

Safety and hemodynamic response of regadenoson stress cardiovascular magnetic resonance imaging in heart transplant recipients

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Background: The non-invasive detection of coronary allograft vasculopathy remains a challenge, and there is no consensus about which technique should be used. The hypersensitivity to vasodilator drugs (such as adenosine) of heart transplant recipients may have limited the use of stress cardiovascular magnetic resonance imaging (stress-CMR) in this group of patients. Regadenoson is a more specific agonist of adenosine receptors. There is still little data on its safety profile and the hemodynamic response it causes in these patients.

Purpose: We aimed to observe safety and hemodynamic response to regadenoson in heart transplant recipients.

Methods: We studied 505 consecutive patients (22 transplanted and 483 non-transplanted) who underwent stress-CMR between 06/06/2017 and 10/10/2019. We compared the hemodynamic response (blood pressure and heart rate) and the adverse effects and symptoms caused by regadenoson in both groups. Student t test and χ^2 were used to compare the continuous and the qualitative variables between both groups, respectively.

Results: In transplant patients there were no events requiring finalization of the test (e.g. atrioventricular block, symptomatic arterial hypotension or poor tolerance to the symptomatic response to regadenoson). There were no differences in the incidence of symptoms after drug administration in transplanted versus non-transplanted patients (50% vs. 50.4%, $p=0.97$), and all of those symptoms were transient and well tolerated. Transplant recipients presented an attenuated hemodynamic response compared to non-transplanted patients (Table 1).

Conclusions: Stress-CMR with regadenoson is a safe and well tolerated technique in heart transplant recipients. In this group of patients, the hemodynamic response is blunted compared to non-transplanted patients. This lower response has been previously described in obese and diabetic patients, and it does not appear to affect the performance of the test. Further studies should confirm these findings.

	Transplanted (n=22)	Non-transplanted (n=483)	p value
HR difference bpm; mean (s.d.) (stress HR – basal HR)	+14 (6)	+24 (13)	<0.001
SBP difference mmHg; mean (s.d.) (stress SAP – basal SAP)	-0.9 (15)	-8.8 (17)	0.034
DBP difference mmHg; mean (s.d.) (stress PAD – basal PAD)	-3.9 (8)	-5.4 (10)	0.51

HR = Heart rate; SBP = Systolic Blood Pressure; DBP = Diastolic Blood Pressure.