

R2511

Abstract (publication only)

Prevalence of plasmid-mediated quinolone resistance determinants (qnr) and aac(6')Ib-cr in Enterobacteriaceae from blood cultures in a Greek university hospital

A. Margaritis*, I. Galani, T. Panagea, H. Giamarellou, G. Petrikos, M. Souli (Athens, GR)

Objectives: To determine the prevalence of plasmid-mediated quinolone resistance determinants in blood culture isolates of Enterobacteriaceae recovered in Attikon University Hospital, Athens, Greece. **Methods:** Over an 18-month period (Dec 2008 to May 2010) a total of 147 Enterobacterial isolates were recovered from blood cultures of single hospitalized patients. 37 *Escherichia coli*, 32 *Klebsiella pneumoniae*, 13 *Enterobacter* spp, 8 *Serratia marcescens*, 2 *Morganella morganii*, 2 *Stenotrophomonas maltophilia*, 1 *Proteus vulgaris* and 1 *Providencia stuartii* isolates were retrieved from the laboratory collection and tested. Isolates were screened for the presence of qnrA, qnrB and qnrS by multiplex PCR, using universal primers for each gene amplifying all related alleles. Gene aac(6')-Ib was screened by PCR and the aac(6')-Ib-positive PCR products were digested with BtsCI to identify the aac(6')-Ib-cr variant. The qnr and aac(6')-Ib-cr positive isolates were additionally tested for extended-spectrum beta-lactamases (ESBL), metallo-beta-lactamases (MBL) and *K.pneumoniae* carbapenemase (KPC). **Results:** Among the 96 Enterobacterial isolates tested, 5 isolates (5.2%) were positive for qnr genes, all harbouring the qnrS determinant. The aac(6')Ib gene was detected in 21 isolates (21.9%), with 4 isolates containing the mutated variant aac(6')Ib-cr (4.2%). Two *Enterobacter* spp and one *S.maltophilia* isolates harboured only the qnrS. One *E.coli* isolate harboured only the aac(6')-Ib-cr, while one *K.pneumoniae* and one *M.morganii* isolates harboured simultaneously the qnrS and the aac(6')-Ib-cr. Aac(6')Ib was significantly more prevalent among *K.pneumoniae* isolates (50%), but only one harboured the aac(6')-Ib-cr (3.1%). Isolates carrying only the qnrS had MICs to nalidixic acid ranging from 4 to 8 mg/L and to ciprofloxacin from 0.032 to 3 mg/L, while qnrS and aac(6')-Ib-cr –positive isolates were resistant to both antimicrobials (MIC >32mg/L). Trimethoprim/ sulfamethoxazole was active against the qnrS-positive isolates but not against those carrying aac(6')-Ib-cr probably due to co-existing resistance mechanisms. Only the *K.pneumoniae* isolate was an ESBL producer. **Conclusions:** This epidemiological survey of the three known qnr determinants and of aac(6')-Ib-cr shows their presence among Enterobacteriaceae responsible for bloodstream infections in patients hospitalized in a Greek tertiary-care hospital, with the qnrS gene being identified at 5.1% and aac(6')-Ib-cr at 4.2%.