Dental Research Directory

Effects and mechanism of hyperbaric oxygen on prostaglandins in alveolar bone and gingival of experimental periodontitis in animal.


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OBJECTIVE:

To study the effects and the therapeutic mechanism of hyperbaric oxygen (HBO) on prostaglandin E(2) (PGE(2)) in alveolar bone and gingiva of experimental periodontitis in animal. METHODS: Experimental periodontitis was produced by silk thread sutures combined with high content sugar diet. For HBO therapy, they were exposed to a pressure of 0.25 MPa (2.5ATA), breathing pure oxygen one session a day for 60 min. The treatment course was 2 weeks. The value of PGE(2) in gingiva and alveolar bone was analyzed by enzyme immunoassay (EIA). RESULTS: The value of PGE(2) in gingiva of control group was 3.21 ng/g, and that of PGE(2) in alveolar bone was 3.22 ng/g. The contents of PGE(2) in gingiva (13.96 ng/g) and alveolar bone (13.32 ng/g) of periodontitis group increased markedly than control group (P < 0.01). The contents of PGE(2) in gingiva (5.21 ng/g) of HBO group were 62.7% which was lower than that of periodontitis group, and the value of PGE(2) in alveolar bone (4.05 ng/g) were 69.6% lower than that of periodontitis group. The difference of PGE(2) in gingiva or alveolar bone was significant for the HBO group and periodontitis group (P < 0.01).

CONCLUSIONS:

The contents of PGE(2) in alveolar bone and gingiva increased markedly when experimental periodontitis has formed. The value of PGE(2) in alveolar bone and gingiva reduce markedly after HBO exposure, and the decreased rate of PGE(2) in alveolar bone is more evident than that of PGE(2) in gingiva after HBO therapy.

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