

TITLE: PLASMID-MEDIATED QUINOLONE RESISTANCE IN *Escherichia coli* ISOLATES FROM INDIVIDUALS IN RIO DE JANEIRO COMMUNITY

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ABSTRACT:

Resistance to fluorquinolones is widely disseminated in Gram-negative bacteria worldwide and community-acquired resistant infections became a public health threat. Plasmid-mediated quinolone resistance (PMQR) is of concern because such determinants may facilitate the emergence of bacterial isolates with high levels of resistance to these drugs. The presence of resistance genes in isolates of gut microbiota may lead, ultimately, to drug-resistant infections. The aim of this study was to identify the presence of PMQR in multidrug-resistant (MDR) or ciprofloxacin-resistant *Escherichia coli* isolates obtained from individuals of Rio de Janeiro community. Clinical specimens were obtained from individuals without any infections attending two outpatient healthcare units in Rio de Janeiro: PSF-Lapa and UPA-Tijuca. Participants who signed the informed consent answered a questionnaire with demographic and clinical data. Fecal specimens were obtained with anal swabs, transferred to Laboratório de Investigação em Microbiologia Médica (LIMM) of Universidade Federal do Rio de Janeiro (UFRJ) and stored in skim milk, tryptone, glucose, and glycerin (STGG) containing media. Specimens were seeded onto MacConkey agar medium without and with antimicrobial selective pressure (ceftriaxone 2µg/mL) and isolates identified by MALDI-TOF-MS. Characterization of isolates as resistant to ciprofloxacin or multidrug-resistant was performed by antimicrobial disc-diffusion tests (CLSI, 2018). PMQR genes were screened by PCR (*qnrA*, *qnrB*, *qnrC*, *qnrD*, *qnrS*, *qnrVc* and *qepA*) and sequencing for *aac* (6')-Ib-cr. From 346 *E. coli* isolates (one per individual), 45 (13%) were MDR, including 15 resistant to ciprofloxacin. Two additional non-MDR isolates were resistant to ciprofloxacin, leading to a total of 47 analysed. PMQR genes were identified in 8 (17%) of the 47 isolates: 4 *qnrB*, 2 *qnrS* and 2 *aac*(6')-Ib-cr. This is a relatively low frequency of PMQR genes but may represent a threat of further dissemination and to effective antimicrobial treatment of infections.

Keywords: *Escherichia coli*, fluorquinolone resistance, community-acquired resistance

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