

## Editorial

# Cerebrovascular Disease Special Edition

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## INTRODUCTION

We would like to thank the authors of the following papers for choosing to publish their work in our open access special edition on cerebrovascular disease. It would be easy enough for all of them to publish their manuscripts in mainstream print-based journals. The concept of the open access journal: cutting edge, rapid turnaround, readily searchable, publication of scientific works; is extremely important. With increased access to novel concepts and supporting data, there is an increased ability to become discerning about the quality of data used to treat patients. We have divided this edition into three sections dealing with the acute treatment, diagnosis and management, and prognostication of cerebrovascular disease. We hope that these works will fuel critical thinking, novel ideas, healthy debate, and future studies.

### Acute stroke treatment

In 1995, the NINDS trial was published and changed the face of acute stroke management, primarily by encouraging rapid evaluation and treatment. When stroke moved from an untreatable to treatable disorder, many studies like the ones following became possible. The inclusion/exclusion criteria for the administration of IV tPA were created as part of the research protocol and may not all be relevant in current clinical practice. The first paper is an example of a potential exclusion criterion not discussed in the original NINDS paper. In our aging population, cerebral amyloid angiopathy may be an important factor to consider in treatment of elderly patients with dementia. Since the advent of tPA, there have been a multitude of additional trials looking at other interventions (eg., intra-arterial lysis, neuroprotectants, novel thrombolytics such as TNK, and the acute use of antiplatelet agents). The second paper illustrates a potential role for clopidogrel loading in patients presenting with stuttering lacunar syndromes. Along with inclusion/exclusion criteria and novel treatments, the diagnostic measures for detecting and assessing severity of ischemia is also an evolving field. It is well recognized that along with the posterior circulation, the right hemisphere is grossly underestimated by the NIH Stroke Scale due to difficulty in quickly and accurately evaluating right hemisphere function. Though more difficult to diagnose, lesions of the right hemisphere are no less debilitating,

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and therefore reperfusion with acute treatment is of utmost importance. The final two papers address the importance of stroke within the right hemisphere, and innovative screening tools for right hemisphere dysfunction.

### Diagnosis/management considerations

Common risk factors for stroke have been well studied; however, the more uncommon etiologies and medical effects of stroke are only now becoming clear. The first paper is a nice description of mechanical compression of a major artery resulting in continued embolization. This mechanism would not have been diagnosed without careful thought and imaging. It reminds us of the importance of a complete evaluation and expanded differential, particularly in those without the "typical" vascular risk factors. Hypercoagulable states secondary to cancer represent another area deserving of discussion. Cryptogenic stroke is a universally frustrating problem. Dearborn and colleagues detail one institution's approach to these patients. A majority of the morbidity and mortality in stroke has been reduced by simple interventions: prevention of aspiration pneumonia, fever, and deep vein thrombosis. Prior to implementation of these measures, it was not uncommon for a relatively small stroke to result in death from medical complications. The last paper highlights a more rare, but equally devastating medical complication of both anterior and posterior circulation strokes, whose prevention strategies may be different due to different underlying etiologies.

### Prognostication/recovery

The most elegant and useful solutions are simple. But oversimplification of a complicated topic is also problematic. Prognostication following cardiac arrest has become complex, requiring: a detailed cranial nerve examination, EEG, SSEPs to evaluate the N20 response, and expensive laboratory testing (eg., neuron specific enolase). Over time, this has led to a more accurate, but less universally applicable assessment. Albaeni and colleagues propose a novel, three item score that is simple, fast, reproducible, and inexpensive, with a surprising degree of

accuracy. Conversely, historically the prognosis and recovery of aphasia has been oversimplified into a single treatment algorithm, overlooking the subtleties that differentiate one syndrome from another. Tippett and colleagues highlight the heterogeneity of

language disorders. The extent and precise location of pathway disruption may have significant repercussions on both choice of therapy and response.

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