IN VITRO SYNERGISTIC EVALUATION OF ANTIBIOTICS ACTIVITY AGAINST *Klebsiella pneumoniae* AND *Staphylococcus aureus* MULTIRESISTANT

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Antibiotic resistance has been globally recognized as a serious risk to public health. In this context, most *Klebsiella pneumoniae* e *Staphylococcus aureus* have shown the ability to develop mechanisms of resistance, further causing severe outbreaks. One of the strategies developed to respond to microorganism is utilization of pharmacies synergism. This study aims to determine MICs of antibiotics (penicillin G – PNG, chloramphenicol – CAP, streptomycin – SMA and cefotaxime – CFT) separately and then set the FIC of peer-to-peer associated drugs evaluating their synergistic activity over *S. aureus* and *K. pneumoniae* strains. Initially, the MIC test was performed according to the CLSI / NCCLS protocol by means of serial microdilution of each antibiotic in a 96-well microplate against resistant clinical isolates. The MIC values for the drugs were 536, 198, 7 and 86 µM of CFT, CAP, SMA and PNG, respectively, against *S. aureus*. Furthermore, MICs observed for *K. pneumoniae* of CFT, CAP and SMA were 67, 25, 7 and, respectively. PNG showed a high MIC value of >1436 µM against *K. pneumoniae.* Subsequently antibiotics were combined to assess synergistic activities by using checkerboard method. Among the associations utilized toward *K. pneumonia*, the most efficient combinations were CFT/SMA (ΣFIC = 0.185) and against *S. aureus* was PNG/SMA (ΣFIC = 0.185). The synergistic effects resulting from the peer-to-peer combined use of CFT, CAP, SMA and PNG may be a therapeutic alternative for the treatment of infections caused by resistant strains of *K. pneumoniae* and *S. aureus*. Here the reduction of drugs concentration aims to increase the therapeutic efficiency, expanding the antibiotics therapy spectrum of action. Moreover it was also expected a side effects decrease in order to improve the population life quality.

Keyword: synergism; antibiotics; bacterial resistance.

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