Stress perfusion cardiovascular magnetic resonance (SPCMR) is now established in the investigation of myocardial ischaemia. Various pharmacological options exist for inducing stress conditions. Regadenoson is an A2A agonist with many advantages over Adenosine, including easier administration and fewer side effects. Whilst the use of Regadenoson has been studied in nuclear myocardial perfusion imaging (MPI), its efficacy has not been as robustly documented in SPCMR. Our centre has a large nuclear MPI service, with a smaller but rapidly growing stress perfusion CMR service. The aim of this study was to determine the major adverse cardiac event (MACE) rate following a normal Regadenoson SPCMR examination.

A retrospective RIS (Radiology Information System) search was performed over a 2 year period (2013 – 2014) which yielded 156 SPCMR studies. 95 were excluded due to alternative/undocumented pharmacological stress agents, positive results for inducible ischaemia or failure to complete stress perfusion sequences. This yielded a total cohort of 61 patients who had a normal Regadenoson SPCMR study (this included well documented artefacts such as dark-rim). Basal, mid and apical short axis views were obtained during first pass of contrast (Gadovist, 0.2mg/kg, 6ml/second) at peak stress (400 micrograms Regadenoson). Rest perfusion was repeated 15 min after the initial contrast injection. All patients were scanned on a Siemens 1.5T Avanto MRI scanner. All patients were followed up for at least 1 year for MACE, i.e. cardiovascular death, myocardial infarction or coronary revascularisation.

Out of 61 patients who had a normal Regadenoson SPCMR study, 1 patient experienced MACE within the follow up period (intra-operative death during cardiac transplantation). Excluding this, no patients suffered adverse events during the follow up period. In conclusion, a normal Regadenoson stress perfusion CMR examination is associated with a very low MACE rate within 2 years.