

ABSTRACT

The habilitation thesis reflects my scientific, academic and professional work after obtaining my PhD degree in medicine for the thesis entitled "*Study of steroid-induced avascular necrosis of the femoral head*", elaborated under the supervision of Prof. dr. I Dinulescu from „Carol Davila” University of Medicine and Pharmacy, Bucharest.

The work overlaps the professional and scientific interests of the medical staff I'm part of, following these **research directions**:

a) Etiopathogenesis and treatment of avascular necrosis of the femoral head, a topic addressed in my doctoral thesis, which has remained an important interests of mine.

b) Diagnosis of rapidly progressive hip arthroses, which is essential if performed prior to the development of invalidating pain and a significant reduction in bone stock. In this regard, we proposed a series of criteria to facilitate early diagnosis and staging, based on corroborating clinico-pathological data, the presence of risk factors, disease history, and radiographic appearance.

c) Diagnosis and treatment of knee arthritic lesions based on disease severity stage. I've studied the presence of high levels of tumor necrosis factor- α and matrix metalloproteinase-8 in the synovial fluid of patients with condropathies, suggesting the involvement of these molecules in the pathogenesis of cartilage lesions. I've also evaluated the efficacy of therapeutic procedures in the primary, secondary, and tertiary prophylaxis of gonarthrosis, including: realignment tibial osteotomies in the pre-arthrosis stages, intra-articular treatment with polynucleotides and hyaluronic acid derivatives, increasing the quality of life in gonarthrosis patients after arthroscopic debridement, the use of autologous conditioned plasma for accelerating the healing process, as well as the role of establishing the optimal moment for knee arthroplasty in order to avoid a significant reduction of joint function.

d) Hip and knee endoprosthesis replacement. Regarding these, I've conducted a series of studies on: primary and revision hip arthroplasty, arthroplasty of the dysplastic hip (medial protrusion technique and/or augmentation of the acetabular ceiling with structural autografts), acetabular reconstruction in bone loss (*coxa profunda*, acetabular fractures, periprosthetic osteolysis), comparative results of using different types of implants, knee arthroplasty in varus/valgus deformities, the need for patella resurfacing, and periprosthetic fractures of the femur.

e) Interdisciplinary research - establishing a connection between the etiopathogenesis, diagnosis, complications and treatment of the arthritic disease. We've evaluated the *in vitro* antibacterial effect of bioactive glass S53P4 and the possibility of using it in the treatment of experimental osteochondral defects, as well as the local inflammatory response produced by the injection of viscoelastic substances (experimental study).

Scientific achievements. My scientific activity materialised in numerous publications/ research projects: a) 6 specialty books, 3 chapters in collective volumes issued by CNCS recognised publishing houses, 3 lithographed courses; b) 13 papers published *in extenso* in ISI indexed journals with an IF/ISI indexed volumes; c) 40 articles published in journals/ abstract volumes indexed in international databases; d) 69 papers published *in extenso* in specialty journals; e) 216 papers with an abstract published in journals/ abstract

Clinical and interdisciplinary research on the etiopathogenesis, diagnosis and treatment of arthritic lesions of the large joints - Dr. Tudor Sorin Pop

volumes indexed by ISI or with an ISBN/ ISSN; f) 93 papers with an abstract published in journals/ abstract volumes of international scientific events; g) continuous training and institutional development projects - institutional coordinator (1); h) national research projects awarded by competition - member (2); i) privately funded research projects awarded by competition - project manager (1), member (3); j) research projects with private funding - project manager (3), scientific manager (2).

Academic achievements. I became part of the teaching staff at the University of Medicine and Pharmacy Tîrgu Mureş in 1991, and I followed the successive stages of didactic training: a) 1991-1997 associate instructor and assistant professor at the Discipline of Anatomy; b) 1997-2002 assistant at the Discipline of Orthopedics-Traumatology; c) 2002-2005 lecturer; d) 2005-2016 associate professor; e) professor from 2016.

As part of the academic community, I've had various functions: a) Dean of the Faculty of Medicine and Chairman of the Faculty Council; b) Chairman of the Career Counseling Committee and of the Strategy, Reform and Curriculum Development Committee; c) member of M5 Department's Council.

I served as a member of various specialty committees: a) for the elaboration of topics for the graduate exams/ dissertation theses defense; b) promotion and tenure committees; c) doctoral committees for admission, examination, reports, and guidance; d) doctoral dissertation defense committees. As a recognition of my didactic merits, I received the "Professor Bologna" award from the National Alliance of Student Organizations in Romania.

Professional achievements. I graduated from the Faculty of Medicine, University of Medicine and Pharmacy Tîrgu Mureş. Professional training: a) 1989-1991 intern; b) 1991-1994 specialist registrar, orthopedics-traumatology; c) 1994-1999 specialist physician; d) 1999 to present – consultant physician; e) 6 internships abroad; f) over 30 training courses in Romania and abroad; g) 22 national congresses and conferences; h) 24 international congresses and conferences; i) Certificate of Complementary Studies in Health Services Management.

My professional work was recognised through membership in: a) international and national scientific societies; b) scientific and organizing committees; c) leadership positions in SOROT.

I was a member in: a) examination committees for obtaining the title of specialist/ consultant physician and filling vacant posts; b) consulting committee for orthopedics-traumatology in the Ministry of Health; c) surgical committee of Mureş Clinical County Hospital; d) specialty committee of the Mureş County College of Physicians.

Future development plans. In the future I plan to: a) increase the quality of the medical education process in our University; b) continue my activity in previously developed research directions, especially regarding rapidly progressive hip osteoarthritis (validation of diagnostic criteria, distribution of substance P/ endothelial growth factor in the synovium, therapeutic role of antiangiogenic medication), hip and knee replacement (long-term follow-ups), and osseointegration of bioactive glass (experimental studies); c) disseminate research results by publishing and presenting papers; d) promote value and performance in the medical activity; e) improving healthcare; f) increase the visibility of my University and Clinic through my teaching, scientific and medical activity.