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Clinical Evaluation of the topical application of 0.2% Gengigel and Its Effect on the Level of InterLeukine-1β in Gingival Crevicular Fluid before and after Treatment of Plaque Induced Gingivitis

A Thesis
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Abstract

Background

One of the most prevalent periodontal diseases is the plaque induced gingivitis. Hyaluronic acid is linear polysaccharide found in the extracellular matrix of connective tissues, synovial fluid and other tissues. Hyaluronic acid used as adjunct to the mechanical plaque control because of its anti-inflammatory and bacteriostatic properties. Gengigel (0.2% Ricerfarma-Italy) is a gel form of Hyaluronic acid used in dentistry in the treatment of gingivitis and acceleration of wound healing as in the treatment of mouth ulcers. Interleukin 1 beta is a pro-inflammatory cytokine which has an important function in the immunity and inflammation. Interleukin 1 beta is one from interleukin family and it is released by many cells such as macrophage to control immune response.

Aims of the study

1. To determine the clinical and biochemical outcome of 0.2% Gengigel and its effect on Interleukin 1 beta in gingival crevicular fluid in patient with plaque induced gingivitis.
2. To evaluate the effect of the topical application of 0.2% Gengigel as an adjunctive in the treatment of plaque induced gingivitis by using clinical periodontal parameter which are Plaque Index, papillary Bleeding index and Gingival Index.
3. To compare clinically between the effect of scaling and the gel in treatment of gingivitis

Materials and methods

Sample population consists of (25) subject, 11 females and 14 males which have a plaque induced gingivitis. A split mouth procedure was used in this study so that the mouth was subdivided into two divisions, left and right sides of maxillary arch only. Both sides were received a scaling after the collection of Gingival crevicular fluid to determine the concentration of Interleukin 1 beta in the first visit. The patients were informed to put a Gengigel on the upper right side only three times daily for 1 week. The second visit presented with only collection of gingival crevicular fluid from both sides to provide the calculation of the volume of gingival crevicular fluid and the concentration of Interleukin 1 beta. The periodontal parameters (Plaque index, gingival index and Papillary Bleeding index) were taken from both sides and in the two visits.

Results

Intragroup comparison showed highly significant difference in both gel and non-gel side in plaque, gingival and papillary bleeding indices with largest effect was found in the gel side while lowest effect was found in the non-gel side. Interleukin 1 beta concentration showed non-significant difference in both sides but there was a decrease in the Interleukin 1 beta concentration in the gel side other than non-gel side.

Intergroup comparison at second visits showed a significant difference in plaque, gingival and papillary bleeding indices between two sides while the Interleukin 1 beta concentration showed no significant difference between non-gel and gel sides.

Conclusions

There was a positive effect of hyaluronic acid on gingival inflammation clinically after one week as compared to the brushing only.

There was a slight positive reduction in the interleukin 1beta after topical application of hyaluronic acid after one week.