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Session Title : Comprehensive Nephrology Education (AKI)

Session Topic : -

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Nephrotoxin Stewardship and AKI Prevention

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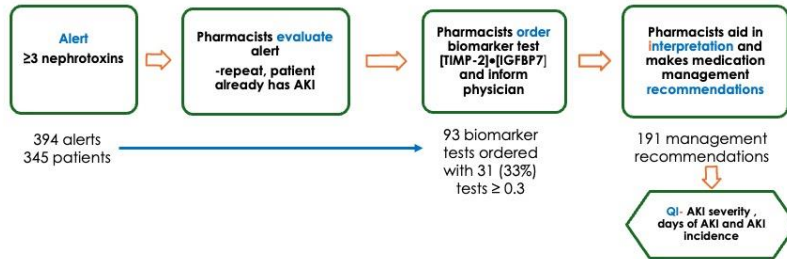
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Drug associated acute kidney injury (D-AKI) contributes to 20-30% of kidney related events in intensive care units (ICU). Drugs are a modifiable exposure providing an opportunity for interventions to prevent AKI occurrence or ameliorate AKI severity and promote kidney health. Consistent application of contemporary definitions for drug related kidney diseases should be adopted as it provides homogenous utility in pharmacovigilance and pharmacoepidemiology efforts.(PMID: 37946280) "Nephrotoxin stewardship is a set of coordinated patient care management strategies to improve the use of nephrotoxins, renally eliminated drugs and kidney disease treatments with the goal of enhancing patient outcomes through safe medication use, ensuring kidney health and avoiding unnecessary costs." (PMID: 33752857) Identifying renally eliminated drugs and nephrotoxins to target for surveillance by standardizing focused lists is the first step in risk assessment and prevention. Nephrotoxin stewardship extends beyond single drugs for surveillance to consideration of drug burden and drug-drug interactions. The next step in nephrotoxin stewardship is hypervigilant inspection of risk and impending harm using traditional functional biomarkers and novel damage biomarkers. Approaches that have been used to identify risk for D-AKI are three drug nephrotoxin alerting (drug burden) and use of stress/damage biomarkers indicating risk before overt damage when serum creatinine rises. Strategies for nephrotoxin stewardship should be implemented in a cost-conscious manner. The key to preventing D-AKI is a coordinated nephrotoxin stewardship strategy.

Keywords: drug associated AKI, nephrotoxin stewardship, medication safety, acute kidney injury, prevention

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Hypervigilance and Early Detection for Prevention: Use of Cell Cycle Arrest Stress Marker [TIMP-2]*[IGFBP7] monitoring



Kane-Gill S, et al. Ann Pharmacother. 2023;57:408-415
Williams VL et al. Am J Health Syst Pharm. 2023;80:423-429.

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Promoting Kidney Health: Plan for Coordinated Patient Care Strategies

Nephrotoxin Stewardship	Actions Associated with Goals to Enhance Patient Outcomes
Safe medication use: nephrotoxins, renally eliminated drugs and kidney disease treatments	Prevention of AKI/ Worsening of Kidney Function
Nephrotoxins Prevention or worsening	Standardize a minimum list of nephrotoxins to target for surveillance Therapeutic monitoring of nephrotoxic drugs (i.e. aminoglycosides and vancomycin) Monitor pharmacokinetic and pharmacodynamic drug-drug interactions with potential of nephrotoxicity Nephrotoxin burden assessment system when adding each new nephrotoxin starting at ≥ 3 Evaluate functional biomarkers to determine appropriate initial and maintenance drug dosing of nephrotoxins Evaluate damage biomarkers to determine risk of AKI before nephrotoxin administration Transition of care protocol for patients with de novo AKI (especially if at risk for CKD) or CKD at risk for ESRD
Kidney treatments (when available)	Use implementation strategies to ensure adoption of treatment is applied

Kane-Gill SL. Crit Care Clinics 2021;37(2):303-320.