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Original Research Article

The impact of Lidocaine gel on TNF- α expression in surgically induced oral mucosal ulcers: an immunohistochemical analysis in rabbits

Abstract - Background: Besides being a local anesthetic agent lidocaine is a promising anti-inflammatory agent with limited studies on its effect on the mucosa. Aim: Assess the anti-inflammatory effect of lidocaine following surgical induction wound in the oral mucosa as assessed by tumor necrosis factor- α (TNF- α) expression.

Materials and methods: The study was conducted on 32 albino rabbits that were categorized into 2 equal groups of 16 rabbits: In the control group an oral wound was surgically induced and left without treatment and in the treatment group an oral wound was surgically induced and received topical Lidocaine gel. Euthanasia of animals was carried out on days 1, 3, 7, and 10, and sample sites were processed for histopathological and immunohistochemical staining for TNF- α .

Results: In the histological observations, it was noticed that the healing process was more rapid and convenient in the test group compared to the control group. For Immunohistochemical assessment, the TNF- α started to express clearly at 1 day and gradually decreased and disappeared at 10 days with a superior effect of the lidocaine group over the control group.

Conclusion: Lidocaine seems to have anti-inflammatory reactions by lowering TNF- α levels and preventing the production of pro-inflammatory cytokines.