PHENOTYPIC AND MOLECULAR CHARACTERIZATION OF ERYTHROMYCIN AND LEVOFLOXACIN RESISTANT ISOLATES OF *Streptococcus agalactiae*

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Streptococcus agalactiae (Group B Streptococci, GBS) is an important invasive pathogen in newborns and is also associated with infections in pregnant women and not pregnant adults. Penicillin is the drug of choice for the treatment of GBS infections, despite rare reports of decreased susceptibility. Macrolides are alternatives to beta-lactam allergic patients, but resistance has been reported in different geographical areas. Resistance to fluoroquinolones, therapeutic options to streptococcal infections, has been reported recently. Fifty-nine GBS isolates, among 499 that were submitted to antimicrobial susceptibility testing by agar diffusion method, were found to be nonsusceptible to erythromycin and/or to levofloxacin (11.8% of isolates). These isolates were recovered from clinical specimens submitted to routine diagnosis, between 2004 and 2013, mostly from outpatients, residents in the metropolitan area of Rio de Janeiro. Clinical specimens were blood (1), sperm (2), urethral discharge (1), urine (43) and vaginal secretion (12). Isolates were submitted to determination of erythromycin and levofloxacin MIC, macrolide phenotype and genotype characterization, fluoroquinolone genotype characterization and capsular typing. Forty-four and 12 isolates were erythromycin resistant and intermediate, respectively. Erythromycin MIC varied from 0.5 to >256 µg/ml, therefore, one isolate was intermediated and 55 were resistant to this agent. Resistance phenotypes and genotypes were M and *mefA/E* (9); cMLS (20) with *ermA* (5), *ermB* (14) and failure of amplification (1); iMLS (27) with *ermA* (24), *ermA/ermB* (1), *ermA/mefA/E* (1) and *ermB* (1). Capsular typing of 86% of isolates revealed prevalence of type V (56%). Levofloxacin resistance was observed in four isolates (one isolate was erythromycin and levofloxacin resistant). Levofloxacin MIC varied from 4 to >32 µg/ml, therefore, one isolate was intermediated and three were resistant to this agent. Point mutations were detected in internal regions of both *gyrA* and *parC* genes. Resistant and intermediate isolates had Ser-81→Leu in *gyrA*. In *parC*, Ser-79→Phe was observed in all resistant isolates, whereas the intermediate isolate had another substitution (Ser-80→Pro). An additional substitution in *parC* (Gly-128→Asp) was observed in one resistant isolate. Characterization of such isolates is mandatory for understanding the evolution of antimicrobial resistance and for optimizing treatment of GBS infections in our country.

Keywords: *Streptococcus agalactiae*, antimicrobial resistance, capsular type.

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