Effects of hyperbaric oxygen on Leishmania amazonensis promastigotes and amastigotes.


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In the present study, we evaluated the effects of hyperbaric oxygen (HBO) exposure in both Leishmania amazonensis life stages (promastigotes and amastigotes) and on macrophage cultures infected with the parasite. HBO treatment protocols, which can be tolerated by humans and animals, induced irreversible metabolic damage and affected parasite morphology, growth and ability to transform. The observation that the antioxidant N-acetylcysteine (NAC) prevents some of these deleterious effects indicated an involvement of oxidative stress during parasite HBO exposure. In addition, HBO exposed L. amazonensis-infected macrophage cultures showed reduction of the percentage of infected cells and of the number of intracellular parasites per cell. Thus, the demonstration that HBO, a therapy used in the management of different diseases, is toxic for both L. amazonensis life stages and can alter macrophage susceptibility to the infection encourages further studies of this therapy in animal models of Leishmania infection.

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