed to reduce patient hospital stay and improper use of drugs. Additional and vigorous investigation especially on CPE should be encouraged.

wolet03.2004@gmail.com