

Team-Based Coaching Intervention to Improve Contrast-Associated Acute Kidney Injury: A Cluster Randomized Trial.

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Editorial:

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Importance

Up to 14% of patients in the United States undergoing cardiac catheterization each year experience AKI. Consistent use of risk minimization preventive strategies may reduce AKI incidence.¹

- AKI is associated with a higher risk of cardiovascular events, prolonged hospitalization, kidney failure, all-cause mortality, and higher acute care costs of over \$7,500 per case.²
- Prior evidence suggests that a *systematic application* of 2 widely accepted preventative interventions, IV hydration and limiting contrast volume, can reduce the complication of contrast associated AKI overall.¹

Objective

This brief discusses novel strategies to reduce post-procedural AKI incidence post cardiac catheterization.

Overview

In the published article, IMPROVE AKI trial compared strategies to implement AKI prevention toolkit. The toolkit promoted hydration and reduced contrast volume.

Methods

Study Type: The IMPROVE AKI trial was a cluster-randomized trial

Setting: 20 Veterans Affairs medical centers (VAMCs).

Intervention Arms:

- **Assistance with and without Surveillance:** An AKI improvement specialist led 60-minute monthly scheduled calls with each site to review and discuss the bundle interventions.
- **Collaborative with and without Surveillance:** This was an enhanced strategy. Sites were assigned a Quality and Collaborative improvement specialist and participated in 60-minute group monthly training calls.
- **Surveillance:** This provided Assistance and Collaborative strategy with information through the dashboard, which provided insight into site-level AKI performance over time.

Follow up period: 18 months

Results

- Among VAMCs' 4517 patients, 510 (11%) experienced AKI (235 AKI events among 1314 patients with preexisting CKD).
- AKI events in each intervention cluster were:
 - 110 (13%) in Assistance,
 - 122 (11%) in Assistance with Surveillance,
 - 190 (13%) in Collaborative, and
 - 88 (8%) in Collaborative with Surveillance.
- The Collaborative with Surveillance intervention cluster had a **46% reduction in AKI** compared with Assistance alone (adjusted odds ratio=0.54; 0.40–0.74).

Conclusions

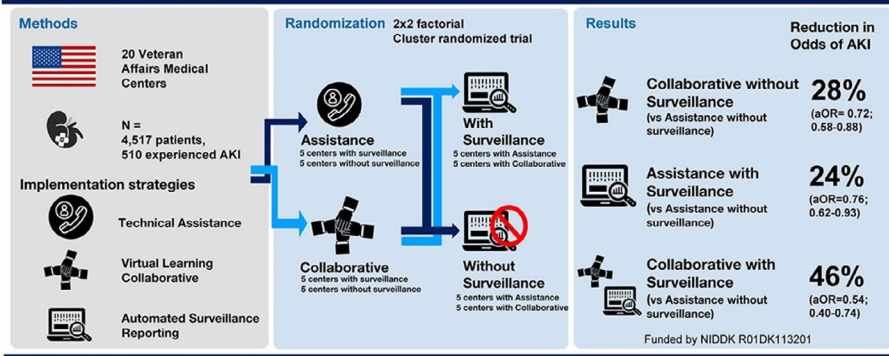
The study showed team-based coaching in *Collaborative* would reduce post-procedural AKI compared with *Assistance*, both with and without Automated Surveillance Reporting (Surveillance).

This implementation trial estimates that the combination of Collaborative with Surveillance **reduced the odds of AKI by 46%** at VAMCs and is suggestive of a reduction among patients with CKD.

Discussion

- There are two widely accepted preventative interventions³ that can reduce the complication of contrast associated AKI overall:
 - IV hydration and
 - limiting contrast volume
- Contrast reduction can be achieved through technique, **use of automated injectors**, contrast diverting systems, and by identifying and sticking to a safe contrast limit before the case.^{3,4}
- This trial is the first randomized trial that uses a systematic approach for a medical center rather than an individual practitioner, and leverages local, regional, and national benchmarks in real-time to provide feedback on the implementation strategy.
- This implementation trial estimates that the AKI prevention training and tracking of the results **reduced the odds of AKI by 46%**.

Does a team-based coaching intervention improve contrast-associated AKI: IMPROVE AKI Trial



Conclusions: This implementation trial estimates that the combination of Collaborative with Surveillance reduces the odds of AKI by 46% compared to Assistance alone at Veteran Affairs Medical Centers. Jeremiah R. Brown, Richard Solomon, Meagan E. Stabler, et al. *Team-Based Coaching Intervention to Improve Contrast-Associated Acute Kidney Injury*. CJASN doi: 10.2215/CJN.000000000000067. Visual Abstract by Aakash Shingada, MD. AMERICAN SOCIETY OF NEPHROLOGY

Clinical Trial Name/Registration:

IMPROVE AKI Cluster-Randomized Trial (IMPROVE-AKI), NCT03556293

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