



TRANSYLVANIA UNIVERSITY BRASOV

HABILITATION THESIS

ABSTRACT

Title:

**“ÎNTRE DIAGNOSTIC ȘI TRATAMENT INTERDISCIPLINAR ȘI DE
MEDICINĂ INTEGRATIVĂ ÎN RADIOIMAGISTICA MEDICALĂ”**

Field: MEDICINE

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ABSTRACT

The habilitation thesis entitled "Between diagnosis and interdisciplinary treatment and integrative medicine in medical radio imaging" includes my professional, academic and scientific achievements as well as my future career plans.

This habilitation thesis represents the achievement of a maximum level of professional, scientific and academic preparation, a goal that I have set for myself since the first years of my university career.

The first part of this thesis contains the main results of my professional and academic activity directly proportional to the level of knowledge at the respective times, as well as the research fields that were concretized in scientific articles published as the main author or co-author.

I mentioned the most important scientific articles as summaries of my scientific activity that were published nationally and internationally.

The 2nd section of the thesis includes, on the one hand, the professional and academic scientific achievements and, on the other hand, the professional and academic scientific development and evolution plans.

In the chapter of scientific achievements, I have detailed the scientific achievements in the field of practical aspects of medical imaging exemplified by 13 ISI and BDI articles and respectively more than 10 oral or poster communications at international radiology congresses. I conducted a study on a group of 500 people where I revealed the position of the medullary cone at the T12, L1 and L2 vertebrae with importance in the practice of neurosurgery, especially in traumatic pathology, thus being a continuation of my doctoral thesis. I have also performed an imaging study through which we evaluated the various anatomical locations of calcifications in the body. I studied the rare oncological pathology namely adrenal metastases in renal tumor pathology. Also in oncological pathology, I have studied and demonstrated the multiple imaging modalities such as computer tomography or nuclear magnetic resonance on the types, effects, aspects, and imaging changes encountered in gallbladder cancer. I have also studied the evaluation of ultrasonographic signs of breast lesions classified with a score of 3, 4 or 5 using the Breast Imaging-Reporting and Data System (BI-RADS)". As an imagist I have investigated the inflammatory pathology both at

the level of the sinuses of the face, which untreated can lead to intracranial or orbital complications, as well as the aggressiveness of acute pancreatitis.

I have studied suprahepatic vein invasion of hepatocarcinoma, Chilaiditi syndrome as well as multiple pregnancies and placenta previa.

I have also demonstrated the role of imaging in the management of splenic trauma and renal trauma.

In the field of imaging aspects of cardiovascular pathology, I have published 4 ISI Web Of Science articles revealing the importance and role of cardiac CT examination in the pathology of rare diseases of the heart and large vessels encountered in patients.

The third chapter of scientific achievements in the field of integrative medicine and scientific achievements in other research fields is exemplified by 8 articles published in journals with Web of Science recognition. In this chapter I have addressed specific aspects of integrative medicine considered to be of great future and studies of some natural compounds in the medical field with a strong antioxidant capacity having possible therapeutic applications in oncological pathology as well as considered as potential useful remedies and against the side effects of the immune systems organs in the therapy of tumor pathologies.

I have approached this field as an alternative that creates a connection between conventional medical practice, complementary medicine and alternative medicine with the evaluation of the effects of these plants that have proven to have an important role in improving the prognosis and the quality of life of patients by lower side effects as well as by the high tolerability of the products for oncology patients, by modulating the immune function of the human body with the natural potential to modulate immunity against various diseases, as well as in gastrointestinal disorders as an important therapeutic agent (*Dryopteris ramosa*).

At the international level, this field has an increased interest in these studies in oxidative stress. I participated together with other Romanian and foreign researchers from different universities in compiling the list of articles in this field of integrative medicine that were published in prestigious journals ISI Web of Science.

From the category of other research fields, I have analyzed a non-characteristic complex CT system with elastic elements that suppress the course of dangerous excitations can work as a dynamic absorber for some frequencies, the advantage of this system being the suppression of vibrations of certain excitation frequencies.

In chapter 2 of section 2 - professional and academic achievements, I presented on the one hand my professional path after graduating from the Faculty of General Medicine UMF Targu Mureș in 1999, the activity of a resident doctor in the medical imaging radiology specialty with confirmation as a specialist doctor in October 2006, and then at the end of 2011 passing the mayor's exam, participating throughout this period in national and international specialized congresses, in a level 2 cardiac CT course and in a cardiovascular imaging course in Paris, France, lasting 2 years and on the other hand the doctoral thesis entitled "The contribution of imaging in the traumatic pathology of the spine" which I defended in 2013 at the "Doctoral School of the University of Medicine and Pharmacy Craiova" under the guidance of Prof. Dr. Andrei Bondari.

