Cerebral Small Vessel Disease
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Edited by Leonardo Pantoni and Philip B. Gorelick
Frontmatter
More information
To Franca, Veronica, Valeria, and Viola.
Leonardo Pantoni, MD, PhD

In honor of M. Rosita Schiller, RSM, PhD, and all who work quietly and substantially behind the scenes to improve health and mankind.
Philip B. Gorelick, MD, MPH
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**Contents**
Contributors

Rosanna Abbate, MD  
Department of Medical and Surgical Critical Care, Artherothrombotic Diseases Center, University of Florence, Florence, Italy

Charlotte L. Allan, BA, MBChB, MRCPsych  
Department of Psychiatry, University of Oxford, and Department of Psychiatry, Warneford Hospital, Oxford, UK

Johannes Attems, MD  
Institute for Ageing and Health, Newcastle University Campus for Ageing and Vitality, Newcastle upon Tyne, UK

Richard I. Aviv, MBChB, MRCP, FRCR  
Sunnybrook Health Sciences Centre and University of Toronto, Toronto, ON, Canada

Hansjoerg Baezner, PhD  
UniversitätsMedizin Mannheim, University of Heidelberg, Germany

Oscar R. Benavente, MD, FRCP  
Brain Research Centre, University of British Columbia, BC, Canada

Maria Bjerke, PhD  
Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

Sandra E. Black, MD, FRCPsych, FRSc  
Sunnybrook Health Sciences Centre and University of Toronto, Toronto, ON, Canada

Christian Blahak, MD, PhD  
UniversitätsMedizin Mannheim, University of Heidelberg, Germany

Mark I. Boulos, MD, FRCP (C), CSCN (EEG), MSc  
Department of Neurology, Sunnybrook Health Sciences Centre and University of Toronto, Toronto, ON, Canada

Margherita Cavalieri, PhD  
Division of Neurogeriatrics, Medical University of Graz, Graz, Austria

Hugues Chabriat, MD, PhD  
Lariboisière Hospital, Universite Paris Diderot, Sorbonne Paris Cité, UMR-S1161 INSERM, Paris; Centre de référence pour les maladies vasculaires rares du cerveau et de l’œil (CERVCO), France

Christopher Chen, MD  
Memory, Aging and Cognition Centre, National University Health Services, Singapore

Martin Dichgans, MD, PhD  
Institute for Stroke and Dementia Research, Ludwig–Maximilians University Munich, Munich, Germany

Maria Teresa Dotti, MD  
Department of Medicine, Surgery and Neurosciences, University of Siena, Italy

Klaus P. Ebmeier, MD  
Department of Psychiatry, Warneford Hospital, Oxford, UK

Elisabet Englund, MD, PhD  
Department of Pathology, Lund University, and Regional Laboratories, Skåne, Lund, Sweden

Christian Enzinger, MD, PhD  
Division of Neuroradiology, Department of Neurology, Medical University of Graz, Graz, Austria

Margaret Esiri, DM, FRCPsych  
Department of Neuropathology, University of Oxford, Oxford, UK

Franz Fazekas, MD  
Department of Neurology, Medical University of Graz, Graz, Austria
Contributors

Antonio Federico, MD
Department of Medicine, Surgery, and Neurosciences, University of Siena, Italy

José M. Ferro, MD, PhD
Department of Neurosciences, Hospital de Santa Maria, University of Lisbon, Instituto de Medicina Molecular, Lisbon, Portugal

Thalia Field, MD, FRCP
University of British Columbia, Vancouver, BC, Canada

Wiesje M. van der Flier, PhD
Alzheimer Center of the VU University Medical Center, Amsterdam, the Netherlands

Philip B. Gorelick, MD, MPH
Michigan State University College of Human Medicine and Hauenstein Neuroscience Center, Mercy Health at Saint Mary’s, Grand Rapids, MI, USA

Steven Greenberg, MD, PhD
Massachusetts General Hospital, Boston, MA, USA

Atticus H. Hainsworth, PhD
Stroke and Dementia Research Centre, St George’s University of London, London, UK

