

The Effect of Aloe Vera on the Treatment of Periodontal Ligament

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Periodontitis is the inflammation of the gingiva, periodontal ligaments and the supporting alveolar bone. It involves progressive loss of the alveolar bone around the teeth, and if left untreated, can lead to loosening and subsequent loss of teeth. It is caused by microorganisms that adhere to and grow on the tooth surfaces, along with an overly aggressive immune response against these organisms. Treatment of periodontitis is either surgical or non-surgical approach. In the present study, we consider the non-surgical approach using a natural product which is Aloe Vera.

Aloe Vera (family: Liliaceae) has been used in traditional medicine for a long time. It is one of the most recognizable herbs in the world and the medicinal part is the succulent leaves. A topical skin gel provides wonderful healing support for the skin. It contains many important nutrients for the body including amino acids, B vitamins, and other nutrients that support general health. It also has pharmacological properties including antioxidant, wound healing, antibacterial, antifungal, and immuno-modulating effects. In the present study we used the anti-oxidant property of Aloe Vera in the treatment of periodontitis. The material of this study consisted of 40 male Wistar rats which were assigned to the ligature. All procedures of periodontal disease induction were performed under general anesthesia by intramuscular injection of a combination of 0.1ml ketamine hydrochloride (50 mg/ml) and 0.05 ml xylazine hydrochloride (2 g/100ml) for each 100 g body weight. After anesthesia, sterile 4/0 silk ligature was placed around the maxillary and the mandibular molars. The rats with an average weight 120-150g were given Aloe Vera intraperitoneally in the dose of (300mg/kg), starting one day before the induction of periodontitis, and continuing for a total of 1 month and another group were given Aloe Vera extract (300mg/kg) using oral gavage, starting one day before the induction of periodontitis and continuing for a total of one month. For detection of proliferation and apoptosis, we used immunohistochemical markers (PCNA, Caspase-3). The area % of reacting PCNA and Caspase-3 immunoreaction was measured and tabulated.

The result of this study showed that there was a high significant difference between all groups in their epithelial thickness measurements and high significant difference between the oral and control groups.

The immunohistochemistry revealed that there was an overall high significant difference in the PCNA and Caspase-3 area % between the studied groups. In addition, there has been a high significant increase in the PCNA reaction in the oral and intraperitoneal groups versus the control group while, in Caspase-3 immunostaining there has been a statistically significant increase in the control group versus both the oral and the intraperitoneal groups. The histological, immunohistochemical and morphometric results of the present research have proved the efficacy of Aloe Vera in the treatment of periodontitis. However, oral administration of Aloe Vera proved to be more beneficial in the treatment of periodontitis rather than administration of Aloe Vera via intraperitoneal route.

Biography:

Randa Hassan Amin Mokhtar completed her BDS, MSC Oral Biology, British University In Egypt. She was born in Brazil 1981 and Graduated from Ain Shams University Cairo Egypt 2003, received her Master Degree in Oral Biology Cairo University 2012.