

ABSTRACT

This habilitation thesis entitled "Basic research and clinical studies in dental medicine" illustrates my research activity carried on after obtaining my PhD degree and is based on 10 representative studies published in ISI indexed journals. The first part is organized in three chapters and contains the retrospective of my research work; in the second part I focused on my future development as a member of the academic community, as a teacher and also research fellow, describing the perspectives for improvement of the university curriculum and also the scientific fields I intend to approach in the near future. An important part of my research activity was dedicated to the correlation between periodontal disease, which includes the inflammatory changes of the periodontal tissues leading to bone resorption and ultimately to tooth loss, and systemic diseases such as diabetes mellitus and thyroid dysfunctions. Another field of interest was represented by the study of dental materials frequently used in the treatment of dental caries, focusing on the biocompatibility and on the results of clinical studies upon the use of new materials introduced in the therapeutic arsenal of conservative dentistry. These were completed by more recent studies regarding the interrelations between the periodontal inflammation and premalignant oral lesions, knowing the increased incidence of oral cancer and high mortality rate, despite the latest developments in chemo- and radiotherapy.

The first chapter contains histopathological, immunological and clinical studies related to the periodontal status in patients with systemic diseases, namely diabetes mellitus and thyroid dysfunctions, emphasizing the role of modern imagistic methods in the diagnosis and the therapy with low level laser in periodontal defects. The second chapter presents epidemiological and clinical studies on premalignant oral lesions insisting on the incidence of oral leukoplakia and lichen planus and on the role of visual diagnostic methods. In the future, I intend to extend my research work towards the evaluation of saliva as an early diagnostic method for the malignant transformation of these oral lesions. In the third chapter I included my studies regarding the biocompatibility, physical and chemical properties of some dental materials frequently used in the restoration of dental caries and endodontic treatment of necrotic teeth.

In the second part of my thesis I synthesized my future interests in developing my teaching abilities and also in improving the process of curriculum reform, which has become a top priority of our faculty. Thus, I intend to introduce new subjects in the university curriculum, related to the use of the operating microscope and rotary systems, considered as gold standards for modern endodontic treatment. My colleagues from the Department of Odontology and Oral Pathology, the modern equipments and last but not least, the permanent support from the leadership of our faculty are the main elements I count on in achieving these goals.

Dental medicine is characterized by numerous and diverse possibilities of scientific research, within its own specialties but also through interdisciplinary collaboration with preclinic domains, which offer the necessary support in the management of basic research studies. In the future I hope to be able to develop new research protocols on the correlation between periodontal and cardiovascular diseases and also on the ratio

benefits between endodontic therapy and dental implants in improving the oral health status and quality of life. Recent data suggest a possible association between periodontal disease (especially tooth loss) and cardiovascular disorders. This opens new research perspectives on the role of tooth structure inflammation and periodontal infection in endothelial dysfunction and increased serologic markers such as C reactive protein and fibrinogen. Therefore, I consider that new clinical studies are needed in order to properly evaluate the possible anti-atherosclerotic effects of the initial treatment phase of periodontal inflammation, namely scaling, root planning and patients training in the correct management of dental plaque accumulation.

As for the second research field of interest, even though implantology offers new treatment options for edentulous patients, when one has to choose between endodontic therapy or implant, the specialist must be extremely cautious in indicating the second option. This attitude should be emphasized, as the insertion of a dental implant is an invasive method, which might have an important impact on the patients' well-being, forcing them to adjust to a non-self material. Furthermore, there is also the risk of peri-implantitis which affects one third of the patients with multiple implants at 5-10 years follow-up, partially due to lack of patient compliance. Dental medicine was among the first medical fields to recognize the role of prevention, which became a basic rule in our daily practice. In this way, I hope that we can contribute to a better oral health and a better quality of life.