Laser de baixa intensidade inibe COX-2 e diminui inflamação na mucosite provocada pelo 5-fluoracil - hamster

Cyclooxygenase-2 and vascular endothelial growth factor expression in 5-fluorouracil-induced oral mucositis in hamsters: evaluation of two low-intensity laser protocols.

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Abstract

GOAL OF WORK:
The aim of this study was to investigate the mechanisms whereby low-intensity laser therapy may affect the severity of oral mucositis.

MATERIALS AND METHODS:
A hamster cheek pouch model of oral mucositis was used with all animals receiving intraperitoneal 5-fluorouracil followed by surface irritation. Animals were randomly allocated into three groups and treated with a 35 mW laser, 100 mW laser, or no laser. Clinical severity of mucositis was assessed at four time-points by a blinded examiner. Buccal pouch tissue was harvested from a subgroup of animals in each group at four time-points. This tissue was used for immunohistochemistry for cyclooxygenase-2 (COX-2), vascular endothelial growth factor (VEGF), and factor VIII (marker of microvessel density) and the resulting staining was quantified.

MAIN RESULTS:
Peak severity of mucositis was reduced in the 35 mW laser group as compared to the 100 mW laser and control groups. This reduced peak clinical severity of mucositis in the 35 mW laser group was accompanied by a significantly lower level of COX-2 staining. The 100 mW laser did not have an effect on the severity of clinical mucositis, but was associated with a decrease in VEGF levels at the later time-points, as compared to the other groups. There was no clear relationship of VEGF levels or microvessel density to clinical mucositis severity.

CONCLUSION:
The tissue response to laser therapy appears to vary by dose. Low-intensity laser therapy appears to reduce the severity of mucositis, at least in part, by reducing COX-2 levels and associated inhibition of the inflammatory response.

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