

**”VICTOR BABES” UNIVERSITY OF MEDICINE AND PHARMACY TIMISOARA  
DOCTORAL SCHOOL  
MEDICINE**



# **INTERFACE FROM EMBRIOGENESIS TO SENESCENCE IN FAMILY MEDICINE**

## **ABSTRACT**

**ASSOC. PROF. ROXANA FOLESCU, MD, PhD**

**Universitatea de Medicină și Farmacie „Victor Babeș” din Timișoara**

**TIMIȘOARA, 2021**

# INTERFACE FROM EMBRIOGENESIS TO SENESCENCE IN FAMILY MEDICINE

## THESIS SUMMARY

I graduated from “Victor Babeș” University of Medicine and Pharmacy, Faculty of medicine in 2006, I am primary doctor in Family Medicine.

In 16.11.2012 I submitted my PhD thesis “Anatomic considerations regarding the arterial vascularisation of pelvis”, under the coordination of Prof. Dr. Motoc Andrei Gheorghe Marius, at “Victor Babeș” University of Medicine and Pharmacy, obtaining my Master Degree in Medicine-Anatomy (MAGNA CUM LAUDE).

The habilitation thesis „**Interface from embryogenesis to senescence in Family Medicine**”, represents the quintessence of my professional, scientific and academic activity, including especially the results obtained in postdoctoral period until today (20.02.2013 - present). The theme of my habilitation thesis was directed to the study and understanding of vascular macro-and microscopic pelvine anatomy. The study was realised using morphologic assessment, from the macroscopy to microscopy and ultrastructural anatomic analysis.

**The first part** of my habilitation thesis includes my significant scientific, professional and academic accomplishments.

**Chapter 1** covers the evolution and the principal professional postdoctoral activities, including the most important research fields and the original studies in the actual scientific context. The scientific results are presented on three main research directions, following the postdoctoral period until today: microscopic and ultrastructural research of pelvine vascularization, interface in primary medical care based on the most important health problems from birth to senescence, and the promotion and the surveillance of health in family medicine, introducing new therapeutic strategies based on beneficial effect of medicinal herbs.

In each of the three research areas, I presented the representative articles, looking at the actual data for each theme and activity.

*Regarding the first research area*, based on the acquired knowledges during my doctoral study, I continued the same line of exploring the pelvine vascularization,

realising a study which offers a new perspective to the subendothelial perimicrovascular stroma.

For the **second research area**, I followed a modern approach of integrative multidisciplinary, in context of new promoted courses of actual medicine. Subchapters are referring to all the human developmental stages, from birth to senescence, pointing on the related diverse pathologies. I was interested about the moral status of human embryo, as a part of a controversial and disputed problem. As for the fetal development, I studied placental materno-fetal vascularisation, which is essential for the normal progress of pregnancy, every alteration at this level being significant for the evolution of pregnancy. Getting through intrauterine life to childhood requires an adequate accommodation; in this context I presented a morphometric study of aortic wall parameters evolution from new born to child.

For the next stage of life, meaning teenagers of 11-18 years old, I approached extremely actual subjects, as body mass index, weight self perception and compliance to changes in teenagers weight.

In consideration of the fact that medical problems of the adult and aged persons represent a major concern for family doctors, I consider that these aspects need an incorporated multidisciplinary insight into their status. I studied the frequently involved pathologies correlated with age: tumoral pathology of mammary gland, underscoring the relation between estrogen, progesterone and therapeutic management; Marchiafava-Bignami (MBD) syndrome, a rare neurological alteration, known as an associated encephalopathy with chronic alcohol consumption, with a major role in sudden death of alcoholic patients. I also estimated the clinical and biochemical characteristics, the risk factors and associated comorbidities of hypertensive and type 2 diabetes mellitus (T2DM) patients. In the study *Assessment of Serum Cystatin C as an Early Biomarker of Carotid Atherosclerosis* I pointed on the relevance of the seric assessment of cystatin C, a precocious marker of renal alteration relative to estimated glomerular filtration rate (eGFR). Besides this, the study indicated a direct correlation between cystatin C seric level and carotid atherosclerosis, fact that recommends it as future useful factor for general population screening. In the article „*Prevalence, Characteristics and Predictive Factors of Microalbuminuria in Resistant Systemic Arterial Hypertension*” I underlined the significance of the precocious detection of microalbuminuria recommended by family doctor, as an independent risk factor. The study presented the biochemical

characteristics of RH associating MAU: high level of HbA1c, raised glycemia, potassium and low eGFR. The conclusions of this study are very important for the therapeutic approach of hypertensive patient.

