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Epidemiological and Molecular Characterization of KPC-producing Enterobacteria from Argentina

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Abstract:

Background: Argentina is endemic to KPC carbapenemase since 2010, mainly due to ST258 of *Klebsiella pneumonie*. However, KPC has spread to other species, mainly *Enterobacter cloacae*. Here, we report the characterization of 52 non-duplicate KPC-producing *E. cloacae* detected in Argentina.

Methods: KPCs were suspected in 77 out of 200 *E. cloacae* complex isolates received at the NRLAR between 2008 and 2014 due to imipenem ≤22, or ertapenem ≤21 or positive Blue Carba Test or positive synergy with phenyl boronic acid disc. Species were confirmed by MALDI-TOF. Antimicrobial susceptibility testing was done with broth microdilution (CLSI). Resistant genes,*kpc* allele and genetic environment were studied by PCR and sequencing. Clonal relatedness was evaluated by XbaI-PFGE

Results: *kpc-2* was confirmed in 77 out of 200 *E. cloacae* complex isolates. 52 were confirmed as *E. cloacae* and included for further studies. The isolation site was urine (25%), rectal swab (15%), blood (13%), catheters (8%), abdominal drainage (6%), traqueal fluid (4%), and others (29%). Isolates came from 31 hospitals (htals.), 58% of the isolates were from one district (Capital Federal, 17 Htals). The isolate distribution/yr was: 1/2008; 1/2009; 12/2010; 11/2011; 7/2012; 5/2013; 15/2014. Non-susceptibility was 100% to meropenem and nalidixic acid, 98% to imipenem and ciprofloxacin, 67% minocycline, 65% tigecycline, 60% gentamicin, 17% amikacin and 17% colistin. ESBLs were confirmed in 17/52 (33%): 10 *per*, 7 *ctx-m*. The isolates were not genetically related. *kpc-2* was located on different T*n3*-derived transposon in all isolates except one where it was located on the Tn*4401a* transposon.

Conclusion: We report the occurrence of *kpc-2*-producing *E. cloacae.* The clonal diversity observed suggests that *kpc-2* dissemination in *E. cloacae* is not due to a major clone as used to happened with the *K. pneumoniae* ST258.