

HIV/leishmaniasis coinfection: Can we benefit from HAART for managing leishmaniasis

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Leishmania is the etiologic agent of leishmaniasis, a protozoan disease whose pathogenic events are not well understood, and therapy is suboptimal due to toxicity of the available therapeutic agents and the emergence of drug resistance. Compounding these problems is the increase in the number of cases of *Leishmania*-HIV coinfection, due to the overlap between the AIDS epidemic and leishmaniasis. There is as yet no study about the effect of HIV peptidase inhibitors (HIV PIs) on *Leishmania*/HIV-coinfected patients. The treatment of *Leishmania* cells *in vitro* with HIV PIs induced several perturbations on the parasite homeostasis, including loss of motility and arrest of proliferation/growth. The HIV PIs also induced an increase in the level of reactive oxygen species and the appearance of irreversible morphological alterations, triggering parasite death pathways such as programmed cell death (apoptosis) and uncontrolled autophagy. The blockage of physiological parasite events as well as the induction of death pathways culminated in its incapacity to adhere, survive and escape of phagocytic cells. An aspartic peptidase activity is sensitive to HIV PIs, and may be the intracellular target of the compounds. Although other nonspecific effects cannot be ruled out, such as interference in parasite lipid metabolism, particularly, if considered that lipodystrophy is one of the main collateral effects of HAART in humans. Indeed, lipid alterations are detected in HIV PIs-treated *Leishmania* cells. In the face of leishmaniasis/HIV overlap, it is critical to further comprehend the sophisticated interplays among *Leishmania*, HIV and macrophages. In addition, there are many unresolved questions related to the management of *Leishmania*-HIV-coinfected patients. For instance, the efficacy of therapy aimed at controlling each pathogen in coinfecting individuals remains largely undefined.

Biography

Claudia Masini d'Avila-Levy has completed her Ph.D. in Microbiology at the age of 28 years from Federal University of Rio de Janeiro, Brazil. She is an associated researcher of Fiocruz Foundation since 2006, and is ahead of Fiocruz Protozoa Collection. She has published more than 45 papers in reputed journals and has been serving as an editorial board member of several distinguished journals. She earned national prizes that recognize merited scientists and is the supervisor of several graduate and undergraduate students.

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