

**ORAL PRESENTATION**

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# Time resolved measure of coronary sinus flow following regadenoson administration

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## Objective

To use velocity encoded phase contrast MRI to determine timing of peak myocardial blood flow to establish when CMR stress perfusion imaging should be performed after injection of regadenoson.

## Background

Regadenoson is a selective A<sub>2A</sub> adenosine receptor agonist recently FDA approved for stress testing. The package insert recommends administration of the radio-nuclide imaging agent 20 seconds after bolus. Optimal timing of CMR first-pass perfusion imaging has not been established.

## Methods

CMR was performed on eighteen volunteers with 10-year Framingham risk scores <1% (15 m, 23 ± 7 years) using a 1.5 T Siemens Espree. Serial measures of coronary sinus (CS) and cardiac output (CO) were made using a velocity encoded phase contrast sequence.

## Results

Peak CS flow occurred at 101.7 ± 69.1 seconds (median 75 seconds) which was significantly different than the recommended injection time of 20 sec (p<0.001). Flow at 90 seconds was also higher than at 30 seconds (p<0.001). CS flow decreased more rapidly than systemic flow and heart rate however none returned to baseline by 20 min. Figs 1, 2, 3, 4.

## Conclusion

Peak myocardial blood flow occurs later after injection of regadenoson than suggested in the package insert (median 75 or average 102 seconds vs 20 seconds).

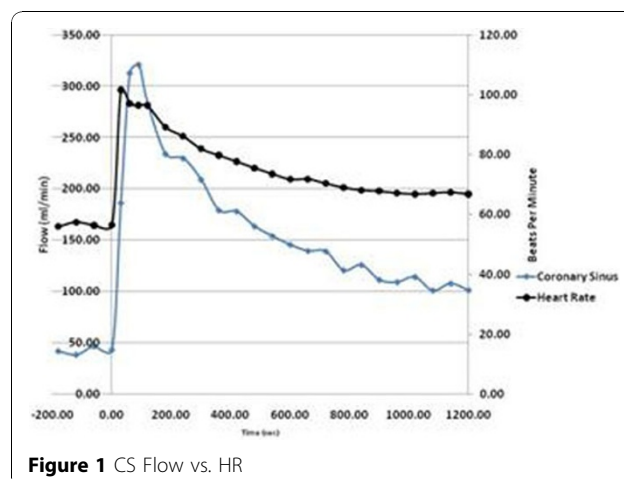


Figure 1 CS Flow vs. HR

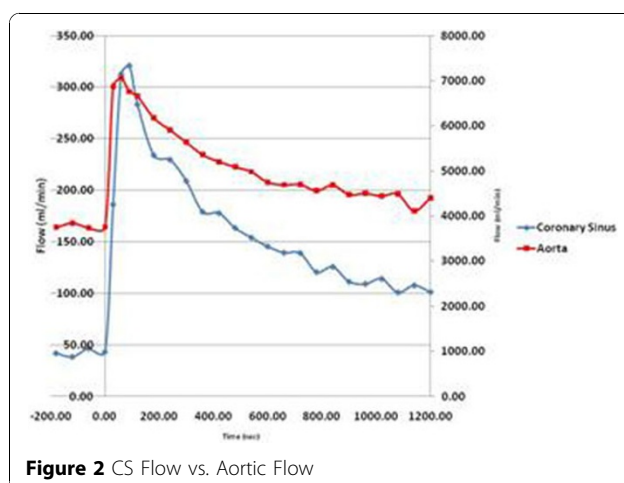
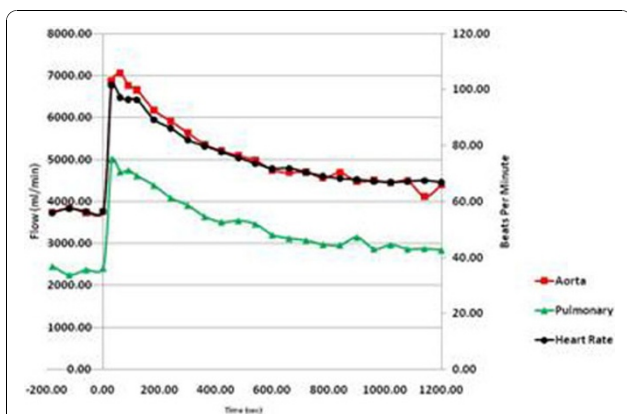
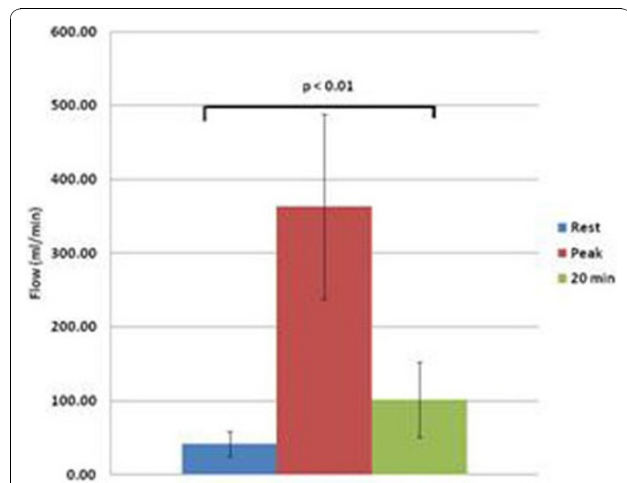


Figure 2 CS Flow vs. Aortic Flow

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**Figure 3** Systemic Flow



**Figure 4** Rest vs. Peak vs. 20 min

Optimizing the timing of first-pass perfusion imaging may improve sensitivity in the detection of coronary stenoses.

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