Título: Genetic characteristics of two *Klebsiella pneumoniae* carbapenemase-producing isolates from bloodstream of neonate patients from the Brazilian Amazon Region.

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Resumo:

Klebsiella pneumoniae carbapenemase producing bacteria is a significant public health problem and are commonly associated with hospital outbreaks worldwide.The risk for the patients,especially immunocompromised ones and neonates, can be significant, if they become infected by those species.In this study, we described the phenotypic and genotypic characteristics of two KPC, isolated from clinical samples, recovered from hospitals in Manaus-AM-Brazil.From February to September 2014, 2,426 clinical samples collected from neonates and other patients hospitalized at the Ana Braga, Instituto da Mulher, and Balbina Mestrinho maternity hospitals,were sent to the Clinical Bacteriology Laboratory.The phenotypic identification and MIC(µg/mL) test were performed by MicroScan autoSCAN4.The DNA extraction was carried out by Easy DNA kit (Thermo Scientific), and a NGS protocol on Ion Torrent PGM was applied for whole genome sequencing. A total of 1,644,296 reads for P-15, and 1,946,873 reads for P-19 were obtained; filtered by lengths and quality and used to assemble a draft genome using the NCBI *K.pneumoniae* NC_012731 as a reference with the Geneious Software 7.1.Among those 2,426 clinical samples,50 were identified as *K. pneumoniae* of which, 37 were from blood and 13 were from urine.The two KPCs (P-15 and P-19) were isolated from neonatal bloodstream and were multidrug resistant. The isolate P-15 showed susceptibility to cefoxitin(≤4),colistin(≤0.5),reduced sensibility to ciprofloxacin(2) and tigecycline (2).The isolate P-19 showed sensibility to colistin(≤0.5),reduced sensibility to amikacin(32).The isolates P-15 and P-19 were resistance to ertapenem (≥8). Based on the draft genome analysis of those isolates, the P-15 isolate presented an ESBL profile(bla_{SHV-76}) and quinolone(*oqxA*,*oqxB genes)* resistance, whereas P-19 showed a profile of ESBL(bla_{SHV-99}) and quinolone(*oqxA*,*oqxB* genes)resistance, except for fosfomycin. Furthermore, no resistance genes were found for nitroimidazole, phenicol, rifampicin, fusidic acid, macrolide, lincosamide, streptogramin B, sulphonamide, tetracycline, trimethoprim and sulphonamide for both isolates. A MLST analysis identified P-15 as ST-405 and P-19 as ST-22.The results confirm the circulation of *K*. *pneumoniae* carbapenemase-producing isolates with relevant genotypical characteristics in the region, which requires attention and rigorous monitoring and control actions of this important pathogen both in hospitals and in the community.

Palavras-chaves: KPC, MLST, *K.pneumoniae*

Fomento: FHEMOAM, UEA, FIOCRUZ AMAZÔNIA