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O0709 Risk factors for community-onset bloodstream infection with extended-spectrum beta-lactamase-producing *Enterobacteriaceae*: national population-based case-control study

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Background: Many studies of bloodstream infections with extended-spectrum ß-lactamase-producing Enterobacteriaceae (EPE BSI) are hampered by cases being confined to specific hospitals, and that controls are not representative of the source population. Population-based studies of disease burden and risk factors are needed.

Materials/methods: EPE BSI is mandatory to report to a national register at the Public Health Agency of Sweden. Using this register, we identified all individuals with community-onset EPE BSI (blood culture performed <48 h of hospital admission) from 2007-2012 and randomly assigned 10 population-based controls per case. Data on comorbidity, hospitalization, in- and outpatient antibiotic consumption and socio-economic status was collected from health and hospital registers.

Results: In total, 945 EPE BSIs were identified. The overall incidence was 5.5 per 100000 person-years but increased during the study period. The 30-day mortality was 11.3%. Urological disorders were associated with an adjusted odds ratio (aOR) of 3.0 (95% confidence interval [CI] 2.5-3.6) for EPE BSI. Immune deficiencies (aOR 3.5, CI 2.0-6.2), solid tumors (aOR 2.3, CI 1.8-2.9), hematological malignancies (aOR 2.8, CI 1.6-4.9) and diabetes (aOR 2.0, CI 1.6-2.6) were associated with ORs ≥2. Consumption of fluoroquinolones (aOR 5.52, CI 2.8-11.0) or antibiotics with selective activity against Gram-negative bacteria but mostly not EPE (aOR 3.8, CI 1.9-7.7) 8-91 days before the event was associated with increased risk. The aORs associated with receipt of 1 and ≥2 treatment regimens of antibiotics with selective activity against gram-negative bacteria but mostly not EPE were 2.9 (1.5 – 5.8) and 4.9 (1.2 – 20.1), respectively, compared to no treatment. Antibiotic consumption >3 months before EPE BSI was not associated with increased risk. The population attributable fraction for fluoroquinolones was 14% and for antibiotics with selective activity against gram-negative bacteria but mostly not EPE 17%. Education ≤10 years compared to >12 years was not associated with EPE BSI, but with 30-day mortality (aOR 2.38, CI 1.1 – 4.9).

Conclusions: Urological disorders and immunosuppression were prominent risk factors for community-onset EPE BSI, while low education was associated with increased mortality. Our results support that specific antibiotics are drivers of EPE BSI risk and reinforces the importance of antibiotic stewardship.