Polycaprolactone Antimony Nanoparticles as Drug Delivery System for Leishmaniasis.

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Leishmaniasis is a neglected disease endemic in tropical and subtropical areas, with an incidence about 1.6 million cases/year. The first line treatment of this disease is pentavalent antimony and the second line are pentamidine and amphoterici6 n B. All the treatments available cause severe side effects and often have difficulty accessing parasites within infected cells. The aim of this study was to determine if the use of nanoparticles loaded with meglumine antimoniate could reach and targeting infected organs with Leishmaniasis, reducing the dosage used and promoting less adverse effects. The nanoparticles loaded with meglumine antimoniate (nano-antimony) were prepared by double emulsion solvent evaporation method and showed a size about 150-200nm. BALB/c mice infected or not with Leishmania amazonensis (cutaneous leishmaniasis model) or L. infantum (visceral leishmaniasis model) was used to access the biodistribution of nano-antimony and meglumine antimoniate labeled with 99mTc. The Biodistribution profiles showed a preferential targeting of the nanoparticles to the liver, spleen and lungs. Since this are the main organs infected the nanoparticle may be used for this purpose. The results for cutaneous leishimaniasis showed a low uptkake by the lesion (infected region). The results demonstrated the potential use of these nanoparticles to improve the efficacy of meglumine antimoniate in the VL treatment,indicating their potential as an alternative therapeutic strategy for leishmaniasis infections.

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