

10. Immunology, Immune compromise & vaccinology

10b. Infections in immunocompromised hosts (incl. epidemiology, clinical features and diagnosis, treatment, excl. fungal infections)

Likely attendance

Onsite

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Background

No studies have evaluated the role of ceftazidime-avibactam (CA) for carbapenemase-producing Enterobacterales bacteremia (CPEB) exclusively in high-risk neutropenic patients (HRNP). The aim was to evaluate CA treatment's clinical and mortality impact in HRNP with CPEB.

Methods

A prospective observational study in 11 centers in Argentina between May 2014 and April 2022. Adult HRNP with hematologic malignancies, hematopoietic stem cell transplants, and multi drug resistant Enterobacterales bacteremia (MDR-EB) were included. They were compared according to the resistance mechanism and according to whether they were treated with CA vs. other antibiotics (OA). 30 day-mortality was evaluated using a logistic regression model, and survival using Kaplan-Meier curves with the log-rank test.

Results

249 patients with MDR-EB were included; 173 were resistant to third generation cephalosporins, mostly by ESBL (G1), and 76 were resistant to carbapenems by KPC or OXA-48-like carbapenemase-producing, 16 treated with CA (G2) and 60 treated with OA (G3). There were no statistically significant differences between the groups in median age, hematological malignancy (the most frequent acute leukemia, duration of neutropenia >10 days, Charlson, Pitt, and APACHE II scores, or presence of clinical source. *Klebsiella* spp. was the most frequent microorganism: G1 49.1% vs. G2 93.8% vs. G3 88.3% ($p<0.0001$). The appropriate empirical antibiotic treatment between G1, G2, and G3 were, respectively: 88.4% vs. 81.3% vs. 45% ($p<0.0001$) and the combined definitive treatment 8.1% vs. 68.8% vs. 88.3% ($p<0.0001$). 7-day mortality between G1, G2, and G3 was 7.5% vs. 6.3% vs. 36.6% ($p<0.0001$). 30-day overall mortality was G1, G2, and G3 were respectively: 17.3% vs. 18.8% vs. 53.3% ($p<0.0001$) and infection-related mortality was 70% vs. 33.3% vs. 87.5% ($p=0.039$). The independent risk factors for mortality were: CPEB: OR 5.20, CI95%, 1.8-15 ($p=0.002$) and shock: OR 16.3, CI95%, 6.12-43.3 ($p<0.0001$), while 7-day clinical response was a protective factor for survival: OR 0.10, CI95% 0.04-0.26 ($p<0.0001$).

Conclusions

Our study showed that HRNP with CPEB treated with CA had a similar outcome to those caused by carbapenems susceptible Enterobacterales, and lower early, late, and infection-related mortality than those treated with OA. These findings support the role of CA in this population.

Keyword 1

Antimicrobial resistance (AMR)

Keyword 2

Immunocompromised hosts and transplant ID

Keyword 3

Neutropenia

Conflicts of interest

Do you have any conflicts of interest to declare?

No