Cerebrovascular disease

Prevention, diagnosis and treatment are the watchwords in stroke research, for basic neuroscientists and clinicians alike. This book, from the 22nd Princeton Conference on Cerebrovascular Disease, contains contributions from outstanding investigators on current topics in stroke research.

The contents cover the current status and future directions of stroke pathophysiology, diagnosis and treatment, with special emphasis on the molecular and cellular mechanisms of ischemic cell death and repair, and clinical issues including imaging, risk factors, and therapeutic strategies in stroke.

Available in print and online, this survey of the basic and clinical science of stroke is an essential resource for all involved in advancing knowledge of cerebrovascular disease.

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Cerebrovascular Disease

22nd Princeton Conference

Edited by

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Preface

The 22nd Princeton Conference on Cerebrovascular Disease, held in Redwood City, California, 10–12 March 2000, was hosted by the Stanford University School of Medicine, with administrative support provided by the Neurosurgical Laboratories, Department of Neurosurgery. The Conference focused on the current status and future directions of stroke pathophysiology, diagnosis and treatment, with special emphasis on the cellular and molecular mechanisms of ischemic cell death and repair, and clinical aspects of imaging, risk factors and therapeutic strategies in stroke. This 2 day conference was exciting and productive, with a consensus that the goals that were set forth for this meeting had been accomplished, and perhaps far exceeded expectations. First, the meeting provided a unique forum for promoting collaborative interaction in stroke research among the attendees. Second, many of the speakers presented state-of-the-art and up-to-date information, and the vigorous interactive discussions among the participants made this conference a successful and memorable one.

The first three topics in this monograph are directed toward the cellular and molecular mechanisms of ischemic cell death. Zinc and caspases, which are emerging as important mediators involved in ischemic cell death, have been fully elaborated in the two special invited lectures. Other important mediators including oxygen radicals, NMDA receptors and genes involved in ischemic tolerance are discussed. Two major concepts, parapoptosis and ischemic white matter injury in culture, are introduced.

One major area that distinguishes this meeting from other stroke conferences is that late-breaking news in stroke research was presented, and appears in this book in Part IV. These hot topics include the gap junction between astrocytes, the aquaporin-4 water channel, tetracycline neuroprotection and spreading depression.

Postischemic pathophysiological events are discussed in Parts V and VI. Hemorrhage and inflammation are two major areas of focus. New concepts in the role of thrombolytic tissue plasminogen activator and cytokines in postischemic pathophysiology and injury have evolved from these presentations.

Parts VII and VIII focus on the preclinical utility of gene transfer in stroke, and
neural stem cell transplantation and its involvement in neural plasticity after cerebral ischemia. These studies present up-to-date and unique therapeutic strategies and potentials employing gene transfer and stem cells in clinical stroke.

Diffusion/perfusion magnetic resonance imaging in clinical stroke dominate the discussions in Part IX. New and innovative approaches using these imaging techniques in addressing acute ischemic stroke, transient ischemic attack and early recanalization in acute ischemic stroke have been vigorously discussed and debated.

Finally, a particular section (Part X) is devoted to risk factors, clinical trials and new therapeutic horizons. This section presents a unique perspective for considering vascular factors and white matter as the new neuroprotection targets in stroke clinical trials.

The enthusiasm and excitement reflected in the presentations and the vigorous interactive discussions among the participants reflect the success of the conference. This momentum is likely to continue. Tremendous advances in both basic and clinical sciences were demonstrated during the 2 day meeting. It is our hope that these advances, as communicated through this volume, will provide an impetus for stroke researchers to maintain and exceed these excitements in advancing our knowledge in both the basic and clinical sciences of stroke.

P. H. Chan
Acknowledgments

The success of the 22nd Princeton Conference on Cerebrovascular Disease was very dependent on the contributions and cooperation of many individuals including those who gave generously of their time as part of the Organizing Committee (Gregory W. Albers, M.D., Rona G. Giffard, M.D., Ph.D., Michael E. Moseley, Ph.D., Robert M. Sapolsky, Ph.D., Frank R. Sharp, M.D., Gary K. Steinberg, M.D., Ph.D., Raymond A. Swanson, M.D., Midori A. Yenari, M.D. and Philip R. Weinstein, M.D.) and the Scientific Advisory Committee (Nicolas Bazan, M.D., Ph.D., Dennis W. Choi, M.D., Ph.D., Michael Chopp, Ph.D., Marc Fisher, M.D., Myron D. Ginsberg, M.D., Philip Gorelick, M.D., M.P.H., Chung Y. Hsu, M.D., Ph.D., John R. Marler, M.D., Michael A. Moskowitz, M.D., James T. Robertson, M.D., Bo K. Siesjö, M.D., Ph.D., Bryce Weir, M.D. and Justin A. Zivin, M.D., Ph.D.). Ms. Aileen Beals and Ms. Cheryl Christensen are greatly appreciated for their outstanding contribution of coordinating the Conference. As in the past, the Princeton Conference received generous support from the National Institute of Neurological Disorders and Stroke and from our colleagues in the pharmaceutical industry. A list of these contributors can be found below. Special thanks to our colleagues at the NINDS who provided encouragement and support: Gerald D. Fischbach, M.D., the past Director, Michael D. Wälker, M.D., past Director of the Stroke and Trauma Division, John R. Marler, M.D., Associate Director of Clinical Trials and Thomas P. Jacobs, Ph.D., Program Director. The significant fundraising efforts of many colleagues are acknowledged, in particular, Marc Fisher, M.D., and Justin A. Zivin, M.D., Ph.D. Finally, the untiring effort of Ms. Cheryl Christensen, who also served as the assistant editor of this monograph, is appreciated.

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