Miltefosine for old world cutaneous leishmaniasis: an experimental study on Leishmania major infected mice

Maha Mohamed Eissa¹; Shereen Farouq Mossallam¹; Eglal Ibrahim Amer¹; Maha Mohamed Gomaa¹; Nahed badour²
¹Medical Parasitology Department, and Pathology department, Faculty of Medicine, Alexandria University, Egypt
²Pathology department, Faculty of Medicine, Alexandria University, Egypt

Background: Leishmaniasis is one of the neglected diseases included in the World Health Organization’s list of the top guns of antimicrobial resistance. Miltefosine (MIL) was the first successful oral agent used against visceral leishmaniasis in India. As regards cutaneous leishmaniasis (CL), multiple experimental and clinical studies have investigated its efficacy in treatment of New World CL, while only few trials have focused on Old World CL. Therefore, this work was designed to study the efficacy of MIL in experimental Old World CL caused by Leishmania major (MHOM/ IL/ 81/ FEBNI), one of the causative species of CL in the Middle East.

Results: Groups of infected mice were given MIL orally, at a dose of 20 mg/kg/day for 20 days. Results showed that untreated infected mice suffered from autoamputation of the inoculated footpads. While, those treated with MIL showed complete clinical cure, significant reduction of parasite burden and improvement of the histopathological changes of the cutaneous lesions. The drug causes evident ultrastructural morphological alterations of L. major amastigote form. One month post treatment, no clinical sings of relapse were observed, and parasite density continued to decrease significantly.

Conclusion: The present study revealed activity of MIL against experimental Old World CL in the mouse model caused by L. major (MHOM/ IL/ 81/ FEBNI), one of the causative species of CL in the Middle East.

Keywords: Leishmania major, cutaneous leishmaniasis, Miltefosine