Controversy exists on whether the use of third-generation cephalosporins to treat infections caused by inducible-organisms lead to increased rates of clinical failure and resistance. The objective of this study was to examine early clinical failure rates between patients receiving empiric third-generation cephalosporins or carbapenems for treatment of Enterobacter spp., Serratia spp., Citrobacter spp., or Morganella morganii infections.

This retrospective cohort study included patients with bloodstream and/or respiratory infections caused by ESCPM pathogens resistant to first-generation cephalosporins and susceptible to third-generation cephalosporins. The primary outcome of early clinical failure was compared between patients receiving empiric third-generation cephalosporins and carbapenems. To minimize the possibility of treatment selection bias, 1:1 nearest neighbor propensity score matching was performed.

Propensity score matching yielded 30 matched pairs. Early clinical failure occurred in 8 (26.7%) patients in the third-generation cephalosporin group and 9 (30%) in the carbapenem group (p = 1.00). Thirty-day mortality occurred in 4 (13.3%) patients in the third-generation cephalosporin group and 5 (16.7%) patients in the carbapenem group (p = 1.00). Thirty-day readmission occurred in 4 (13.3%) patients in the third-generation cephalosporin group and 3 (10%) patients in the carbapenem group (p = 1.00). Positive repeat cultures occurred in 3 (10.0%) patients in the third-generation cephalosporin group and 11 (36.7%) patients in the carbapenem group (p = .03).

Empiric therapy with third-generation cephalosporin did not result in a higher rate of early clinical failure than carbapenems for patients with bloodstream and/or respiratory infections caused by ESCPM pathogens."