

O058

Oral Session

News in travel, tropical, and parasitic infections

LEISHMANIASIS IN TURKEY: IN VITRO AND IN VIVO ASSESSMENTS OF EMERGING RESISTANCE TO MEGLUMINE ANTIMONATE AMONG THE LEISHMANIA TROPICA ISOLATES FROM ANATOLIA

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Objective: The incidence of leishmaniasis has been on the rise. Meglumine antimoniate (MA) is commonly used in leishmaniasis treatment but there is also an emerging resistance of *Leishmania* isolates against MA. In Turkey, there is no data about MA resistance of *Leishmania* isolates; yet, the increasing number of recurrent infections despite treatment may be due to a such resistance. Our aim was to assess the resistance potential of *Leishmania tropica* isolates from two patients that live in Anatolia against MA.

Methods: Two *L. tropica* isolates (MHOM/TR/2011/CBU012 and MHOM/TR/2011/CBU014) obtained from two patients in Manisa province in western Anatolia were used. Both isolates were initially divided into two groups: One group was cultured in RPMI medium containing MA at gradually increasing concentrations from 10 to 500 µgr/ml to assess their adaptation capacity to resistance, while the other group was cultured alone (Figure 1). Two resistant *L. tropica* strains were obtained this way 70 days following cultivation. Five study groups, each having six mice (Balb/C, 8-10 weeks, 25-30 gr), were formed. Then 10⁸/ml promastigotes of resistant and non-resistant strains of both isolates were injected (15 µl) into the right footpads of mice in groups 1 and 3 (resistant) and 2 and 4 (non-resistant), respectively. The mice in Groups 1 and 2 were treated intralesionally twice a week for five times using MA. All mice were examined once in every fortnight for 90 days with lesion sizes measured using digital equipment. Mice in Group 5 were the controls and given saline solution and MA to mimic the infection and treatment to show the possible efficacy of needle injection to footpad size (Figure 1). On the 90th day, Giemsa-stained smears of lesions were prepared from all mice with cultivation in NNN medium to seek amastigotes and promastigotes, respectively.

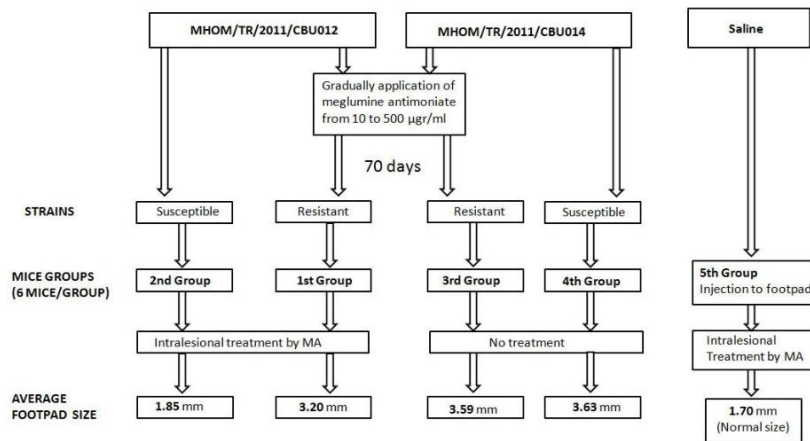


Figure 1. The experimental study design and the results of *in vivo* study

Results: *In vitro* assessments showed that 25 µg/ml of MA inhibited the growth of both susceptible isolates (100%) which were cultured alone, while the inhibition rate of even 500 µg/ml of MA was 98.9% in resistant isolates. Despite intralesional MA treatment, the average foot size in Group 1 was almost similar to untreated groups (Groups 3 and 4). Indeed, the average size of Group 1 was almost twice as of Group 2 (Figure 1). Both amastigotes and promastigotes were identified in Giemsa-stained smears and NNN cultures, respectively, of mice in Groups 1, 3 and 4, but not in Group 2.

Conclusion: This is the first experimental study that demonstrates the potential of Anatolian *L. tropica* isolates to develop resistance against MA. These results may explain the recent increase in the number of treatment failures in CL cases in Turkey. Further clinical and experimental studies are planned to unveil the obscurities about the treatment of leishmaniasis.