Because the family doctor has a special role in active monitoring of patients with respiratory pathologies and their relation with pregnancy, in the article *Hematogenous placental infection in acute respiratory infections* I studied the macroscopic and microscopic aspects of placenta, resulted from abortions or febrile associated delivery and their correlation with acute injuries of superior/inferior respiratory system in pregnancy. Viral, bacterial or mycotic infections in pregnancy are responsible to activate septic abortion, premature birth or septic complications in fetus or newborn. The prevention of respiratory alterations in pregnant women and the correct treatment for those who already have it, considerably decrease the rate of hematogenous dissemination and the period of medical care. A therapeutic gain for the patient can be represented by customizing the treatment by means of device from the patent Dry-powder inhaler for patients with ventilatory dysfunction, Patent Number(s): RO130743-B1, Applicability domain: B07 (General - tablets, dispensers, catheters (excluding drainage and angioplasty), encapsulation etc, but not systems for administration of blood or saline or IV feeding etc.); P34 (Sterilising, syringes, electrotherapy (A61L, M, N), Patent Nr.130743, 28.04.2017, authors Motoc A, Ilie A, Pătrașcu J, Hogeia G, Stana L, Hogeia L, Folescu R, Bonte D, Crăciun L, Oancea C.

For a complete study of human organism, I also explored diverse aspects of psychiatric pathology, because I consider that family doctor can be the first to identify such problems. In the paper *Integrative clinico-biological, pharmacogenetic, neuroimaging, neuroendocrinological and psychological correlations in depressive and anxiety disorders*, I evaluated the complex context in which common disorders like depression and anxiety can develop today. This research can be considered as an argument, sustaining the necessity of pharmacogenetic tests and the significance of neurobiological, neuroimaging and neuroendocrinological markers evaluation, in order to realise a personalised therapy in depression. In the paper *The effect of neurobiological changes in the brain of children with schizophrenia, ultra high-risk for psychosis and epilepsy: clinical correlations with EEG and neuroimaging abnormalities*, we studied the influence of QEBG anomalies(quantitative electroencephalogram) in psychosis/schizophrenia etiology, exploring a possible

psychotic endophenotype. Evaluation using EEG and neuroimaging exam in psychosis can be useful in both precocious detection and prevention.

Family doctor has in his care healthy people and also people with different pathologies, as the gold goal should be connected especially with prevention. The most important prevention strategies must combine primary with secondary prevention, because health concern must be essential for every family doctor. For this reason I considered interesting to study the role of phytotherapy for a large number of diseases.

**The third area of research** pursued the promotion and the oversight of health in family medicine, based on evidence and centered on family, for patients of all ages and in all life stages. Phytotherapy provides a large domain of adjuvant and preventive remedies. I presented cardioprotective effects of Aronia and I realised a synthesis of the newest findings regarding the phytochemical composition and therapeutic properties of *Populus nigra* extract.

My interest for phytotherapy is also presented in the article *Biological Evaluation of Black Chokeberry Extract Free and Embedded in Two Mesoporous Silica-Type Matrices*, authors- Valentina Buda, Ana-Maria Brezoiu, Daniela Berger, Ioana Zinuca Pavel, Delia Muntean, Daliana Minda, Cristina Adriana Dehelean, Codruța Șoica, Zorița Diaconeasa, Roxana Folescu, și Corina Danciu, published in *Pharmaceutics* 2020, 12(9):838; doi:10.3390/pharmaceutics12090838 [www.mdpi.com/journal/pharmaceutics](http://www.mdpi.com/journal/pharmaceutics) (IF=4.421), and in the chapter: *Cardioprotective Effects of Cultivated Black Chokeberries (Aronia spp.): Traditional Uses, Phytochemistry and Therapeutic Effects*, published in *Natural Products - From Bioactive Molecules to Human Health*, DOI: <http://dx.doi.org/10.5772/intechopen.92238>, published 2020. In both studies I intended to update the most recent data about the properties of Black Chokeberries (*Aronia*) extract-antioxidant, antiinflammatory, antiatherogenic, antithrombotic, control of blood pressure, glucose and lipids, considering that it may represent a new therapeutic strategy during primary and secondary prevention in cardiovascular pathology.