Brian T. Hawkins, PhD
Division of Hematology, University of Washington School of Medicine, Seattle, WA, USA

Michael G. Hennerici, MD
Department of Neurology, UniversitätsMedizin Mannheim, University of Heidelberg, Germany

Domenico Inzitari, MD
NEUROFARBA Department, Neuroscience Section, University of Florence, Florence, Italy

Hatsue Ishibashi-Ueda, MD, PhD
Department of Pathology, National Cerebral and Cardiovascular Center, Osaka, Japan

Yoshikane Izawa, MD, PhD
Division of Hematology, University of Washington School of Medicine, Seattle, WA, USA

Kurt A. Jellinger, MD, PhD
Institute of Clinical Neurology, Vienna, Austria

Anne Joutel, MD, PhD
INSERM U740, Paris, and Université Paris Diderot, Paris, France

Eric Jouvent, MD, PhD
Lariboisière Hospital, Department of Neurology, Paris, and Université Paris Diderot, Sorbonne Paris Cité, UMR-S1161 INSERM, Paris, France

Raj Kalaria, PhD, FRCPath
Institute for Ageing and Health, NIHR Biomedical Research Building, Newcastle University, Campus for Ageing and Vitality, Newcastle upon Tyne, UK

Edward G. Lakatta, MD
Laboratory of Cardiovascular Science and Cardiovascular Function Section, National Institute on Aging, National Institutes of Health, Baltimore, MD, USA

Jennifer Linn, MD
Department of Neuroradiology, University Hospital Munich, Munich, Germany

Marisa Loitfelder, PhD
MUG Research Units, Division of Neurogeriatrics, Medical University of Graz, Graz, Austria

Sofia Madureira, MSc
Department of Neurosciences, Instituto de Medicina Molecular, Faculdade de Medicina de Lisboa, Lisbon, Portugal

Hugh S. Markus, DM, FRCP
Department of Clinical Neurosciences, University of Cambridge, Cambridge, UK

Ranjith K. Menon, MD
Vascular Neurology, Division of Adult Neurology, Sunnybrook Health Sciences Centre, and University of Toronto, Toronto, ON, Canada

Vincent Mok, MD
Division of Neurology, Department of Medicine and Therapeutics, Prince of Wales Hospital, Chinese University of Hong Kong, Hong Kong Special Administrative Region, China

Makoto Nakajima, MD
University of British Columbia, Vancouver, BC, Canada

David Nyenhuis, PhD
Department of Translational Science and Molecular Medicine, College of Human Medicine, Michigan State University; and Hauenstein Neuroscience Center, Saint Mary’s Health Care, Grand Rapids, MI, USA
Jun Ogata, MD, PhD
Hirakata General Hospital for Developmental Disorders, Osaka, Japan

Christian Opherk, MD, PhD
Department of Neurology and Institute for Stroke and Dementia Research, Ludwig-Maximilians University Munich, Munich, Germany

Leonardo Pantoni, MD, PhD
Stroke Unit and Neurology, Azienda Ospedaliero Universitaria Careggi, Florence, Italy

Francesca Pescini, MD, PhD
NEUROFARBA Department, Neuroscience Section, University of Florence, Florence, Italy

Anna Poggesi, MD, PhD
NEUROFARBA Department, Neuroscience Section, University of Florence, Florence, Italy

Sharon Reutens, MD
School of Psychiatry, University of New South Wales, Sydney, Australia

Stefan Ropele, MD, PhD
Department of Neurology, Medical University of Graz, Graz, Austria

Perminder S. Sachdev, MD, PhD
Centre for Healthy Brain Ageing; School of Psychiatry, Faculty of Medicine, University of New South Wales, Sydney, Australia

Reinhold Schmidt, MD
Medical University of Graz, Graz, Austria

Angelo Scuteri, MD, PhD
Scuola Specializzazione in Geriatria, Universita’ Tor Vergata, Rome, Italy

Glenn T. Stebbins, PhD
Translational Imaging Core Facility, Rush University Medical Center, Chicago, IL, USA

Richard H. Swartz, MD, PhD
Sunnybrook Health Sciences Centre and University of Toronto, Toronto, ON, Canada

