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Potential Anti-inflammatory Effects of Lavender Essential Oil On Interleukin-1β In Serum and Periodontal Tissue, And On inflammatory Cells in Rat Periodontitis Experimental Model.

A Thesis

Submitted to the council of college of dentistry /university of Baghdad in partial fulfillment of the requirement for the award of the degree of Master of Science in Periodontics

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Abstract

Background

Periodontal diseases are commonly distributed oral diseases among population. The main cause for periodontal diseases is due to the dental bacterial biofilm build- up on the teeth surfaces. Oral hygiene is the main strategy to control the disease , and antimicrobial and antiseptics can be used as an adjunct to control this disease . Lavender essential oil has revealed some antibacterial and anti-inflammatory effects in many recent studies.

Aims of the study

To determine the effect of oral daily dose of lavender essential oil on the interleukin -1β in periodontal tissue and, in peripheral blood serum , the periodontal inflammation intensity and the circulating blood inflammatory cells in a rat periodontal disease model .

Materials and Method

Eighteen albino rats were used in this experiment. The rat weighing from (180 -210) grams . They were divided into three groups, with 6 rats in each group :

A. The control group , No ligation and no treatment given to the rats

B. The ligated group, ligation of the right upper second molar tooth was done without any treatment given to the rats.

C. The ligated & lavender treated group , there was ligation of the right upper second molar tooth and oral once daily dose of lavender essential oil at 600mg per Kg given to the rats for ten days.

At the 11th day , all animals were scarified , 5 ml of blood aspirated from animal and half of maxillary jaw is harvested for histological tests.

Serum IL- 1β was measured by ELISA , the expression of IL- 1β in periodontiom was measured by Immunohistochemistry , inflammation intensity assessd on H&E sections and inflammatory cells measured by automated blood analyzer.

Results

The immunohistochemical findings revealed that daily lavender treatment had non significant effects on the interlukin-1β in the periodontal tissue, as well as a non significant effect on serum interlukin-1 β. Moreover ,the histological findings presented that there was non significant effect on the inflammatory cells infiltrate in the periodontal tissue and non significant effect on the Granulocytes and WBCs in total, while there was a highly significant effect on Lymphocytes and Monocytes.

Conclusion

Lavender essential oil has no benefit on the prevention of periodontal disease when used orally