

عنوان مقاله:

Niosomal formulation of amphotericin B alone and in combination with glucantime: in vitro and in vivo leishmanicidal effects

محل انتشار:

دومین کنگره بین المللی بیماریهای منتقله بوسیله ناقلین و تغییرات آب و هوایی و چهارمین کنگره ملی حشره شناسی پزشکی ایران (سال: 1398)

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خلاصه مقاله:

Background: Leishmaniasis represents a major global health problem with a few effective therapeutic drugs. **Objectives:** This study aimed to evaluate the efficacy of glucantime and amphotericin B (AmB) encapsulated in niosome against cutaneous leishmaniasis (CL) using in vitro and in vivo models. **Material and Methods:** The niosomal formulations of the drugs alone and in combination were prepared and characterized. Subsequent to the examination of their cytotoxicity, their efficacy was evaluated using an in vitro MTT assay, macrophage model, flow cytometry, and gene expression profiling. For evaluation of therapeutic effect of niosomal combination on the lesion induced by *Leishmania major* in inbred BALB/c mice, the size of lesions and number of parasites in spleen was assessed. **Results:** The niosomal formulations demonstrated significantly greater inhibitory effects compared with the non-niosomal forms when the IC₅₀ was considered. The niosomal combination showed an increase in the apoptotic values and gene expression levels of IL-12 and metacaspase and a decrease in the levels of IL-10 with a dose-response effect. The niosomal combination was also effective in reducing the lesion size and splenic parasite burden in mice. **Conclusions:** Our findings indicated that there is a synergistic effect between AmB and glucantime in niosomal form in the inhibition of intracellular and extracellular forms of *L. tropica*. Additionally, the in vivo results on *L. major* suggest that topical niosomal formulation could be useful in the treatment of CL.

کلمات کلیدی:

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