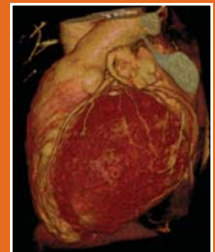


Dual Flow Contrast Injection for
Coronary CTA Improves
Visualization of the Right Heart

MEDRAD CT

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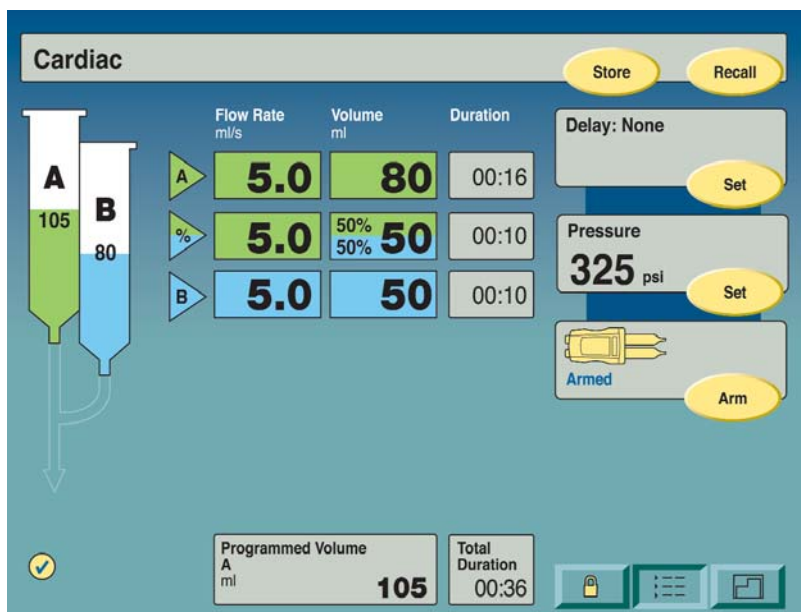
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Objective

A saline chaser is ordinarily used at coronary CTA for contrast savings, homogenous attenuation, and reduced streak artifacts. In many cases, however, the void of contrast precludes right heart analysis. We aimed at improving right heart visualization by automated injection of a contrast/saline mixture during the second phase of injection.

Methods

Coronary CTA imaging was performed on 24 patients. Eight(8) patients were scanned with a monophasic, iodine-only protocol using a single-syringe injector; eight(8) patients with a biphasic protocol (iodine bolus followed by a saline chaser) using a dual-syringe injector; and eight(8) patients with a triphasic protocol with DualFlow (MEDRAD) technology with simultaneous injection from two syringes to achieve a desired mixing ratio of contrast and saline. The iodine bolus was followed by a 50:50 saline/contrast ratio and a saline chaser.



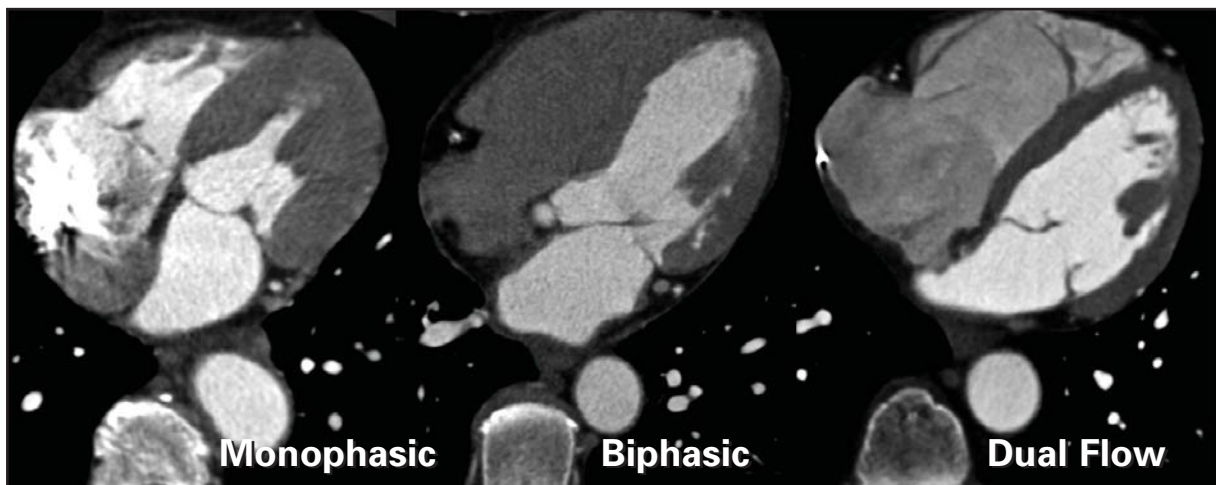
Evaluation

Two radiologists rated the visualization of right and left heart structures (heart valves, moderator band, etc.) and the degree of artifacts. One observer performed attenuation measurements of the left and right heart and of the coronary arteries.

Results

Right heart structures were rated significantly better and artifacts occurred less frequently in the DualFlow group, while left heart structures showed no difference. Contrast attenuation in the right heart was significantly lower in the biphasic group than in the monophasic and DualFlow groups. For the coronary arteries, there were no significant differences between the three groups.

Right Heart Structures	Right Heart Contrast Attenuation	Coronary Arteries
DualFlow significantly better with fewer artifacts [P<0.05]	(mean±SE) [P<0.05, One-Way ANOVA] Biphasic group (217.0±69.0) Monophasic group (342.3±37.1) Stellant DualFlow group (322.3±56.2)	No significant difference [P>0.05, Duncan's multiple comparison]



Conclusion

DualFlow injection provides sufficient enhancement for assessment of the right heart while generally avoiding streak artifacts from dense contrast material. Thus, for coronary CTA for reliable detection of right heart pathology (thrombo-emboli, tumors, etc.), the triphasic injection approach with Stellant D's DualFlow appears recommendable.

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