All the studies I performed helped me to identify the current problems of Family medicine, connected to prevention, monitoring the evolution of a disease and adequate therapy. In the same time, I realised that can be involved a missing chain, related to integrative approach, respecting the superior correlations of

multidisciplinarity, elements that can outline a new insight of Family medicine. I observed that a significant number of patients despite the fact that they benefited by the proper treatment, presented the absence of compliance, resistance to therapy and unfavourable clinic outcome. I consider in this context we have to analyse the implication of an integrative approach, based on its possibility to decipher the most complex mechanisms and interactions and to take the opportunity of superior correlations for a correct clinical management and targeted therapy.

**Chapter 2** incorporates the evolution and my significant professional and academic achievements.

In regard to my professional activity, I graduated from “Victor Babeș” University of medicine and Pharmacy, Faculty of medicine in 2006. In 2008 I became resident physician-Family medicine, working until 2013 at Emergency Hospital Timisoara. I became specialist-Family medicine in 2013, working in the same hospital. In June 2017 I became primary doctor in Family medicine (Order of Ministry of Health no.988/30.08.2017)

My academic career started in 2008, as preparatory, after passing a competitive exam, in the First Department of Anatomy – Embriology, “Victor Babeș” University of Medicine and Pharmacy.

In 16.11.2012 I submitted my PhD thesis “Anatomic considerations regarding the arterial vascularisation of pelvis”, under the coordination of Prof. Dr. Motoc Andrei Gheorghe Marius and in 20.02.2013 I obtained my Master Degree in Medicine-Anatomy (MAGNA CUM LAUDE), promoting as *assistant* in Department of Anatomy and Embriology. In 2015 I promoted as *assistant professor* in the same department and in 2021 I promoted as *associate professor* - Discipline of Family Medicine.

Getting through these stages of academic hierarchy, I was deeply involved in the update and readjustment of didactic activities in accordance with modern requirements and international models. Therewith I activated for maintaining an efficient and functional link between me, as academic member and my students.

**In the third chapter** I related the evolution of my scientific accomplishments which helped me to gain national and international visibility and recognition.

During my professional activity, I participated to a large number of national and international congresses; my scientific research approaches different aspects of Family medicine, with complex integrative interactions and multidisciplinarity features

and the results are reflected in scientific articles revealing originality, actuality, capacity for synthesis, concern for the scientific concept and in maintaining a high scientific level, together with an exhaustive, complex advance.

The articles published in interantional ISI journals had scientific impact, the recognition of their value being reflected by a number of 350 citations in ISI Web of Science system, and a Hirsch index = 13.

**Chapter 4.** The last chapter of my thesis evolved new plans for the development of my professional, academic and research activity. My recent accomplishments help me to hereafter participate to the translation of scientific novelties, from the basic research to clinic activity, offering me the possibility of education in medical high level research. I wish to continue the researches in Family medicine, readjusting and permanently modelling the relation doctor-patient, involving the new principles and therapeutric resources.

I will continue, as a moral responsability, to promote medical and academic education of students and rezidents at very high standards. I intend to rejoin clinical and didactic activity, involving the new generations of students and rezidents and sustaining the development of Family medicine discipline.

Through the future coordination of doctoral thesis, I will support the activity of the new Ph.D. students and the stream of the results of their doctoral research in the national and international scientific literature, gaining academic visibility. I will continue, as a moral responsability, to promote the medical and academic education of students and rezidents at the high level standards. Through my professional and academic activity, I intend to involve the new generations of students and young doctors to aquire the necessary knowledges to increase the quality of medical activities and to sustain the development of Family medicine. I will be aside of young doctors, coordinating their doctoral activity, to incite them to choose new subjects, to approach the acute problems confronting family medicine.

I will support the spread of the results of doctoral research in national and international community, advancing their academic visibility. I will also sustain multidisciplinary, research and innovation in Family medicine.

**The second part a 2-a** contains bibliography for my research, already described in the anterior sections.

