In vitro activity of ceftazidime-avibactam and comparator agents against Enterobacteriaceae and Pseudomonas aeruginosa collected from paediatric patients as part of the ATLAS Global Surveillance Program 2012-2017

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Background: Ceftazidime-avibactam (CAZ-AVI) is a β-lactam/non-β-lactam β-lactamase inhibitor combination approved in Europe and the United States for treatment of adults with complicated intra-abdominal (IAI), urinary tract (UTI), and lower respiratory tract (LRTI) infections caused by Enterobacteriaceae and Pseudomonas aeruginosa carrying Class A, C and some Class D serine β-lactamases. We examined the in vitro activity of CAZ-AVI and comparator agents against isolates collected from pediatric patients (newborn to 17 years old) as part of the INFORM surveillance program in 2012-2017.

Materials/methods: 7776 non-duplicate isolates were collected from 188 hospital laboratories in Europe (4073), Latin America (1596), Asia/Pacific (925, excluding China), and the Middle East/Africa region (1182) from UTI (2273), LRTI (2133), skin and soft tissue (SSTI; 1520), IAI (1260), bloodstream (563 [2015-2017]), and other (27) sources. Susceptibility testing was performed by CLSI broth microdilution and values were interpreted using EUCAST 2018 breakpoints. CAZ-AVI was tested at a fixed concentration of 4 mg/L AVI.

Results: The in vitro activity of CAZ-AVI was greater than that of meropenem and ceftazidime against Enterobacteriaceae and P. aeruginosa collected from different infection sources (Enterobacteriaceae: MIC₉₀, 0.25-0.5 mg/L, >98% susceptible; P. aeruginosa: MIC₉₀, 4-8 mg/L, >93% susceptible) (Table).

Conclusions: CAZ-AVI demonstrated potent in vitro activity against Enterobacteriaceae and P. aeruginosa isolates collected globally from pediatric patients in 2012-2017, regardless of infection site.