29th ECCMID Amsterdam, Netherlands 13 – 16 April 2019

The congress of ESCMID

P1395 Enterobacteriales clinical isolates co-producing MCR-1 plus carbapenemase from Argentina

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Background: In the last 10 years, an increase in the carbapenem resistance in *Enterobacteriales* was observed in Argentina, mainly mediated by KPC, followed by NDM and OXA-48-like carbapenemases. Transferable resistance to polymyxins in clinical isolates of *E. coli* mediated by the mcr-1 gene has been recently described worldwide including our country. Between November 2015 and May 2018, 162 *Enterobacteriales* clinical isolates (159 *E. coli*) from 12 provinces and Buenos Aires City (BAC) were confirmed as positive for *mcr-1* gene at the National Reference Laboratory (LNR). Four of these isolates, 3 *E. coli* (Eco) and 1 *C. amalonaticus* (Cam), were also positive for a carbapenemase. Here, we describe the epidemiological and molecular characteristics of four isolates coproducing carbapenemase and *mcr-1* genes.

Materials/methods: Colistin susceptibility was evaluated by microdilution according to CLSI / EUCAST and was interpreted according to EUCAST (≤2 mg/L susceptible; >2 mg/L resistant). The rest of the antimicrobials were evaluated by MicroScan (WalkAway 96 Plus) and the disk diffusion method (CLSI). Resistance genes were detected by PCR and sequenced by Sanger. The genetic relationship was evaluated by XbaI-PFGE.

Results: Epidemiological data, resistance profiles and detected genes are described in the Table. The three *E. coli* were genetically unrelated. All isolates showed a multiresistant profile, three carried NDM-1 metallo-beta-lactamase, plus CMY-6 enzyme, and the remaining KPC-2.

Microorganism	Date	Sample	Htal.	City	Mechanism	COL MIC	Resistance profile
Eco	May-14	Blood	A	BAC	NDM-1; CMY-6; mcr-1	≥8 mg/L	TGC,IMP,GEN, AMK,COL
Cam	Feb-16	Screening	A	BAC	NDM-1; CMY-6; mcr-1	≥8 mg/L	TGC,IMP,GEN, AMK,SXT,COL
Eco	Apr-16	Screening	B	Santa Cruz	KPC-2; mcr-1	≥8 mg/L	TGC,IMP,TET, MIN,COL
Eco	Mar-18	Screening	C	BAC	NDM-1; CMY-6; mcr-1	≥8 mg/L	TGC,IMP,CIP, TET,MIN,GEN, AMK,SXT,NIT, COL
TGC, third-generation cephalosporins; CAR, carbapenems; GEN, gentamicin; AMK, amikacin; COL, colistin; SXT, trimethoprim-sulfamethoxazole; TET, tetracycline; MIN, minocycline; CIP, ciprofloxacin; NIT, nitrofurantoin.							

Conclusions: We describe the emergence of four *Enterobacteriales* clinical isolates carrying tranferable mechanisms of resistance to carbapenems, NDM or KPC, and colistín mediated by *mcr-1* gene. The limited treatment options in infections caused by these pathogens and the possibility of dissemination of these mechanisms is a challenge for the Public Health System.