P1859

Abstract (poster session)

Virulence factors and phylogroups are not associated with patients' features or source of infection in bacteraemic ESBL-producing Escherichia coli: a prospective multicentre cohort

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Objectives: We studied the association of phylogenetic groups (PG) and virulence factors (VF) with the epidemiology and clinical features of bloodstream infections (BSI) due by ESBL-producing Escherichia coli (ESBLEC). Methods: A prospective cohort including 191 cases of BSI due to ESBLEC from 13 Spanish hospitals (2004-2006) was studied. We analysed the prevalence of different PG and genes codifying for 25 VF by PCR, and their association with epidemiological and clinical features. A VF score (number of VF) was calculated for all isolates. Fisher or chi squatted test and Mann-Whitney U test were used for statistical comparisons. Results: The most frequent adherence-related VF was fimH (84%); among toxins, sat (20%); among iron-related, iutA (82%) and iucD (73%); among others, tratT (74%) and maIX (39%). The average virulence score (SD) was 6.4 (3.5). As regards PG, 27% belonged to D, 16% to B2, and 57% to A or B1. There was no association of specific VF with the source of BSI except for the fact that hlyA, cnf1, and cnf2 were more frequent in biliary than urinary BSI (8% vs 0, p=0.04 for each). We found no association between the VF score and acquisition, underlying conditions, local or general predisposing features, previous antibiotic use or source. The average VF score was higher in B2 isolates than in D or A/B1 groups (10.1, 7.5, and 4.9; p<0.01 for all comparisons), and also in isolates producing CTX-M-1-group ESBLs than in those producing CTX-M-9 and SHV-groups (7.4, 6.5, and 5.0; p<0.01 for CTX-M-1 vs SHV); this was in relation with the higher frequency of CTX-M-1-group in B2 isolates. The VF score was significantly higher among ciprofloxacin-susceptible isolates (7.5 vs 5.9, p=0.008), gentamicin-susceptible (6.7 vs 5.3, p=0.02), and isolates showing resistance to 3 or less antimicrobials (7.9 vs 6.0, p=0.02); this was related to the fact that B2 isolates less frequently showed resistance to ciprofloxacin or gentamicin. We found no association between PG and features of the patients, predisposing features for infection, or source of BSI with the exception of cancer, which was more frequent among B1/A isolates than among B2 (33% vs 13%, p=0.04). Conclusions: The prevalence of FV in this cohort of BSI due to ESBLEC was lower than in previous series of E. coli causing BSI, associated with a higher prevalence of A/B1 isolates. FV score was mainly related to PG. The epidemiological drivers for acquiring BSI due to different PG or VF remain unknown.