

Meeting abstract

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234 A novel *in vivo* marker for ischemic tissue injury early after coronary occlusion

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from 11th Annual SCMR Scientific Sessions
Los Angeles, CA, USA. 1–3 February 2008

Published: 22 October 2008

Journal of Cardiovascular Magnetic Resonance 2008, **10**(Suppl 1):A95 doi:10.1186/1532-429X-10-S1-A95

This abstract is available from: <http://jcmr-online.com/content/10/S1/A95>

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Background

Early identification of acute myocardial ischemia is a diagnostic challenge. We aimed at identifying the earliest time point at which T2-weighted cardiovascular magnetic resonance imaging could visually identify acute ischemia.

Methods

We studied seven dogs with serial T2-weighted and cine imaging at baseline, during and early after transient coronary occlusion (25–35 minutes) in a 1.5 T MRI system. Late gadolinium enhancement was used to assess irreversible injury.

Results

28 ± 4 minutes after experimental coronary artery occlusion, we observed a transmural area of high T2 signal intensity (contrast to noise ratio to remote myocardium 11.0 ± 10; $p < 0.0001$), matching areas with new onset regional wall motion abnormalities. Late enhancement imaging performed after reperfusion did not show irreversible injury in any of the dogs (Figure 1).

Conclusion

We provide the first preliminary evidence that T2-weighted CMR imaging represents a novel *in vivo* marker for ischemic tissue injury likely before the onset of irreversible injury. T2-weighted CMR may offer a novel potential means of identifying acute ischemia in acute coronary syndromes.

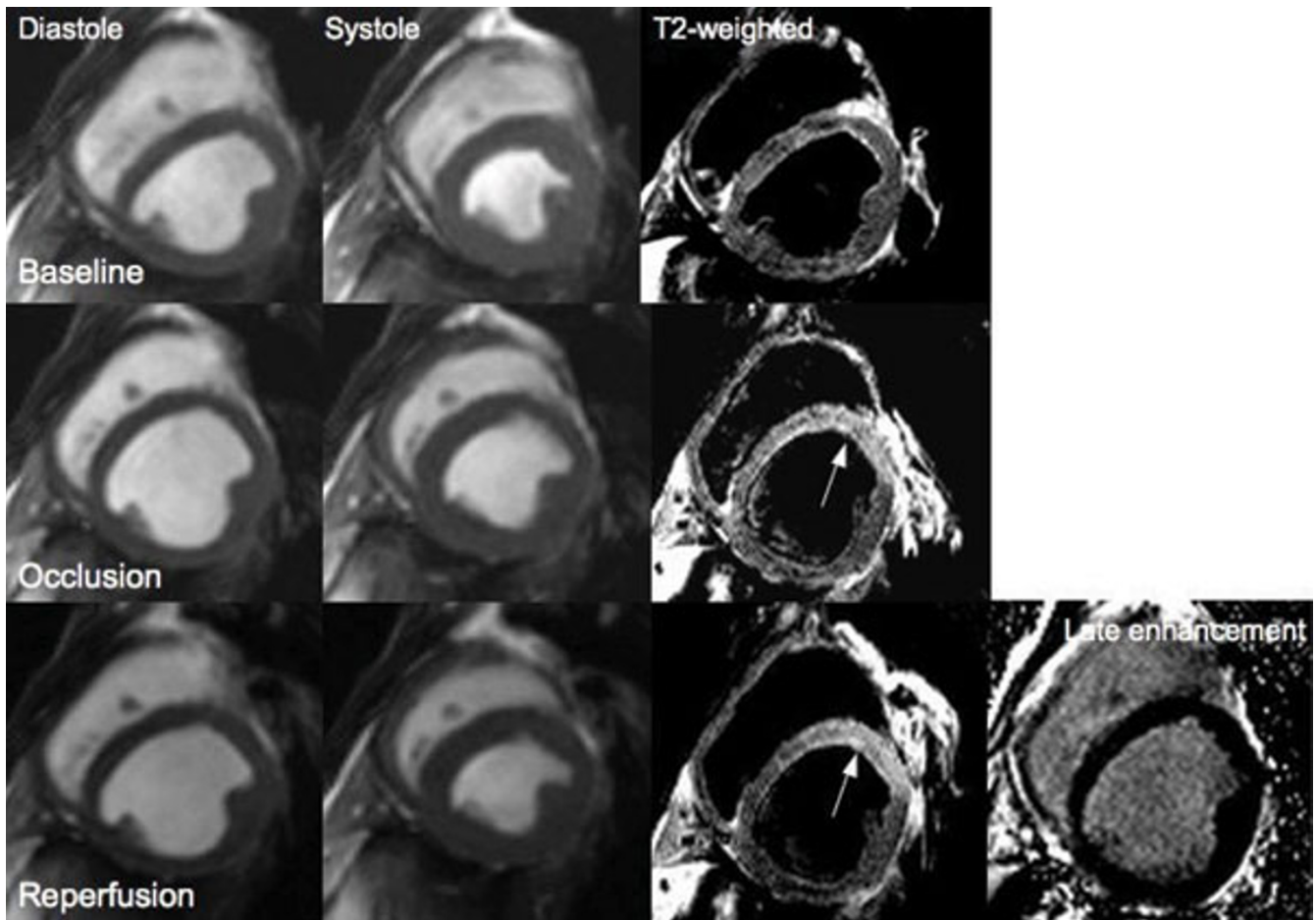


Figure 1

We aimed at identifying the earliest time point at which T2-weighted imaging visually identifies acute ischemia in a dog model ($n = 7$). T2 imaging detected ischemia 28 ± 4 minutes after coronary occlusion before the onset of irreversible damage as identified by late gadolinium enhancement.

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