

Delivering Value: Reducing Contrast without Reducing Image Quality

Approximately **30%** of patients presenting for coronary angiography procedures are at risk of post-procedure CI-AKI.¹ There are several CVi features and methods that can help reduce contrast media usage without compromising image quality.

Parameters

The touch screen on CVi allows for quick parameter adjustments to lower the contrast dose.

Real-time Dose Tracking*

Real-time contrast tracking facilitates close monitoring and accurate reporting of contrast dose as recommended in the SCAI and ACC Guidelines.²

Optimize the Hand Controller

Over-delivery of contrast can occur in high-flow vessels. The responsiveness of the hand controller allows for quick halt of the injection as soon as the ostium is visualized to reduce excess delivery of contrast.

Smaller Catheter Use

CVi facilitates the use of 4 and 5 Fr catheters over hand manifold injections, which allows for effective contrast delivery during angiography with minimized arterial puncture sites.

Cine Diagnosing

Diagnosing from the cine rather than during the angiography may reduce contrast delivery by reducing the length of injection time necessary to develop the clinical plan.

The default settings on the CVi System are as follows:

CVi Default Settings		
Vessel	Flow Rate (mL/sec)	Volume (total)
LCA	4	10
RCA	3	6
LV	13	45

There are opportunities to reduce contrast volumes during standard angiography procedures. The examples below may deliver less contrast to patients without compromising image quality. Contrast volume reduction may also lead to cost savings for your hospital system.

Low Dose Protocols					
Example 1			Example 2		
Vessel	Flow Rate (mL/sec)	Volume (total)	Vessel	Flow Rate (mL/sec)	Volume (total)
LCA	3	6	LCA	3	5
RCA	2	4	RCA	2	4
LV	12	24	LV	12	20

Variability in patient size and anatomy, disease state, and system usage may require modifications to these recommended settings. For patients at high risk for CI-AKI, the ultra-low dose protocol found in *Reduction in Contrast Nephropathy from Coronary Angiography and Percutaneous Coronary Intervention with Ultra-Low Contrast Delivery using an Automated Contrast Injector System*² provides tips on how to further reduce contrast for this patient demographic.

*Dependent on correct usage of Inject and Purge modes. While in Inject mode, all contrast delivery will be counted and while in Purge mode, contrast delivered will not be counted.

References:

1. Tsai T, et al., Contemporary Incidence, Predictors, and Outcomes of Acute Kidney Injury in Patients Undergoing Percutaneous Coronary Interventions. *JACC*, Vol. 7, Jan. 2014
2. Levine GN, et al., <http://circ.ahajournals.org/content/circulationaha/124/23/e574.full.pdf> ACCF/AHA/SCAI – Guideline for Percutaneous Coronary Intervention. A Report of the American College of Cardiology Foundation/American Heart Association Task Force on Practice Guidelines and the Society for Cardiovascular Angiography and Interventions. *Circulation*. 2011; 124:e574-e651.
3. Kelly SC, Li S, Stys TP, et al. Reduction in Contrast Nephropathy from Coronary Angiography and Percutaneous Coronary Intervention with Ultra-Low Contrast Delivery using an Automated Contrast Injector System. *J Inv Cardiol*. November 2016;28(11):446-450.

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