

Recovery from acute kidney injury is a potent predictor of survival and good neurological outcome at discharge after out-of-hospital cardiac arrest: Fact or fiction

Patrick M. Honore, Luc Kugener, Sebastien Redant, Rachid Attou, Andrea Gallerani, David De Bels

ICU Department, Centre Hospitalier Universitaire Brugmann, Brussels, Belgium

TO THE EDITOR

We read with great interest the recent paper by Park et al., who conclude that recovery from acute kidney injury (AKI) is a potent predictor of survival and good neurological outcome at discharge after out-of-hospital cardiac arrest (OHCA).^[1] We would like to make some comments. According to the authors, we should interpret these results carefully because the characteristics of OHCA patients are significantly different from critical care patients such as those with severe sepsis.^[2] Indeed, whole body ischemia and reperfusion lead to post-cardiac arrest syndrome, including brain injury, myocardial dysfunction, systemic ischemia, and reperfusion response.^[3] Various factors, including the duration of ischemia, cause of cardiac arrest, OHCA interventions, and the patient's baseline health status, could affect neurological outcomes in OHCA patients.^[1–3] We noticed when comparing the two cohorts' non-recovery versus AKI recovery that for AKI non recovery, age >60 years was significantly higher 64% in AKI non-recovery versus 45% in recovery group (P value of 0.012).^[1] Also, the incidence of diabetes mellitus was 35% in the non-recovery group versus 19% in the recovery group (P value of 0.022). Further, the adrenaline dose above 4 mg was 74% in non-recovery versus 17% in recovery (P value of 0.002). The cardiopulmonary resuscitation time >6 min was 74% in non-recovery versus 59% in recovery (P value of 0.002). Lastly, shock was present in 91%

of the non-recovery group versus 67 % of the recovery group (P value of 0.001). Altogether and knowing the retrospective multicenter cohort study design, these five significant risk factors for poor neurological outcome are already enough to explain a bad neurological prognosis even without AKI recovery or not. In a recent study of 1,826 patients with OHCA, after excluding patients with an in-hospital cardiac arrest, a non-shockable rhythm, and no adrenaline administration,^[4] it was concluded that among survivors, those who received less than 2mg of adrenaline had a more favorable neurological outcome than those administered >3 mg (*cerebral performance category* [CPC] 1–2 16.6% vs. 12.5%, $P=0.004$). Again, this is a similar finding to the study of Park *et al.*^[1] In another recent trial, the authors concluded that in prolonged OHCA, initial shockable rhythm, age <65 years, and witnessed arrest are predictors for neurological intact survival.^[5] Again, the presence of comorbidities like age is crucial for good neurological outcome. It stands to reason that the relationship founded by Park between AKI recovery and good neurological outcome might be only a pure association and nothing else. A randomized controlled study is surely warranted to explore further this finding.

Conflict of Interests

The authors declare no competing interests.

Address for Correspondence:
Dr. Patrick M. Honore, MD, PhD, FCCM,
Professor of Medicine, ICU Department,
Centre Hospitalier Universitaire
Brugmann—Brugmann University
Hospital, Place Van Gehuchtenplein 4,
Brussels 1020, Belgium. E-mail: Patrick.
Honore@CHU-Brugmann.be

Access this article online

Website:

www.intern-med.com

DOI:

10.2478/jtim-2021-0018

Quick Response Code:



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How to cite this article: Kugener L, Redant S, Attou R, Gallerani A, De Bels D. Recovery from acute kidney injury is a potent predictor of survival and good neurological outcome at discharge after out-of-hospital cardiac arrest: Fact or fiction. *J Transl Intern Med* 2021; 9: 57-8.