

TITLE: KPC-PRODUCING *KLEBSIELLA PNEUMONIAE* IN BLOODSTREAM INFECTION: PREVALENCE, TIME TO BLOOD CULTURE POSITIVITY AND ANTIMICROBIAL SUSCEPTIBILITY

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ABSTRACT

Over the past decades, KPC-producing *K. pneumoniae* (KPC-Kp) has been recognized in health-care settings as a cause of difficult-to-treat infections associated with high mortality, especially in bloodstream infections (BSIs). Time to positivity (TTP) of blood cultures has been used as a predictor of bacteremia prognosis, due to the inverse relation between amount of bacterial inoculum and TTP. Here we evaluate: (i) the prevalence of BSI caused by KPC-Kp; (ii) the TTP of blood cultures, and (iii) the antimicrobial susceptibility profile of KPC-Kp isolates. Blood cultures collected between May 2013 and March 2016 in a tertiary-care teaching hospital, located in Curitiba, Paraná, Brazil, were evaluated in a retrospective study. BSIs were performed using the automated blood culture instrument BD BACTEC™. Bacterial identification and antimicrobial susceptibility testing were carried out by Vitek2 Compact® System. Beta-lactamase-producing Kp was detected using phenotypic and molecular tests. Only one patient was included at the TTP of the first BSI. Patients aged less than 18 years and those with polymicrobial bacteremia were excluded. During the three years studied, a total of 101 patients had Kp BSI. Among of the isolates, 27 (26.5%) were KPC-Kp and 31 (30.7%) were ESBL-Kp. The prevalence of KPC-Kp has increased over time: 17% (2013), 21% (2014), 37% (2015) and 50% in the early months in 2016. TTP up to 12 and 24 h was recorded at 65% and 92% of the blood cultures, respectively. There was no difference in TTP among KPC, ESBL or susceptible-Kp. KPC-Kp were mainly resistant to ciprofloxacin (96%), gentamicin (75%), amikacin (52%) and tigecycline (52%). Only 5% of KPC-Kp isolates showed resistance to colistin. Previous studies have associated low TTP to the high mortality risk in patients with Kp BSI. TTP data are easily purchased in hospitals where microbiology laboratories use automated blood culture detection methods. Those data about Kp BSI can assist clinicians with choosing the appropriate antimicrobial therapy as soon as possible and provide information about the prognostic of the patients.

Keywords: *Klebsiella pneumoniae*, KPC, Bloodstream infection