

Foreword

Pediatric stroke

Received 17 August 2009

Accepted 17 August 2009

Stroke is often considered a disease of adults and the elderly because it occurs primarily in the population after 50 years of age. Frequently, however, stroke can also result in significant morbidity and long-term disability in newborns and children [1]. Since there are many causes of acute neurological deficits in children, the diagnosis of stroke has been obscured in the past; recently, great advancements in neuroimaging techniques (e.g. diffusion weighted magnetic resonance imaging) have made the diagnosis of stroke faster and much more accurate [2–4]. As a result, the estimates for the prevalence of pediatric stroke are likely to be different now when compared to 10 or more years ago.

As compared to the adult population, the causes and risk factors for stroke in children are largely influenced by the higher rates of genetic and metabolic conditions, as well as congenital heart defects [5]. The clinical and therapeutic management of pediatric stroke is distinct from adult stroke; appropriate guidelines have to be established separately in this young age group. In order to achieve evidence-based medical care for pediatric stroke, more research and large multi-center collaborative studies are needed. Since the first international workshop on perinatal and childhood stroke was launched by the National Institute of Neurological Disorders and Stroke/National Institutes of Health (Bethesda, USA) in 2000 [6], an increasing number of international publications and collaborative efforts have marked the evolution of this field [7,8]. A Special Writing Group of the American Heart Association Stroke Council has recently published a scientific statement on the “Management of Stroke in Infants and Children” that was based on various levels of evidence from clinical studies and the literature [9]. Many aspects of stroke treatment, including thrombolysis and revascularization therapy, remain controversial in the pediatric age groups [10–13].

The outcome of stroke in children is expected to be better than in adults due to the known developmental plasticity of the brain [14]. In particular, the recovery of language functions after middle cerebral artery strokes was noted to be remarkable in infants; however, some data suggested a poorer outcome in very early onset strokes [15–17]. Further clinical and advanced neuroimaging research studies are needed that are structured around multi-center collaborative approaches, in order to gain more information about the natural history, effective treatment, and long-term outcome of pediatric stroke [18,19].

In this special issue of *Journal of Pediatric Neurology* we provide reviews on the pertinent aspects of stroke in children, but due to space limitations, some important areas in the field (e.g. genetic disorders and stroke; neurorehabilitation of pediatric stroke) are less well represented. The editor felt it important to include a short review on the potential for stem cell therapy because of the high expectations and recent publicity regarding this subject. We hope that the special edition will assist professionals and students in their practice of medicine or in their studies.

I am grateful to all of the authors for their excellent papers and timely submissions. There are several experts who have helped to review the articles and their contribution is invaluable: Renee B. Van Stavern M.D. at Cerebrovascular Disease and General Neurology Section of Washington University, St. Louis, USA; Carol Brenner Ph.D. of Department of Obstetrics and Physiology, Mahbulul Huq M.D., Ph.D. of Departments of Pediatrics and Neurology, Gowdagere Srinath M.D. of Departments of Pediatrics and Cardiology; Alexandros Tselis M.D. of Department of Neurology all at Wayne State University, School of Medicine, Detroit, USA.

The following online resources may help to better serve the patients and their families:

<http://www.pediatricstroke.org/>.
www.pediatricstrokenetwork.com/.
<http://www.strokeassociation.org/>.
<http://www.chasa.org/>.
<http://www.rcplondon.ac.uk/pubs/books/childstroke/>.

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