Ana Verdelho, MD, PhD
Department of Neurosciences, Hospital de Santa Maria, University of Lisbon, Lisbon, Portugal

Anand Viswanathan, MD, PhD
Partners Telestroke Program, Department of Neurology, Massachusetts General Hospital, Boston, MA, USA

Anders Wallin, MD, PhD
Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

Joanna M. Wardlaw, MD, FRCR
Division of Neuroimaging Sciences, Centre for Clinical Brain Sciences, University of Edinburgh, Edinburgh, UK

Hiromichi Yamanishi, MD, PhD
Hirakata General Hospital for Development Disorders, Osaka, Japan

Gregory J. del Zoppo, MD
Department of Hematology and Department of Neurology, University of Washington School of Medicine, Seattle, WA, USA
The brain is supplied by a network of blood vessels, both large and small. The large arteries have been the focus of extensive past study by virtue of the ease of imaging them and carrying out neuropathologic evaluation. In relation to cerebrovascular disease, the large arteries of the brain are subject to atherosclerosis similar to that of other large systemic arteries of the body. On the other hand, the smaller cerebral arteries of the brain have received less attention until more recently, when modern brain imaging advances allowed the detection of the consequences of small artery disease such as small deep infarcts, white matter disease (i.e., leukoaraiosis), cerebral microhemorrhages, and prominent perivascular spaces associated with vascular ectasia. The deeply seated small arteries and veins, moreover, have been more difficult to study directly, and less has been known about the underlying neuropathology in those afflicted. However, there has been an explosion of recent interest in small vessel disease of the brain, and a considerable body of new information about it and its importance in aging have emerged. Thus, we have devoted this treatise to this topic. With more clinical, neuropathologic, and epidemiologic studies available, we felt that it was appropriate to launch this book and share important insights with the readers.

The evolution of our understanding of vascular cognitive impairment and the role of vascular risk factors in disrupting cognitive vitality as we age has been a focus of study over the years by the editors of this book, who have concluded, as others have, that small vessel disease of the brain is the most important cause of vascular cognitive impairment. The occasion of this text provided us the opportunity to bring together international leaders in the field of small vessel disease of the brain and have them provide succinct reviews of topics germane to the field, spanning from classification, neuropathology, and basic aspects of small vessel disease of the brain, to hereditary disorders, neuroimaging and laboratory aspects to clinical manifestations, and, finally, treatment and prevention. The readers will find that hereditary models of small vessel disease of the brain hold an important place in our understanding of pathophysiology, and the neurovascular unit provides a potential final common pathway whereby small vessel changes lead to brain complications and loss of cognitive vitality and other functional outcomes.

The current literature is burgeoning with information about small vessel disease of the brain. However, there have been few attempts to organize this massive scientific knowledge base in a logical and understandable manner. Cerebral Small Vessel Disease links the reader to the many aspects of this disorder in an integrated and digestible presentation.

We have designed the book for both clinicians and researchers. We reach out to practicing physicians and other care providers, epidemiologists, medical students, residents (especially those interested in neurology and geriatrics), geriatricians, radiologists, pathologists, and those with public health backgrounds. The fundamental prerequisite for reading the text is an interest in the aging brain, how vascular factors and processes affect the brain, and how we might treat and prevent vascular injury to the brain. Vascular factors not only influence our risk of vascular cognitive impairment but also of Alzheimer’s disease. Therefore, what we have to say in the text may be applicable to Alzheimer’s disease.

The text serves as a quick topical reference for the practicing physician or care provider who needs an answer about a patient in relation to treatment and prevention. In addition, it provides a more detailed understanding of underlying mechanisms and consequences of small vessel disease of the brain. Therefore, both the clinician and researcher may benefit from exploring the text.

We wish to thank all of our patients and research collaborators throughout the years who have shared
with us insights and stimulated our own thinking as we strive to better understand small vessel disease of the brain. Hopefully, the readers will be armed to provide even better care for their patients, with a better understanding of cerebral small vessel disease, and be motivated to develop an emboldened research agenda to better the health of many with or at risk of this affliction.