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ANTIMICROBICI

CEFTAZIDIME-AVIBACTAM SUSCEPTIBLE TO RESISTANT KPC-PRODUCING ENTEROBACTERIALES RECURRENT BLOODSTREAM INFECTION: AN OBSERVATIONAL STUDY

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INTRODUZIONE

Carbapenem-resistant Enterobacteriales (CRE) represent a serious global issue concerning public health, especially among patients suffering from healthcare-associated bloodstream infections (BSI). This type of resistance is mainly due to the production of Klebsiella pneumoniae carbapenemase (KPC). Ceftazidime-avibactam (C-A) is a recent β-lactam/β-lactamase inhibitor combination capable of restoring β-lactam activity against KPC-producing Enterobacteriales (KPC-EB).
Some recent studies have attested the development of C-A resistance during treatment. However, data reporting the incidence of post-treatment C-A resistance in BSI are lacking.
The objective of our study was to assess the incidence of C-A resistance in patients suffering from KPC-EB BSI who underwent C-A treatment.

METODI

A monocentric retrospective study, considering one year (February 2018 – January 2019), was performed at the University Hospital Città della Salute e della Scienza (Turin, Italy). All patients who developed a C-A susceptible KPC-EB BSI and underwent treatment with C-A were included. Incidence of post-treatment C-A resistant KPC-EB BSI was assessed. For all patients the following data were collected: age, sex, type of patient, C-A length of treatment, C-A treatment regimen and interpretations with relative MICs of the antimicrobials used.

RISULTATI

Fifty-one patients developed a C-A susceptible KPC-producing K. pneumoniae (KPC-KP) BSI in a year. Of these, 23 patients were treated with C-A alone (n = 3), or in combination with other antibiotics (n = 20).
Four patients out of 23 subsequently developed a KPC-KP recurrent BSI. Of these, two patients developed a C-A resistant KPC-KP BSI, corresponding to a C-A susceptible to resistant rate of 8.7% (2/23); C-A MIC of the third patient increased from 2 to 8 μg/ml, while no relevant C-A MIC variation was observed in the fourth patient.
Among the 19 patients who did not develop a KPC-KP recurrent BSI, 12/19 (63.2%) underwent a combination treatment with at least one antimicrobial being susceptible or intermediate, 4/19 (21%) were on combination therapy with a resistant antimicrobial and 3/19 (15.8%) underwent monotherapy with C-A.

CONCLUSIONI

Despite its recent onset, C-A resistance is a well documented issue that is going to represent a hard challenge for both laboratorists and clinicians in the near future.
Our study highlighted the importance of this phenomenon, showing a rather alarming C-A susceptible to resistant rate in KPC-KP BSI patients, given the recent introduction of this antimicrobial for routine clinical use.
Based on our data, it would seem reasonable to consider the utilization of an effective combination therapy to thwart the future onset of C-A resistant KPC-EB strains.