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Prikaz slučaja | Case report

Providencia stuartii infections in ICU

Infekcije bakterijom *Providentia stuartii* u jedinicama intenzivne medicine

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Descriptors PROVIDENCIA STUARTII; ICU; DRUG RESISTANCE

Introduction

Providencia species are Gram-negative bacilli in the Enterobacteriaceae family. The genus *Providencia* includes five species: *Providencia stuartii*, *Providencia rettgeri*, *Providencia alcalifaciens*, *Providencia heimbachae*, and *Providencia rustigianii*.

P. stuartii is typically isolated from human secretions, including urine, sputum, blood, stool, and wound cultures (1). The treatment of choice is based on antibiotic sensitivities, infection source, and comorbid conditions (2). The study was performed to investigate the clinical and drug resistance characteristics of *P. stuartii* infections in our ICU.

Clinical characteristics

Two patients (female patient, 64 zears old, and male patient, 18), hospitalized in our ICU during two-month period, were included in our analysis. The organism was isolated from patients blood cultures.

Bacterial identification and drug susceptibility assessment

All bacterial colonies were processed for identification and antibiotic susceptibility testing in accordance with our Clinical and Laboratory Guidelines. Multiple drug resistance was defined as non-susceptibility to at least one agent in three or more antimicrobial categories (3). Extensive drug resistance was defined as non-susceptibility to at least one agent in all but two or fewer antimicrobial categories.

Drug susceptibility results

P. stuartii was most sensitive to imipenem, followed by meropenem, ceftriaxone, cefotaxime, ceftazidime, amikacin, piperacillin tazobactam and cefepime.

Discussion

P. stuartii is a rare enterobacteriaceae opportunistic pathogen, that was first isolated in 1904 by Rettger and named in 1951 by Kauffmann. Occurs naturally in soil, water, and sewage; it often affects humans and animals, which can lead to outbreaks of hospital infection (4). *P. stuartii* inherently produces AmpC beta-lactamase, which causes it to be naturally resistant to penicillin and the first- and second-generation cephalosporins.

In recent years, *P. stuartii* has been shown to exhibit intrinsic resistance to antibiotics that are considered last-resort treatments, such as colistin and tigecycline. Carbapenemase-expressing isolates have been described, which could become an important clinical concern (5).

Conclusion

Prevalence of *P. stuartii* infection is increasing because of antibiotic resistance secondary to the presence of extended spectrum beta-lactamase (ESBL) enzymes. It is difficult to treat and it is frequently involved in nosocomial outbreaks, particularly in nursing homes, burn wound units, and critical care units. *P. stuartii* infections are often difficult to control and have substantial impacts on patient morbidity, mortality, treatment, and management costs.

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