

P2562 The role of class I integron in the transmission of carbapenem resistance in OXA-48 producing *Escherichia coli* clinical isolatesHadir El-Mahallawy ^{*1}, Mai Zafer², Mai Mersal³, Magdy Amin⁴¹ National Cancer Institute, Egypt, ² Faculty of pharmacy, Ahran Canadian University, Egypt, ³ Modern University for Technology & Information, Faculty of Pharmacy, Egypt, ⁴ Faculty Of Pharmacy Cairo University, Egypt**Background:** The association of carbapenem resistance genes and class 1 integrons in plasmids has been reported. The aim of this study was to investigate the occurrence of class 1 integrons and carbapenem resistance genes in *Escherichia coli* (*E.coli*).**Materials/methods:** Between June 2016 and March 2017, multidrug-resistant (MDR) *E.coli* clinical isolates were collected from hospitalized cancer patients, National Cancer Institute, Cairo University. Bacterial isolates were tested for susceptibility by VITEK –II. Phenotypic detection of carbapenemase production was performed using Modified Hodge test and Blue-CARBA. Multiplex PCR was used to test for carbapenemase genes (OXA-48, VIM, IMP, NDM, and KPC). Class 1 integrons, the integrase gene *intI1* was screened by PCR amplification. Conjugation experiments and typing with Pulsed-field Gel Electrophoresis (PFGE) were performed.**Results:** Out of 55 MDR *E.coli* clinical isolates obtained during the study period, 33 were non-susceptible to meropenem. Blood stream infections represented the majority of specimens (n=29), while 4(12%) isolates were obtained from surgical site infections. Hematological malignancies (n=28) was the most dominant underlying disease, whereas solid tumors represented 15% of cases. Phenotypically, Modified Hodge, Blue-CARBA tests indicated carbapenemase production in 51% and 44% of the isolates, respectively. Twenty (60%) isolates were positive for the integrase gene (*intI1*). Carbapenem resistance genes *bla*_{OXA-48} and *bla*_{NDM} were detected in 14/33 (42%) and 6/33 (18%) of isolates, respectively. All the OXA-48 *E.coli* producers and NDM *E.coli* producing isolates were *intI1*-positive as well. The trans-conjugant was positive for class 1 integrons and *bla*_{OXA-48}. OXA-48-producing *E. coli* trans-conjugant showed reduced susceptibility to meropenem. An overall similarity of 25.92% between the isolates was detected by PFGE, with variation in pattern of isolates with similar carbapenemase genes (OXA-48 and NDM).**Conclusions:** Class 1 integrons plays a major role in the spread of carbapenemase resistance genes. Class 1 integrons was associated with either OXA-48 or NDM carbapenemase genes. The results of this study indicate the diversity of pathogenic *E.coli* causing health care associated infections. For better understanding of transmission of resistance mechanisms we recommend more studies to focus on mobile genetic elements as integrons since the findings of our study indicate their crucial role in resistance transmission.