Nephrotoxic-associated AKI in children

Acute kidney injury in pediatric cancer patients

- 52.6% of pediatric cancer patients developed AKI.
- 22.6% of cancer survivors had long-term renal impairment.


Drug-induced acute kidney injury in children

- Up to 25% of AKI cases in the PICU are believed to be the result of pharmacotherapy with cancer chemotherapeutics among the most common offenders.
- Drugs and/or drug classes, which are known to cause AKI in children, include cancer chemotherapeutics, non-steroidal anti-inflammatory drugs and antimicrobials.


Nonsteroidal anti-inflammatory drugs are an important cause of acute kidney injury in children

- 6.6% of children receiving NSAIDs developed AKI even though 75% received doses in the recommended range.
- During 11.5 years of study, a minimum total of $375,293 was spent at our institution on the care of patients with NSAID-associated AKI; markedly underrepresented as billing data from specialists was not available.


The NGAL Test™

For rapid risk assessment of AKI in critically ill patients.*

*Pending FDA 510(k) clearance.

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Acute kidney injury associated with high nephrotoxic medication exposure leads to chronic kidney disease after 6 months

- Six months after NTMx-AKI, 70% of patients had evidence of residual kidney damage.
- CKD, hypertension, and proteinuria were more common in the AKI cohort than in controls.
- [The authors] suggest systematic comprehensive follow-up in children after NTMx-AKI.

Urine biomarkers of acute kidney injury in noncritically ill, hospitalized children treated with chemotherapy

- Conclusion: Urine NGAL and IL-18 show promise as early AKI diagnostic tests in children treated with ifosfamide and may have a potential role in drug toxicity monitoring.

Urinary neutrophil gelatinase associated lipocalin as a biomarker in ifosfamide induced chronic renal failure

- The 24-hour urine NGAL cut-off level for demonstrating CRF was found to be 1.065 ng/mL/24 hours. The sensitivity and specificity for this cut-off value were 83% and 77%, respectively.
- Conclusion: Elevated NGAL levels may be a good option in determining CRF.

Detection of early renal injury in children with solid tumors undergoing chemotherapy by urinary neutrophil gelatinase-associated lipocalin

- Among critically ill cancer patients (CICPs), 12-49% experience ARF and 9-32% require renal replacement therapy during their time at an intensive care unit (ICU).
- uNGAL was highly predictive with an AUC of 0.847.
- Depending only on the creatinine level for detecting AKI will markedly delay the diagnosis.