CKD after AKI: time to be alert

DRC após IRA: momento para estar alerta

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Along decades Acute Renal Injury (AKI) epidemiology has been evolving steadily from a syndrome related to renal perfusion in younger patients to the current stage of renal compromise commonly triggered by inflammation in the elderly. Presently, the typical AKI patient harbors multiple morbidities and reduced renal functional reserve conferred by several different chronic insults like diabetes, hypertension, age and ischemia.[1]

It is now established knowledge that renal damage caused by AKI might result in chronic renal functional loss or acceleration of this process if it is already in course.[2,3] Accordingly, AKI should not be viewed anymore as a benign clinical entity that brings with clinical resolution full restoration of renal capabilities. The fact that now many survive this still lethal disease, despite the present intensive care environment of complex and severe medical and surgical conditions where it occurs, is for sure a reason for celebration. However, we must deal with the consequences of the acute renal aggression on the long term renal outcome in the survivors.

It is more than welcome, therefore, the paper entitled "*Risk factors for the progression of chronic kidney disease after acute kidney injury*" published in this edition of *the Brazilian Journal of Nephrology* by Pereira *et al.*[4] The authors assessed a databank containing information on 1200 patients treated in a public hospital in São Paulo focusing on the survivors of AKI episodes and retrospectively evaluating clinical risk factors associated with renal outcome and death after discharge.

It should be noted that from the original population of 1200 patients, 993 (83%) were excluded for meeting the exclusion criteria (death before discharge or CKD stage 5). The observation that patients admitted to hospital wards progress more than those admitted to the ICU should be viewed in this context. Accordingly, only healthier patients with milder forms of systemic disease may have survived the admission to the ICU and the others have never had the opportunity to survive and progress to chronic kidney disease (CKD). This may constitute a prevalence/incidence (Neyman) bias that was properly recognized by the authors themselves.

The authors depicted that mechanical ventilation, need for dialysis and septic shock had no correlation with progression of CKD. However, they observed that progression was more common in patients with sepsis, cancer or urinary tract obstruction. The observation that sepsis but not septic shock correlates with CKD progression might again be related to a high mortality rate in the ICU. Unfortunately, the impact of previous renal dysfunction on progression was not mentioned.

The observation that urinary obstruction is related to CKD progression is interesting and has been observed both in the clinical and experimental settings.[5] The intense interstitial fibrosis conferred by the obstruction may provide the pathophysiological link between AKI and CKD. Indeed, early signs of fibrosis and collagen deposition has been detected in other models of AKI.[6] More recently, experimental results bring the possibility of

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different mechanisms linking acute and chronic renal events, such as mitochondrial damage which mediates and amplifies innate immune responses.[7]

Finally, Pereira *et al.* described the switching among different CKD stages after discharge that clearly shows the need of nephrology consultation during the follow up of AKI survivors. This is a very important message that calls for our attention concerning the care of AKI patients after AKI itself. In the era of electronic alerts designed for real time identification of AKI episodes the recognition of the impact of such episodes on the course of CKD may be even more important. Accordingly, it has been shown recently that AKI diagnosed by such E-alerts may correlate with mortality and renal outcome.[8]

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