THESIS SUMMARY

Imaging aspects of the effects of adjuvant therapies in the densification of maxillary bones

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This thesis addresses a current topic and proposes original solutions regarding the use of three types of adjuvant therapies: autologous blood concentrate (PRF) as an adjunctive therapy for a reduced healing time after surgery in the oro-facial area, respectively the use of electromagnetic field (EMF) and hyperbaric oxygen therapy (HBOT) as adjunctive therapies in bone tissue densification in patients with periodontal disease or in post-implant therapies.

The general part of this thesis is a synthesis of the specialized literature and consists of three chapters. The first chapter of the general part reviews the current literature concerning the bone tissue and density. Chapter 2 presents the actual aspects referring to the periodontal tissues diseases. Chapter 3 focuses on the aspects of current imaging methods for assessing the bone density of the jaws.

The second part of the thesis is dedicated to personal contributions in researches. This second part represents more than two thirds of the thesis, being structured in three distinct chapters in which the obtained results during the doctoral studies are exposed and contains more that 115 relevant images. The study included 80 patients who contacted the dentist from November 2012 to December 2016. Patients were selected in study groups according to specific selection criteria (inclusion and exclusion). The study was approved by the Ethics Committee of the University of Medicine and Pharmacy from Tirgu Mures. The patients also signed the informed consent form for participation in the study.

In the first chapter of personal research entitled "Aspects regarding the effects of PRF use", the results referring the possibilities in using PRF for stimulating, regenerating and accelerating the

healing process of the oro-facial tissues and in the densification of the maxillary bones after various types of oral surgery are presented. According to the results of this study, it was found that by applying PRF, the healing process was reduced on average by half the time required to heal for the patients in the control group, who did not benefit from adjuvant therapy with PRF. We also found that the radiological examination is a necessary complementary exam for the diagnosis of periodontal disease as well as for the evaluation of the results of the established therapy.

In the second chapter of the personal researches on "Imagistic aspects of electromagnetic field effects in the densification of the maxillary bones" I presented the obtained results of this adjuvant therapy by using the Electronic Doctor Stem Generator device. Quantification of the benefits of this adjuvant therapy was achieved through three types of imaging examinations: retroalveolar radiographs, OPG and CBCT, examinations performed before and after the adjuvant therapy in the electromagnetic field. The results of the study confirmed that the areas undergoing EMF therapy with the Electronic Doctor Stem Generator device have beneficial results in reducing dental mobility and the depth of periodontal pockets. After evaluation of the imaging results, bone densification was observed in the regions exposed to EMF, by initial and final comparison of the radiographs.

The third chapter of personal researches titled "Imagistic Aspects of the Effects of Using Hyperbaric Oxygen Therapy in the Densification of the Maxillary Bones" presents the results obtained in the use of hyperbaric oxygen therapy in periodontal diseases. The research was based on the premise that the benefits of this therapy are already attested in general medicine specialties, which is why it is intended to apply this therapy to the treatments of dental specialties. According to the obtained results of the study, patients who were part of the HBOT group with periodontal disease therapy showed significantly better values in terms of oral health indexes, dental mobility and depth of periodontal pockets at two months after the completion of this adjuvant therapy. It was emphasized that HBOT had beneficial effects on the general health of all patients because some individualized symptoms were diminished or disappeared when these therapies were completed. The complementary radiographic imaging was performed before and after the application of dental treatments and HBOT.

Each chapter of personal research is structured in 6 subchapters, namely: Introduction, hypotheses/objectives, material and method, results, discussions and conclusions. The bibliographic references contain a number of 295 titles.