ABSTRACT BOOK

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PM221 Antibacterial Activity of a Topoisomerase I Inhibitor versus Fluoroquinolones in Streptococcus pneumoniae biofilms

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Background: *Streptococcus pneumoniae* is cause of community-acquired pneumonia, meningitis, otitis media, sinusitis and conjunctivitis. The increase of non-vaccine serotypes, nonencapsulated strains and fluoroquinolone-resistant isolates are emerging problems. Biofilm formation is associated with the persistence of disease and antibiotic resistance. Seconeolistine (SCN) is a new lead compound for antibiotic development that inhibits the growth of Streptococcus pneumoniae by inhibiting their DNA topoisomerase I enzyme.

Objectives: To compared the in vitro antibacterial activity of SCN with that of two fluoroquinolones (FQ), levofloxacin (LVX) and moxifloxacin (MFX), in biofilms formed by 2 isogenic pneumococcal strains: the susceptible R6 and the FQ-resistant T2.

Methods: *Streptococcus pneumoniae* R6 biofilms were analyzed after their treatment and during the postantibiotic phase. Growth kinetics of sessile bacteria forming the biofilm (viable counting), quantification of bacteria in the biofilm (staining with crystal violet) and confocal structure of the biofilm (confocal microscopy) were analyzed

Results: SCN was the drug with faster and higher bactericidal activity. Both FQs and SCN induced PAE in sessile bacteria forming biofilms at 2.5-5 $\times$ MIC, ranging between 0.99-3.32 h (LVX), 0.89-1.91 h (MFX) and 0.84-2.31 h (SCN). Longer PAE was induced by SCN than by fluoroquinolones. The inhibitory activity and the PAE induced by SCN were similar in both strains. However, they were lower in the resistant strain T2 treated with the FQs. PAE decreases of up 1.7 (LVX) or 1.4-fold (MFX) during biofilm formation. Therefore, Topoisomerase I Inhibitors could be an alternative to the treatment of pneumococci biofilms, especially against fluoroquinolone-resistant strains