From the point of view of academic achievements, my academic career began in 2004 as university assistant in the Faculty of Medicine, Transilvania University Brașov, in the discipline of Medical Imaging Radiology within the department of medical and surgical specialties, in 2018 I became head of permanent and in February 2023 I obtained the position of university lecturer in the same discipline. During all this time I developed one book as sole author and another - as co-author and coordinated ~ 30 undergraduate theses of students from medical and balneo-physio-kinesitherapy and recovery study programs with impressive results.

From the point of view of managerial achievements the ability to coordinate professional teams as well as the degree of professional experience that I have come to possess since December 2022 helped me to become the head of the medical radiology-imaging clinical laboratory within the Brașov County Emergency Clinical Hospital and I am also a resident coordinator in the medical imaging radiology specialty with the training center in Brașov since 2020.

The scientific activity has been completed with more than 48 scientific papers as the main author or in collaboration with other authors in ISI rated scientific journals and respectively BDI or CNCSIS scientific journals of which 16 are indexed by Web of Science with H-Index 6.

My membership in national and international scientific societies also contributes to the international recognition of my scientific activity: SRIM (Romanian Society of Radiology and Medical Imaging), SFR (French Society of Radiology), ESR (European Society of Radiology), RSNA (society - American Society of Radiology), SAR (US Society of Abdominal Radiology), ESGAR (European Society of Gastrointestinal Radiology).

In terms of development plans and scientific development, I believe that the habilitation in the field of medicine represents the highest level of academic and scientific professional training, and I also believe that it is the highest way of personal career development at this time.

All professional development and evolution plans are based on the history of my professional and teaching activity, and obtaining the right to coordinate doctoral theses through the habilitation thesis that I am defending, represents for me the key to success in future didactic and scientific activity alongside the personalities of the academic community at the helm of the Doctoral School of the Transilvania University of Brasov.

This achievement will contribute to my development in the professional field and will give me the opportunity to coordinate academic careers for young doctors, in order to contribute to the progress of this branch of Medicine by discovering new applications used in Radiology to facilitate the clinical diagnosis and management of various pathologies, and later they will be able to be included in the academic elite of Transilvania Brasov University.

A direction of research that I am currently working on and that remains for the future is chronic kidney disease that is evaluated imaging methods, respectively by nuclear magnetic resonance - ASL sequences for the assessment of renal perfusion in order to discover the degree of fibrosis from early stages. These sequences were initially used for other organs and currently, it is studied its utility at the level of the renal parenchyma.

Another research direction aims to determine the prevalence of MAD (Mitral Valve Annular Dysfunction) by cardiac MRI in patients with STEMI and NONSTEMI myocardial infarction and establish its prognostic role in these patients.

The third direction of research studies the RENAL score (RADIUS- maximum diameter in cm, Exofitic/endophytic tumor, Nearness of the tumor in the collecting system or sinus, Anterior/posterior, Location relative to the polar lines) in the approach of surgical treatment of

renal tumors with the aim of reducing postoperative complications and increasing the survival of these patients.

In the last chapter, the evolution plan in professional and academic development is based on the acquisition of new skills and knowledge within the professional activity focused on cardiac imaging.

The participation and organization of conferences with the involvement in national and international research teams, the coordination of future generations of students, resident doctors and PhD students will lead both to professional improvement and to the increase of scientific visibility, by rising the dissemination of research results and the publication of the results obtained in following research in ISI-rated international journals with high impact factor.

Also, the development of the academic activity will be based on a continuous process of developing the teaching methodology of the discipline in my area of competence, coordination, supporting and permanently involving students and doctoral students in the process of improving medical knowledge and in my research activity, to be able to provide up-to-date information based on the latest diagnostic and treatment guidelines at national and international level.

Among the expected results, I consider that the most important are: the motivation of students, doctoral students and residents to participate in competitions for international scholarships with a significant impact on the prestige of Transilvania University of Brasov, the active involvement of students and doctoral students in the process of professional and individual development and the planning and realization of programs of exchange type at national and European level within the clinical laboratory of medical radiology and imaging with a focus on certain topics - cardiovascular imaging and oncological imaging.

Conf dr. Rosana Mihaela Manea

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