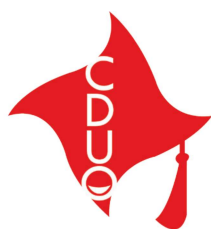


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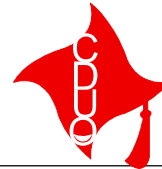
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VIABILITY AND INTEGRITY OF CELL PRESENT IN PARTICULATE BONE COLLECTED DURING THE PREPARATION OF THE IMPLANT SITE: A PRELIMINARY STUDY

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Aim. The aim of this study was to evaluate viability and integrity of cells (Osteoblasts and Osteocytes) present in the particulate bone (bone chips), obtained during the preparation of the implant site.

Materials and methods. Four patients aged between the IV and the VI decade presenting edentulous areas class III of Cawood and Howell were selected. All patients suffering from systemic and oral diseases and smoking were excluded. The surgeries were performed with the conventional technique, full-thickness flap, and the implant sites were prepared with large coils calibrated burs mounted on surgical micromotor at a speed of 600 rpm and external irrigation of saline solution previously cooled. The particulate bone collected from each implant site was processed with the technique of decalcification and divided into 10 sections to be analyzed by optical microscope at 40X, and each section is further divided into 10 fields of view. The hematoxylin and eosin staining system was performed. The areas containing vital cellular structures, intact cytoplasm or cytoplasmic membrane, well preserved and visible nucleus, were considered viable cells; instead the areas presenting gaps, isolated nuclei, damaged osteocytes or with pyknotic nucleus and necrotic surface were considered non-viable. In each sample the relative frequency of viable cells identified in 10 sections with relative confidence interval of 95% was calculated. The significance of differences between the samples was analyzed with the chi-square test ($p < 0,05$).

Results. Some minute fragments of lamellar bone tissue (bone chips) and flattened osteocytes were visible with optical microscope in all sections of the specimens. The mean of the viable cells in each sample was 32.8% (Range: 30,6-34,1; D.St: 1,53). The difference between the samples was not significant ($p = 0,541$).

Conclusions. The bone particles, obtained from the preparation of the implant site, containing a sufficient intact and vital cellular component, have osteogenic, osteoinductive, osteoconductive and neoangiogenetic properties. Therefore, it is very important to collect these particles and, if it is necessary, to mix them with other biomaterials. This is a great method for the immediate correction of small peri-implant defects, occurring sometimes after placement of the fixture, and for regeneration of localized bony defects.