Introduction

The field of acute nephrology has seen significant changes in recent times. These changes go to the core of many significant clinical issues. They affect the definition and classification of acute kidney dysfunction, our understanding of its epidemiology, our ability to make earlier diagnoses, our ability to use novel imaging modalities to understand its pathogenesis, and our insight into why acute kidney injury (AKI) might occur under different clinical circumstances including cardiac surgery, septic shock, radiocontrast agent exposure, liver disease and various toxins. Advances in our understanding have affected our strategies for intervention which have been directed toward the modulation of inflammation, improvement in fluid therapy, administration of antioxidants, optimization of dialytic technique, and development of new dialytic paradigms with the introduction of bio-assist devices. Finally, new pathophysiological insights have enabled us to better appreciate how to predict outcome in these patients as well as understand the significance of renal recovery and the factors that modulate it.

In this issue of *Nephron*, we have gathered experts in each of the above areas of acute nephrology to offer readers a condensation of many major advances in this field. The title itself summarizes an important change from the concept of acute renal failure to that of acute kidney injury. This is a key conceptual change [1] supported by consensus opinion [2, 3]. This term has been proposed and accepted because it deals with the full spectrum of the syndrome of kidney involvement in a variety of acute diseases and emphasizes that even minor changes in renal function which may be dismissed clinically carry an independent association with an increased risk of mortality [2, 3]. Using this conceptual framework, new definitions

and classifications have been developed and one, the RIFLE classification, has now been studied and found robust in >250,000 patients. Armed with a definition and a classification system and with the understanding that even minor subclinical injury to the kidney may matter, we have been able to emphasize the need to develop early biomarkers of such injury [4] and appreciate the role of inflammation [5] in inducing injury. Through sufficiently early diagnosis, a better classification system and a clearer understanding of the pathogenesis, these steps promise, for the first time in a long while, to deliver novel and effective therapies for patients. Clinicians need to keep abreast of these evolutions if they wish to continue to deliver the best care to their patients. We believe this issue of *Nephron* goes a long way in making this possible.

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References

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