Área: 10 - Patógeno-Hospedeiro e 10.2 - Resposta inata na defesa do hospedeiro contra microrganismos

TITLE: Activity of moxifloxacin against *Mycobacterium tuberculosis* intramacrophagic

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Tuberculosis (TB) is one of the ten main death causes in the world. The bacillus *Mycobacterium tuberculosis*, etiological agent of this disease, is capable to survive inside the macrophages, the main cell involved in innate immunological defence at this kind of infection, and this ability make difficult the treatment action. Moxifloxacin (MOX) have been used in multidrug resistant TB treatment and it has proved your safety and your potential against *M. tuberculosis* infection. Nanotechnological approaches are an innovation to drug delivery that can delivery inside to macrophage the drug encapsulated, since this immunological cell is capable to phagocyte nanoparticle. At this work, we test the activity of MOX free or nanoencapsulated in a liposome against *M. tuberculosis* intramacrophagic. The liposome was synthetized by the hydration of lipidic film technique and its constitution is: oleic acid, cholesterol, soy phosphatidylcholine and phosphate buffer saline (PBS) with or without MOX (1000 µg/mL). The cell line J774A.1 of murine macrophages was previously tested with the liposome empty, the liposome with MOX and free MOX in order to determine concentrations non-toxic to mammalian cells. Thus, the macrophages were cultivated at RPMI medium and they were seeded in 24-well plates. After 24 hours, a *M. tuberculosis* culture was put in contact with the cells for phagocytosis during 2 hours. After that, the cell was washed three times with PBS to remove the extracellular bacillus. The MOX free or inside the liposome were added as well the liposome empty. The treatment stayed for 72 hours in contact. After that, the cells were lysed, diluted, seeded in solid culture medium and the unit forming colony were accounted. MOX present the intramacrophagic activity against *M. tuberculosis*. MOX at 0.70 µg/mL inhibited 97% of the intramacrophagic mycobacterial growth compared with a control untreated. Thus, it is possible that the nanoencapsulation of the MOX improves its activity against the intramacrophagic *M. tuberculosis* once a directed delivery will be made. And so, it is expected to make treatment more effective.

Keywords: tuberculosis, moxifloxacin, macrophages, liposomes, drug delivery.

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