Comparison of auto-fluorescence and tetracycline fluorescence for guided bone surgery of medication-related osteonecrosis of the jaw: a randomized controlled feasibility study.

Abstract:
Recent studies have indicated that bone shows auto-fluorescence under an appropriate fluorescence lamp. The aim of this preliminary study was to compare the success rates of the established tetracycline fluorescence-guided bone surgery with auto-fluorescence-guided bone surgery in the treatment of medication-related osteonecrosis of the jaw (MRONJ). Forty patients suffering from MRONJ were referred for surgical treatment and were divided randomly into two groups: auto-fluorescence (n=20) or tetracycline fluorescence (n=20) guided bone surgery. The primary endpoint was treatment success, defined as the absence of exposed bone at 8 weeks after surgery. Secondary outcomes assessed were mucosal integrity, signs of infection, pain, and loss of sensitivity; these were evaluated descriptively at 10 days, 8 weeks, 6 months, and 1 year after surgery. At 8 weeks postoperative, 18/20 patients (90%) in the auto-fluorescence group and 17/20 patients (85%) in the tetracycline fluorescence group showed mucosal integrity (P>0.05). At the last follow-up, 94% in the auto-fluorescence group and 89% in the tetracycline fluorescence group presented complete mucosal coverage with no exposed bone,
infection, or pain (P>0.05). There was no significant difference between the two techniques for any of
the secondary outcomes (P>0.05). The results of this preliminary study show that
auto-fluorescence-guided bone surgery has comparable success rates to the established tetracycline
fluorescence-guided bone surgery.