ARTICLE OF THE MONTH

Durand, et al. Acute Kidney Injury After Liver Transplantation. *Transplantation* 2018; 102: 1636-1649
https://www.ncbi.nlm.nih.gov/pubmed/29847502

Abstract:
"Since the implementation of the Model of End-stage Liver Disease score-based allocation system, the number of transplant candidates with impaired renal function has increased. The aims of this review are to present new insights in the definitions and predisposing factors that result in acute kidney injury (AKI), and to propose guidelines for the prevention and treatment of postliver transplantation (LT) AKI. This review is based on both systematic review of relevant literature and expert opinion. Pretransplant AKI is associated with posttransplant morbidity, including prolonged post-LT AKI which then predisposes to posttransplant chronic kidney disease. Prevention of posttransplant AKI is essential in the improvement of long-term outcomes. Accurate assessment of baseline kidney function at evaluation is necessary, taking into account that serum creatinine overestimates glomerular filtration rate. New diagnostic criteria for AKI have been integrated with traditional approaches in patients with cirrhosis to potentially identify AKI earlier and improve outcomes. Delayed introduction or complete elimination of calcineurin inhibitors during the first weeks post-LT in patients with early posttransplant AKI may improve glomerular filtration rate in high risk patients but with higher rates of rejection and more adverse events. Biomarkers may in the future provide diagnostic information such as etiology of AKI, and prognostic information on renal recovery post-LT, and potentially impact the decision for simultaneous liver-kidney transplantation. Overall, more attention should be paid to pretransplant and early posttransplant AKI to reduce the burden of late chronic kidney disease.

COMMENTS MADE BY CROUCH, CARA MD

Summary:
This review article was selected from the October issue of Transplantation to highlight the importance of acute kidney injury (AKI) post-transplantation. The article states that "any degree of renal dysfunction after LT portends poor long-term survival and is associated with increased rates of acute rejection and infection, longer ICU stays, greater hospital costs and increased mortality."[1] We can all agree that avoiding post-operative AKI should be a priority and this article proposes guidelines to prevent and treat post-liver transplant AKI. This is especially relevant for transplant anesthesiologists to keep in mind as our anesthetic management can have lasting impacts on these patients and their outcomes. While we always do our best to avoid hemodynamic instability and blood loss, these two things are essentially inherent to this

particular surgery. However, by knowing which patients possess risk factors for post-operative renal dysfunction, we can try to optimize our fluid management to prevent adding additional risk factors to the patient.

The article begins by defining acute kidney injury, including its definition in patients with cirrhosis and how this definition differs from the standard criteria. An important point that is mentioned is that patients with underlying kidney disorders can still develop "hepatorenal physiology" in the setting of end-stage liver disease (ESLD) and ignoring this change because of the presence of underlying kidney disease can lead to delays in treatment. Overall, this article offers a well-rounded review of AKI and specifically discusses the evaluation of kidney injury in the setting of ESLD and post-LT. With the current MELD system, we are likely only going to see an increasing number of patients with renal dysfunction and the importance of preventing further kidney damage will remain paramount to improve patient outcomes.

References:

1. Durand, et al. Acute Kidney Injury After Liver Transplantation. *Transplantation* 2018; 102: 1636-1649. https://www.ncbi.nlm.nih.gov/pubmed/29847502

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