Activity of Doxorubicin against Leishmania tropica

Complete healing of cutaneous lesions after 24 hours of single dose

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Background
- Annual: 0.7-1.2 million new cases around the world
- In Syria: 15% of leishmaniasis cases (CL) cases are related to L. tropica
- Aedes aegypti is one of the most epidemic cases in the world (90% new cases annually)
- Symptoms: papules on the skin that then expand to sandflies
- Clinically, unaccompanied lesions and may leave permanent scars
- CL complications: multiple lesions, large lesions, chronic lesions, lesions over joints, mucosal disease, and nodular lymphangitis
- Treatment of Choice: Pentamidine ethylsulfate (PE)
- Toxicity of the treatment: heart, liver, bone marrow, hematopoietic tissues
- Treatment failure: 20% in recent years
- Doxorubicin is an anticancer drug from the anthracycline II family

Objective
- Evaluation of the potency and efficacy of doxorubicin against cutaneous Leishmaniasis caused by L. tropica in vitro and in vivo.

Materials and Methods
- Potency against promastigotes: ELISA technique (XTT cell proliferation kit, Roche)
- Potency against intracellular amastigotes: in vivo model of L. tropica infection
- Effect in curing cutaneous lesions in BALB/c mice: in vitro model of L. tropica infection
- In vivo detection in mice strain: ELISA technique (mouse IgG, eBioscience, Konica Biostics)
- Dosage: Loxocheilus 0.5 mg, subcutaneous 1 week (Recent, Reference)

Discussion
- Doxorubicin was potent against Leishmania promastigotes and intracellular amastigotes.
- Resolution completely cured cutaneous lesions in 84% by 24 hours of single dose without relapse.
- High efficacy of doxorubicin may reduce the incidence of Phlebotomus to cutaneous Leishmaniasis.
- Toxicity: Doxorubicin may be a promising agent of antileishmanial drugs.

Conclusion
- Our study demonstrates that single dose of doxorubicin may be a promising, effective management of cutaneous leishmaniasis caused by L. tropica with no relapse.

References