

Active Kidney Protection in Cardiac Surgery

Don’t let the kidneys be collateral damage

RenalGuard Therapy®

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80% of all cardiac surgery patients are at risk of AKI.[1] 30% will actually suffer from AKI.[2]

Acute kidney injury (AKI) is associated with reduced blood flow and oxygen deprivation that comes with cardiac surgery. While cardiac surgery has over a 95% success rate, collateral damage to the kidneys is observed in one third of procedures.

AKI is a burden to the patient, the medical team, and the hospital:[3]

2-6
days longer ICU recovery

7-13
days longer hospital stay

15%
mortality rate vs 1.4% without AKI

>30%
mortality rate if RRT is needed

Manual fluid management is cumbersome and demonstrates limited clinical impact

Standard of care has limited efficacy in preventing CS-AKI. Protocols involve passive monitoring of urine output in collection bags, then compensating with IV fluids. This process is labour-intensive and it frequently allows for intervention only after the damage is done. Industry guidelines to improve AKI outcomes, such as KDIGO, have shown insufficient results: a mere 10% improvement.[4]

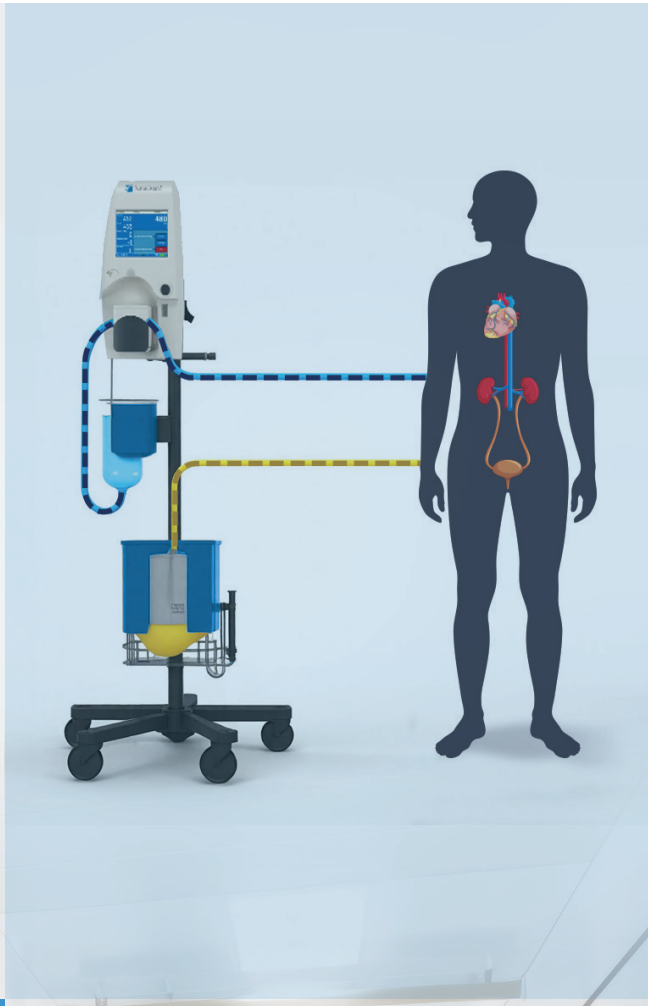
By following the KDIGO guidelines, there is only a 10% reduction in CSA-AKI, with a 65% patient adherence rate to the complete KDIGO recommendations.

1. Advanced age, DM, CHF +/- impaired EF, anaemia, CKD, PVD, procedure complexity etc.
2. Warren et. al. Incidence and impact of acute kidney injury in patients with acute coronary syndromes treated with coronary artery bypass grafting: American Heart Journal 2016:171,1:40-47 https://doi.org/10.1016/j.ahj.2015.07.001
3. Hu et al. Global Incidence & Outcomes of Adult Patients With AKI after Cardiac Surgery: A Systematic Review & Meta-Analysis. Cardiothorac Vasc Anesth. 2016;30:82-9 > 320,000 patients. Lau D, et al. Costs & consequences of AKI after cardiac surgery: A cohort study. J Thorac Cardiovasc Surg. 2021;162:880https://pubmed.ncbi.nlm.nih.gov/32299694/-887
4. Current standard of care is based on the KDIGO guidelines, which suffer from poor compliance, due to complexity, and provide only minimal reduction in AKI. (PrevAKI Study). Potential Reno-protective Strategies in Cardiac Surgery. J Cardiothorac Vasc Anesth. (2021) https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9933995/.
5. Heyman Luckraz et. al, Reduction in acute kidney injury post cardiac surgery using balanced forced diuresis: a randomized, controlled trial, European Journal of Cardio-Thoracic Surgery, Volume 59, Issue 3, March 2021. https://academic.oup.com/ejcts/article/59/3/562/6000632

Closing the loop in renal care with real-time fluid balancing into and out of the kidneys

RenalGuard Therapy's groundbreaking technology autonomously bundles fluid management and therapeutic systems that elegantly integrate into the clinical workflow.

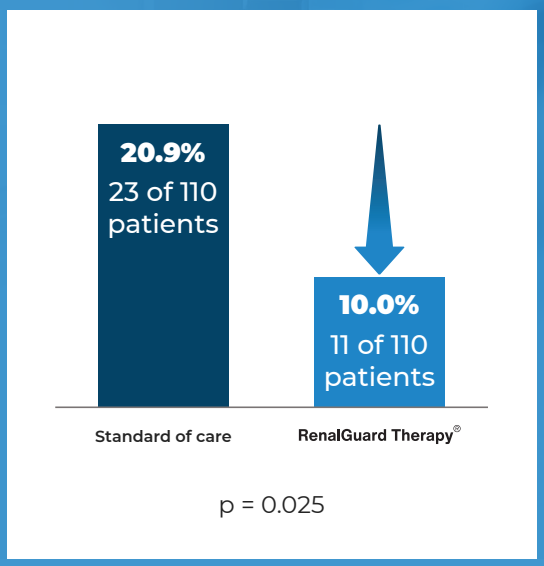
The system is unique in its ability to respond to minute fluctuations urine output while automatically adjusting the administration of IV fluids in millilitre increments. The patient is kept haemodynamically stable, preventing over- or under-hydration.





52% less AKI than standard of care[5]

- KIDNEY Study, a 220 patient UK randomized clinical trial
- 110 patients in each arm: RenalGuard vs. Standard of care



Offering Active Kidney Protection in Cardiac Surgery

52% less AKI in cardiac surgery vs control in a 220-patient UK study

Fully automated balanced fluid management

Ensures timely intervention

Seamlessly integrates into current workflow

CE-approved for balanced fluid management



About CardioRenal Systems

CardioRenal Systems is developing and marketing an exciting, clinically validated, and CE approved solution that has prevented AKI in multiple clinical settings from cardiac surgery to the cath lab. Our solution for reducing contrast-associated AKI and Cardiac surgery Associated AKI has shown reduction of 62% and 52% respectively.

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RenalGuard Therapy®

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