Background: Pseudomonas aeruginosa is the third most common gram-negative pathogen causing nosocomial BSIs. Strains that produce metallo-ß-lactamase are becoming increasingly prevalent.

Objective: To describe the epidemiology and microbiological characteristics of BSIs due to metallo-ß-lactamase-producing P. aeruginosa.

Methods: We performed a case-control study to evaluate the epidemiological and microbiological course of monomicrobial P. aeruginosa BSIs between January 2000 and May 2002. Each patient was only included once at the time of the first BSI. Cases were defined as patients with BSI due to a MBL-producing strain of P. aeruginosa. Controls were defined as patients with BSI caused by non-MBL-producing P. aeruginosa. All isolates were screened for the metallo-ß-lactamase (MBL) phenotype by using metallo-ß-lactamase inhibitors. PCR was used to search for the MBL genes blam, blap, and blad. Prior antimicrobial treatment was defined as an antimicrobial prescribed for at least 48 hours in the 15 days prior to the onset of BSI. Outcomes evaluated included 14-day mortality, in-hospital mortality, and microbiological assessment at 14 days post-treatment.

Statistical methods: For continuous variables, mean values were compared using two sample t-tests for independent samples. Differences in proportions were compared using a Chi-square test or Fisher’s Exact Test when appropriate. Mean values are reported ± 1 SD. All tests of significance are two-tailed. Alpha was set at 0.05. All statistical analyses were done using the Statistical Package for the Social Sciences software (SPSS, Chicago, IL, USA).

RESULTS

Since their first description in the early 1990s, metallo-ß-lactamase-producing P. aeruginosa strains have been reported as an important cause of nosocomial infections.

Risk factors for nosocomial multi-drug resistant P. aeruginosa infection include previous exposure to antimicrobials, mainly carbapenems, and prolonged hospitalization; however, little is known regarding the specific risk factors for metallo-ß-lactamase-producing strains.

The aim of this study was to identify the epidemiology and microbiological characteristics of metallo-ß-lactamase-producing Pseudomonas aeruginosa bloodstream infections.

CONCLUSIONS

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