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## ABSTRACT

### **Analysis of volatile sulfur compounds in individuals with medication-associated osteonecrosis of the jaw**

Medication-associated osteonecrosis of the jaws (MRONJ) is a complication that affects individuals who use antiresorptive and antiangiogenic drugs. One of the main complaints of patients is halitosis, but there are no studies in the literature that confirm the presence of this disorder. The aim of this study was to identify and quantify volatile sulfur compounds (VSC) such as hydrogen sulfide (HS), methylmercaptan (MM) and dimethylsulfide (DMS) using the OralChroma™ gas chromatograph (GC) before and after cysteine in individuals with MRONJ, to associate halitosis with the staging of MRONJ, to identify associated diseases, to analyze the pH and microbiological characteristics of saliva compared with changes in VSC. The sample consisted of individuals with MRONJ at different stages (SG) and individuals without MRONJ (CG). The VSC were identified using gas chromatography with OralChroma™ before (SC) and after rinsing with cysteine (CC), in addition to assessing the community periodontal index, lingual biofilm index, unstimulated and stimulated sialometry, salivary pH, xerostomia inventory, oropharynx/upper respiratory tract assessment and self-perception of halitosis. The SG and CG were made up of 14 individuals each, matched for gender and age. The SG was made up of patients with osteoporosis and oncological diseases, 2 of whom had "stage 0" MRONJ, 4 "stage 1" and 8 "stage 2". The SG was more affected by hyposalivation and very low hyposalivation, revealing higher values in the xerostomia questionnaire when compared to the CG. Self-perception of halitosis in the SG was compatible with the VSC found, which identified that 11 individuals had halitosis, while in the CG it was not compatible, since all the individuals had halitosis and only 7 reported having the alteration. The GC showed that the SG-SC had higher VSC values when compared to the CG-SC and the GC of the SG and CG-SC showed an increase in VSC in both groups, but without statistical significance. The VSC with the greatest change was the HS in both groups. In the SG, 4 individuals had increased DMS-CC associated with esophageal reflux, sinusitis and posterior nasal discharge. The stages of MRONJ, microbiota, salivary pH and salivary flow did not interfere with VSCs (p=NS). We conclude that individuals with MRONJ mainly have intraoral halitosis associated with HS. The microbial flora did not interfere with the stages of MRONJ, was not affected

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