POROSITY ANALYSIS OF SUBCHONDRAL BONE OF THE MANDIBULAR CONDYLE IN RATS WITH DENTAL PREMATURE CONTACT

Erica E. Wada*, Alexandre R. Freire, Felippe B. Prado, Ana Cláudia Rossi.

Abstract
We investigated qualitative characteristics and spatial distribution of subchondral bone pores of the mandibular condyle in adult rats submitted to dental premature contact condition using micro-CT analysis.

Key words: porosity, micro-CT, mandibular condyle.

Introduction
Mechanical stimuli affect the formation, maintenance and bone remodeling, and have an important function in the regulation of bone architecture. The loss of normal functional dental occlusion due to tooth loss or premature contacts (artificial chewing change) apparently influence the structure, porosity and mineralization of subchondral bone of the mandibular condyle. In this study, we evaluated the total porosity of subchondral bone if the mandibular condyle in adult rats submitted to dental premature contact condition using micro-CT analysis.

Results and Discussion
We used 45 male rats, Wistar, with 2 months of age (200-250). The dental premature contact condition was induced and the rats were divided into 4 subgroups (n = 9). For control group, the dentition was normal occlusion. The mandibular condyle of each rat was submitted to computed microtomography on a SkyScan 1174 (SkyScan, Leuven, Belgium) equipment. After the three-dimensional reconstruction of both sides of each mandible, the Total Porosity of subcondral bone of mandibular condyle was performed in the CT-Analyzer software (SkyScan, Leuven, Belgium). In qualitative analysis of results, we observed that the Total Porosity in posterior and anterior region of the mandibular condyle, presented the trabeculae more spaced and with more porosity when we compared with the control group. When we compared the posterior and the anterior region of the mandibular condyle, we verified that the anterior region was more porosity than posterior, perhaps due to the proximity to the location of the premature contact.

Conclusions
Using qualitative analysis from micro-CT, we concluded that the dental premature contact may have caused more porosity in anterior region of the mandibular condyle and changed the spatial distribution of the trabeculae.

Acknowledgement
We are grateful to "National Counsel of Technological and Scientific Development"-CNPq for financial support.