

Effects of near-infrared laser radiation on the survival and inflammatory potential of *Candida* spp. involved in the pathogenesis of chemotherapy-induced oral mucositis

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Abstract *Candida* spp. usually colonize ulcerative lesions of atrophic mucosa in patients with chemotherapy-induced oral mucositis inducing severe inflammation. The spread of antifungal-resistant strains strongly encouraged the search of complementary or alternative therapeutic strategies to cure inflamed mucosa. In this paper, we studied the effects of a near-infrared (NIR) laser system with dual-wavelength emission (808 nm+904 nm) on the survival and inflammatory potential of *C. albicans*, *C. glabrata*, and *C. parapsilosis*. Laser treatment was performed with a Multiwave Locked System laser. Survival and apoptosis of fungal strains were evaluated by colony-forming units (CFU) counting and annexin V staining. Cytokine production was evaluated by ImmunoPlex array. Laser treatment significantly affected the survival of *Candida* spp. by inducing apoptosis and induced a lower production of inflammatory cytokines by dendritic cells compared to untreated fungi. No differences in the survival and inflammatory potential were recorded in treated or untreated

Saccharomyces cerevisiae cells, used as the control non-pathogenic microorganism. Laser treatment altered the survival and inflammatory potential of pathogenic *Candida* spp. These data provide experimental support to the use of NIR laser radiation as a co-adjuvant of antifungal therapy in patients with oral mucositis (OM) complicated by *Candida* infections.

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