**Effect of apical periodontitis in experimental asthma model.**

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Apical periodontitis is caused by pulpal necrosis, with consequent inflammation and destruction of the periapical tissues. It has been shown that periodontal disease can influence the symptoms of asthma. Asthma is a chronic inflammatory disease characterized by lower airway hyperresponsibility and variable airflow limitation.To date, there are few papers correlating the symptoms of asthma in patients with apical periodontitis (AP).This study aims to evaluate the effect of photodynamic therapy with endodontic treatment on pulmonary inflammation in an experimental model of asthma. Forty-eight male Balb/c mice were divided into 6 groups (n = 8). Basal, AP, AP + PDT, Asthma, Asthma + AP, Asthma + AP + PDT. Apical periodontitis was induced with the coronary opening and the tooth remained open for 21 days. Asthma was induced by ovalbumin (OVA) and aluminum hydroxide, subcutaneously (days 0 and 14) challenge via tracheal oro, three times a week for six weeks. The treatment of PA was performed with calcium hydroxide and PDT with methylene blue (0.005%) associated with red diode laser irradiated 660 nm, with energy of 287 J / cm2, with 9 J at the point, delivered in 90 s. Total and differential counts of alveolar bronchial lavage (BAL) and serum alkaline phosphatase were analyzed after euthanasia. We observed a increase of lymphocytes and eosinophils of BAL in Asthma+AP group when compared to Asthma group. On the other hand, we observed reduction of this cells recovered from the BAL in Asthma+AP+PDT group in relation the Asthma+AP group. In addition, there was an increase in bone resorption (alkaline phosphatase) in the AP and Asthma+AP groups, but with the treatments, only the non-asthma groups reduced this parameter. It is concluded that apical periodontitis may increase pulmonary inflammation. The association of Asthma with Apical Periodontitis worsens the parameters of pulmonary inflammation. However, after the standard treatment with PDT of apical periodontitis, pulmonary inflammation decreased in the asthmatic mice, reaching near the basal levels.