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Effect of chamomile extract on the tongue of chemotherapy treated albino rats (histopathological and immunohistochemical study)

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Background & Objectives: 5-Fluorouracil (5-FU) is a commonly used drug for the treatment of malignant cancers. The control of oral mucositis result from 5-FU use is becoming increasingly more important, and effective intervention is considered a high priority in cancer patient care. The aim of this study was to investigate the effect of chamomile extract on the pathogenesis of 5-FU induced tongue mucositis in Albino rat.

Materials & Methods: In current study forty female Albino rats, weighing 220-280 g were used. For the induction of mucositis, 60 mg/kg of 5-FU was administered intraperitoneally to each animal in the study group on day 0, and 40 mg/kg was administered on day 2. The control animals were intraperitoneally injected by normal saline in the same manner and dose like 5-FU on day 0 and 2. Then the rats in each group were randomly divided into two groups: Distilled water treated group and chamomile extract treated group (10 animals each). A volume of distilled water equal to chamomile extract was given by intragastric gavage tube, while the other group was gavaged with chamomile extract at a dose of (100 mg/kg) two times daily. The treatment with distilled water or the chamomile extract was initiated on day 5 and the experiment continues for twelve days. The animals were sacrificed on day 8 and 12 (five animals each). In each experiment, the middle third of the tongue was removed for histopathological and immunohistochemical analysis using Ki-67 and Bcl-2 immunolabeling.

Results: Chamomile can protect the tongue from fluorouracil-induced cytotoxicity and attenuate or decrease the associated injury. The chamomile in 5-FU+chamomile group causes significant increase in Ki-67 and Bcl-2 immunoexpression in comparison with 5-FU+water group at day eight. But longer duration of taking chamomile can cause cytotoxic and damaging effect to the tongue mucosa.

Conclusion: Chamomile can protect the tongue mucosa from fluorouracil-induced mucositis. It attenuate the associated injury if it taken for short duration, but the reverse was occurred if it taken for longer period.

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