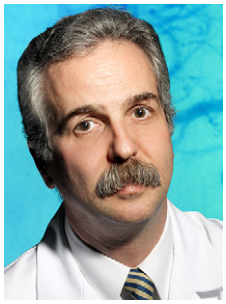
# Preface

Paul Nyquist, MD, MPH

Neeraj Naval, MD



Rafael J. Tamargo, MD

*Guest Editors*

The incidence of aneurysmal subarachnoid hemorrhage (aSAH) is between 6 and 8 cases per 100,000 persons per annum in the West. It affects some 20,000 to 30,000 Americans each year. In recent decades, the treatment of vasospasm has advanced. Several new clinical trials involving the surgical and endovascular as well as medical management of aSAH have changed the intellectual foundation of the treatment of this disorder. The development of new endovascular techniques has expanded the breadth and effectiveness of the surgical options available to neurosurgeons in caring for these patients. Understanding of the underlying molecular biology of this disorder has given insight into genetic risk factors predisposing to hemorrhage and vasospasm. Inflammation's role in the development of vasospasm is becoming more clearly defined. The proliferation of neurocritical care units and a greater understanding of the issues surrounding the medical management of aSAH have fueled a need for education about the medical treatment of this disorder and its complications.

Centers that ascribe to excellence in the care of patients with subarachnoid hemorrhage must incorporate interdisciplinary approaches. Expert care of these patients requires integration of knowledge from the fields of neurosurgery, neuroradiology, neurocritical care, and stroke neurology. As technology advances and new devices for treatment such as endovascular coiling dramatically change the treatment of these patients, they must be placed in the context of a multidisciplinary approach. As new imaging modalities such as computed tomographic angiography and perfusion computed tomography (CT) are improving, they are allowing for better monitoring of perfusion deficits and increased detection of occult hemorrhages and aneurysms. This growing technological sophistication requires special sensitivity as to how this technology can best be used and integrated into the multi-faceted world of aSAH management to achieve cost-effectiveness and improved outcomes.

There has been a recent explosion of new understanding of the molecular biology of aneurysm development, repair, and its associated clinical sequelae. The role of inflammation and its relation to vasospasm and aSAH is an example of this. This greater understanding of the pathophysiology of vasospasm is leading to new means of detection and treatment of this disorder. It now is recognized that vasospasm is primarily an inflammatory response to the initial hemorrhage. New research approaches involving genomics and proteomics are creating new opportunities in translational research that build on this knowledge. It is hoped that these approaches may yield new techniques for treatment and detection of the delayed clinical effects of aSAH.

This issue of *Neurosurgery Clinics* has been written with the specific intent of updating readers on the advancement of the care of aSAH in a multidisciplinary setting. The goal is to educate the reader about the changing face of the neurosurgical management of this disorder. Special emphasis has been placed on new knowledge about the pathophysiology of the sequelae of aSAH and new imaging and interventional strategies. Chapters have been included on the role of

Neurosurg Clin N Am 21 (2010) xiii–xiv
doi:10.1016/j.nec.2009.10.001
1042-3680/10/$ – see front matter © 2010 Elsevier Inc. All rights reserved.

inflammation on vasospasm, as well as a review on proteomic research and how it has contributed to the understanding of the sequelae of aSAH with the intent of educating the reader about new direction in research. Chapters have been included outlining advances in endovascular and surgical techniques applied to the care of aSAH.

We hope this issue will provide a complete assessment of progress in the neurosurgical management of aSAH that is both timely and up to date. The care of these patients can be quite challenging, and we hope this addition enables the reader to apply current concepts to care for this interesting and challenging group of patients.

We wish to thank all of our colleagues in the field of neurosurgery, interventional neuroradiology and critical care neurology who made this manuscript possible. It is through their academic dedication and hard work that we were able to complete this edition of *Neurosurgery Clinics*. In addition, we would like to thank Ruth Malwitz for her expert editorial skills, administrative efficiency, and good humor. We would also like to thank the publishers at WB Saunders/Elsevier for their support and interest in producing this volume.

Paul Nyquist, MD, MPH
Departments of Neurology
Anesthesiology/Critical Care Medicine
and Neurosurgery
Johns Hopkins School of Medicine
600 North Wolfe Street, Meyer 8-140
Baltimore, MD 21287, USA

Neeraj Naval, MD
Neurosciences ICU
Oregon Health & Science University (OHSU)
3181 SW Sam Jackson Park Road
CR-127
Portland, OR 97239-3098, USA

Rafael J. Tamargo, MD
Department of Neurosurgery
The Johns Hopkins Hospital
600 North Wolfe Street
Meyer Building, Suite 8-181
Baltimore, MD 21287, USA

E-mail addresses:
pnyquis1@jhmi.edu (P. Nyquist)
naval@ohsu.edu (N. Naval)
rtamarg@jhmi.edu (R.J. Tamargo)