The neurosonological techniques play an important role in the vascular and non-vascular (degenerative, peripheral nervous system diseases) neurological diseases.

The neurosonological methods proved their strength, not only in the prevention and diagnosis of vascular diseases, but also at intensive care unit monitoring and in therapeutic intervention (e.g. sonothrombolysis and gene therapy) in central nervous system diseases.

The neurosonological methods detect and follow the early impairment of endothelium function and changes of cerebral hemodynamics before and after pharmacological interventions.

This edition summarizes the recent advances of neurosonology, based on the most outstanding presentations of the European Society of Neurosonology and Cerebral Hemodynamics conference organised in Porto, 2013.

Updated results of arterial wall imaging, endothelial dysfunction testing, cerebral blood flow measurement, ultrasound in thrombolysis and new trends will be presented with detailed illustrations.

This book gives an overview about diagnostic and therapeutic advances of extra- and transcranial ultrasound, possible clinical and research applications and, besides “the state of art”, the future perspectives will be also presented.

The growing utilization and fast improvement of ultrasonic methods in the diagnosis and therapy of vascular and other diseases justifies an update survey on major breakthroughs.

I hope that this special edition will be useful in the daily work and stimulate the sonologists to use more intensively the neurosonological methods for the benefit of our patients and for clinical research.