



Preface

Nonaccidental neurotrauma in children



P. David Adelson MD, FACS, FAAP



Michael D. Partington MD, FACS, FAAP

Guest Editors

It is a sad commentary on our society that one of the most common causes of traumatic brain injury in the infant and young child is nonaccidental trauma, or child abuse. Although it has generally been believed that young children are more likely to recover from traumatic brain injury as compared with older children and adults because of their increased plasticity and their ability to handle secondary insults, the overwhelming bulk of the literature points to the fact that young children (those less than 4 years of age) most often have worse outcomes. Whether because of the mechanism (eg, child abuse with its potential for multiple insults) or the unique issues surrounding the young developing brain, this finding still remains to be clarified. In addition, there is scant evidence for the appropriate approach and management of young children with traumatic brain injury, and it is clearly a challenge applying what is known and understood for the adult, with regard to head injury, to the pediatric population. It is clear that one of the most difficult aspects of neurosurgical care of these children is that these injuries are quite preventable. Although it is clear that prevention is the optimal treatment of nonaccidental trauma, there are many areas and aspects of the care and treatment of the infant and young child that need to be addressed further. Further studies into the understanding of how children are injured, the mechanisms of secondary injury, and the impact on development will surely lend

themselves to the development of normal therapeutic interventions. It is hoped that through the dissemination of further information and understanding, such as found in this issue of *Neurosurgery Clinics of North America*, there will be an impetus for new ideas for prevention and treatment to optimize the outcome for this group of patients.

Because of the medicolegal climate and the fact that nonaccidental trauma occurs in all parts of our society, the practicing neurosurgeon needs to be aware of the signs and symptoms of traumatic brain injury to the infant and young child as they relate to nonaccidental trauma. Often he or she needs to be available, through their expertise, to direct and assist in the management of these injured children and provide justification for further investigation. This issue of the *Neurosurgery Clinics of North America* updates the reader as to the current understanding of the diagnosis and management of children following nonaccidental trauma. It brings together viewpoints and expertise from multiple disciplines to enhance the reader's understanding of the issues surrounding the cerebral injury, other often associated findings and injuries, the critical care management, prognosis, medicolegal aspects, and potential prevention of nonaccidental trauma.

This issue begins with an overview of child abuse and nonaccidental trauma as they affect the infant and young child. This includes the

biomechanics and the pathophysiology of inflicted head injury. The next section involves the clinical presentations of head injury from nonaccidental trauma, including the diagnostic evaluation of these children through radiologic and ophthalmologic approaches. In addition, associated injuries are discussed, particularly as they relate to the spine and spinal cord. The next section involves the critical care management of the infant and young child with regard to nonaccidental trauma with a discussion of the expected outcomes in these children after injury. The last section involves the medicolegal aspects of nonaccidental trauma and an article on the promise of

prevention measures and future issues that face these infants and young children.

We thank and acknowledge the efforts of each of the authors involved with this volume who have lent their expertise and particular viewpoint for this topic of pediatric nonaccidental trauma. Each has brought their unique knowledge and applied it to the issues of practical and clinical importance, especially with regard to the infant and young child, a population about which very little is known as to the optimal approach. We thank them all for their contributions and involvement with this issue and for their ongoing commitment to a better understanding and involvement with these children.

P. David Adelson, MD, FACS, FAAP*
Children's Hospital of Pittsburgh
3705 Fifth Avenue
Pittsburgh, PA 15213, USA

Michael D. Partington, MD, FACS, FAAP
Gillette Children's Specialty Healthcare and
Children's Hospital of St. Paul
St. Paul, MN 55102, USA

*E-mail address: adelsod@chplink.chp.edu (P.D. Adelson).