

## Pediatric Acute Kidney Injury: Devotion to the Issue

Substantial clinical and translational research has focused upon the area of acute kidney injury (AKI) over the past decade. Although many compelling reasons exist to explain the intensification of AKI research, a profound realization by the nephrology and critical care medicine communities that a long-held concept that critically ill patients died “with” and not “from” AKI is likely erroneous has been the main impetus behind the increase in AKI study.<sup>1</sup> Furthermore, recognition that even “small” increases in serum creatinine concentrations<sup>2,3</sup> reflect substantial kidney injury has led researchers on a quest to find markers of earlier, and therefore less severe, injury to guide therapy to minimize or possibly prevent the ill effects of AKI.

The result of AKI research has had a major impact upon both the literature and clinical medicine. No greater evidence exists to support this claim than the transformation of the term *acute renal failure* to the nearly universally accepted *AKI* in only 4 years. Validation of AKI classification systems such as the Risk, Injury, Failure, Loss and End-Stage Kidney Disease (RIFLE) criteria<sup>4,5</sup> or the Acute Kidney Injury Network<sup>6</sup> definition have been published and finally provided the basis by which to unify AKI severity as an outcome measure.

Children with AKI comprise an informative group for study because they usually do not possess many of the clinical factors such as hypertension, atherosclerotic vascular disease, chronic lung injury from tobacco use, and diabetes that can confound organ failure study. Children also comprise a heterogeneous group of patients of varying sizes and comorbidities that pose significant technical challenges to optimal care delivery.<sup>7</sup>

My aim as Guest Editor for this current issue of *Seminars in Nephrology* devoted to AKI in

children was to provide a patient case-based discussion of the current state of the art in pediatric AKI with emphases on epidemiology, clinical decision making, outcomes, and the future of pediatric AKI. I hope this issue will serve both the clinical nephrology and critical care medicine fellow in developing rational diagnostic and therapeutic approaches to children with AKI that will remain relevant to all AKI practitioners even as the future is realized. This issue is not meant to provide a comprehensive review of AKI pathophysiology because there are many outstanding review articles and textbook chapters and textbooks devoted to the subject.

I am privileged to have worked with, and indebted to, all of the authors, each of them international experts in their areas of clinical care and research, to produce the current issue. In addition, they all are superb clinician educators in pediatric nephrology or critical care, but more so in the field of AKI, which is emerging from its own infancy in large part because of their efforts.

I must especially thank Dr. Joseph Bonventre for commissioning this issue for *Seminars in Nephrology*. Pediatric AKI reviews usually comprise only one chapter of many in volumes covering the topic. His decision to devote an entire issue to pediatrics represents a virtually unique opportunity for pediatric subspecialists; I certainly hope we have met his expectations. I must also thank Dr. Ravindra Mehta, Dr. John Kellum, and Dr. Claudio Ronco for their unwavering inclusion of pediatric clinicians and clinician researchers at the annual Continuous Renal Replacement Therapy (CRRT) Conference and all of the Acute Dialysis Quality Initiatives, including the Acute Kidney Injury Network. AKI represents one of a few areas in which pediatricians and our internal medicine counterparts work together to improve the outcomes of the patients whom we serve.

One of my most gratifying professional accomplishments has been the founding and success of the Prospective Pediatric CRRT (ppCRRT) Registry group.<sup>8</sup> I am indebted to all of the ppCRRT investigators; many have become close personal friends in the process. You did all of the work because you believed that collaboration would lead to improved understanding of pediatric AKI, and, in turn, lead to studies to improve patient outcomes. Thank you and your study personnel for your commitment and passion to the project. Finally, I must take a moment to appreciate and honor the families of the patients enrolled in the ppCRRT Registry. These families consented to enroll their critically ill children selflessly in a study that could not offer them a potential benefit, gave that consent to a physician or study coordinator they may have just met, with only the hope that we might learn something to help another critically ill child in the future. Publication of this state-of-the-art issue of *Seminars in Nephrology* justifies, if only in small measure, that hope, and the trust placed in us by these families.

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