

# AKI in pediatric transplant patients

## A novel strategy for identifying early acute kidney injury in pediatric hematopoietic stem cell transplantation

- 75% of patients had AKI by at least one measure.
- The AKI paradigm has shifted to one in which NGAL represents clinically relevant kidney injury independent of changes in creatinine.

➤ Benoit SW, Dixon BP, Goldstein SL, Michael R. Bennett MR, et al. A novel strategy for identifying early acute kidney injury in pediatric hematopoietic stem cell transplantation. *Bone Marrow Transplantation*. 2019 <https://doi.org/10.1038/s41409-018-0428-6>

## Acute kidney injury and the risk of mortality in children undergoing hematopoietic stem cell transplantation

- More than three fourths of the patients had evidence of some degree of AKI.
- Severe AKI was an independent predictor of mortality.
- CKD was present in 8% of recipients who were alive at 1 year.

➤ Kizilbash SJ, Kashtan CE, Chavers BM, Cao Q, et al. Acute Kidney Injury and the Risk of Mortality in Children Undergoing Hematopoietic Stem Cell Transplantation *Biol Blood Marrow Transplant* 2016;22:1264-1270

## Patterns of kidney injury in pediatric non-kidney solid organ transplant recipients

- Over two thirds of pediatric heart, lung, liver, and multiorgan transplant recipients have at least 1 AKI event in the first week after transplant.
- One third have at least 1 AKI event after the first week and up to 1 year after transplantation, with the highest incidence among multi-organ recipients.
- The overall incidence of CKD/ESRD is 9%.

➤ Williams C, Borges K, Banh T, Vasilevska-Ristovska J, et al. Patterns of kidney injury in pediatric non-kidney solid organ transplant recipients. *Am J Transplant*. 2018 Jun;18(6):1481-1488. doi: 10.1111/ajt.14638. Epub 2018 Feb 6.

## Acute Kidney Injury in children with kidney transplantation

- Conclusion: AKI and subacute AKI were common after pediatric kidney transplantation, and they were associated with graft loss, lower eGFR, and more rapid progression of CKD.

➤ Alkandari O, Nguyen L, Hebert D, Langlois V, et al. Acute Kidney Injury in Children with Kidney Transplantation. *Clin J Am Soc Nephrol*. 2018 Nov 7;13(11):1721-1729. doi: 10.2215/CJN.02440218

## Acute kidney injury after pediatric liver transplantation: incidence, risk factors, and association with outcome

- The incidence of AKI after pediatric liver transplantation was 46.2%.

➤ Hamada, M., Matsukawa, S., Shimizu, S. et al. Acute kidney injury after pediatric liver transplantation: incidence, risk factors, and association with outcome. *J Anesth*. 2017;31: 758. <https://doi.org/10.1007/s00540-017-2395-2>