Neonatal Neural Rescue: A Clinical Guide
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Foreword by

**Joseph J. Volpe MD**
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Foreword

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The overall intent of this book is to elucidate the scientific underpinnings of neonatal neural rescue, especially hypothermia, to synthesize the critical evidence supporting its clinical value and to describe the means of implementation of hypothermia, including important practical considerations. The intent, thus, is ambitious and challenging. The clinical focus is the preservation of neurological structure and function in the infant exposed to perinatal asphyxia. The work was led admirably by three pioneering figures in the field of neural rescue: Professors David Edwards, Denis Azzopardi and Alistair Gunn.

An appropriate query might be raised at the outset – why address an entire book, with more than 20 chapters, to the problem of brain injury secondary to perinatal asphyxia? Some prominent clinicians and the “guidelines” of several scientific societies have stated that perinatal asphyxia with its associated hypoxic–ischaemic brain injury is an uncommon condition. This declaration is decidedly incorrect. The advent of MRI in the study of the newborn with neurological signs referable to the central nervous system has led to the discovery, clearly documented in multiple publications, that the topographic signature of hypoxic–ischaemic brain injury is common in the context of clinical signs consistent with perinatal asphyxia. In developed countries, infants brain-injured by perinatal asphyxia yearly account for cumulative totals measured in the many thousands. Even more dramatically, in underdeveloped countries, the yearly numbers are of the order of a million or more. Thus, the focus of this book, the prevention of hypoxic–ischaemic brain injury related to perinatal asphyxia, is extraordinarily important and timely.

The remarkable advances in recent years in neonatal neural rescue, especially with hypothermia, are synthesized in this outstanding book. The first section provides the scientific background of hypoxic–ischaemic brain injury and the likely mechanisms mediating the beneficial effects of hypothermia. The second section is focused principally on hypothermia and its implementation in the neonatal intensive care unit. Such important clinical issues as obtaining parental consent for neuroprotective therapies, criteria for selection of infants, specific modes of hypothermia, management of related neurological phenomena, e.g., seizures, and neurological/cognitive follow-up are addressed. The concluding section looks to the future and explores such critical topics as other potential novel neuroprotective interventions, especially those that interact favourably with hypothermia, and the search for biomarkers and facilitators of early phase studies.

Each chapter is written by one or more experts in the field and is well-organized, lucid and highly informed. The reference lists are broad and deep and, alone, are a great resource. Overall, the book is a tour de force and will be of enormous value to neonatologists, neurologists, paediatricians, neonatal nurses and indeed, anyone involved in the care of the asphyxiated infant.

Hypothermia for treatment of neonatal hypoxic–ischaemic brain injury represents the first consistently useful neuroprotective intervention in management of the asphyxiated infant. Upon the foundation of hypothermia, additive and synergistic therapies hopefully will be added. This book sets the stage for this next level of intervention in a field that until now has been desperately lacking. Professors Edwards, Azzopardi and Gunn have set a high bar for future scholarship in neonatal neural rescue and deserve great credit for their accomplishments with this volume.