Low-power laser in the prevention of induced oral mucositis in bone marrow transplantation patients: a randomized trial
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Abstract
We investigated the clinical effects of low-power laser therapy (LPLT) on prevention and reduction of severity of conditioning-induced oral mucositis (OM) for hematopoietic stem cell transplantation (HSCT). We randomized 38 patients who underwent autologous (AT) or allogeneic (AL) HSCT. A diode InGaALP was used, emitting light at 660 nm, 50 mW, and 4 J/cm2, measured at the fiberoptic end with 0.196 cm2 of section area. The evaluation of OM was done using the Oral Mucositis Assessment Scale (OMAS) and the World Health Organization (WHO) scale. In the LPLT group, 94.7% of patients had an OM grade (WHO) lower than or equal to grade 2, including 63.2% with grade 0 and 1, whereas in the controls group, 31.5% of patients had an OM grade lower than or equal to grade 2 (P < .001). Remarkably, the hazard ratio (HR) for grades 2, 3, and 4 OM was 0.41 (range, 0.22-0.75; P = .002) and for grades 3 and 4 it was 0.07 (range, 0.11-0.53; P < .001). Using OMAS by the calculation of ulcerous area, 5.3% of the laser group presented with ulcers of 9.1 cm2 to 18 cm2, whereas 73.6% of the control group presented with ulcers from 9.1 cm2 to 18 cm2 (P = .003). Our results indicate that the use of upfront LPLT in patients who have undergone HSCT is a powerful instrument in reducing the incidence of OM and is now standard in our center.