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Abstract (poster session)

Virulence and resistance characteristics of Klebsiella pneumoniae causing community-acquired urinary tract infection

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Objectives: Klebsiella pneumoniae is the second most common species causing urinary tract infections (UTI). The aim of this study was to evaluate the virulence and resistance determinants of K. pneumoniae isolates and host factors potentially relevant to community-acquired urinary tract infection. Methods: During 2010, a total of 50 Klebsiella pneumoniae isolates causing community-acquired UTI were collected from 10 community-centres in Portugal. Isolates were recovered from patients with less than 50 years (22%, 11/50), more than 50 years (78%, 39/50), complicated cystite (18%, 9/50) and recurrent UTI infections (38%, 19/50). Susceptibilities to antimicrobial agents were determined by disk diffusion and interpreted according to CLSI guidelines: amoxicillin/clavulanic acid, cefoxitine, ceftazidime, cefotaxime, imipenem, gentamicin, fosfomycin, ciprofloxacin and levofloxacin. The isolates were screened by PCR amplification with specific primers for bla-CTX-M, bla-TEM and bla-SHV extended-spectrum-ß-lactamases (ESBL) and 6 virulence factors genes: k2A (K2 serotype), fimH (fimbrial adhesin type 1), mrkD2 and mrKD3 (fimbrial adhesin type 3), khe (haemolysin) and iucC (aerobactine). A p value of <= 0.05 was used to indicate statistical significance. Results: 10% (5/50) of the K. pneumoniae isolates showed the bla-TEM-type ß-lactamase (3/50) and the bla-CTX-M-1 ESBL (2/50), only associated with adults >= 50 years old. Worrisome quinolone resistance was found to ciprofloxacin (16%) and levofloxacin (16%). The most frequent virulence genes were the mrkD3 (62%), fimH (40%) and khe (46%). 6% of the isolates of Klebsiella pneumoniae belong to capsular serotype K2. Conclusions: Fimbrial adhesins type 3 (variety mrkD2) and the serotype K2 was correlated with elderly women UTI while haemolysin and fimbrial adhesins type 1 and 3 (variety mrkD3) may have a role in community-acquired UTI by older adults. These data provide information on the resistance and virulence patterns among Klebsiella pneumoniae isolates currently causing community-acquired UTI.