

## Online Supplementary Table 5: Selection bias in individual studies

Title	First author	Journal	Year	Judgement on the risk of selection bias	Quote	Comment
Myocardial Extracellular Volume Fraction Allows Differentiation of Reversible Versus Irreversible Myocardial Damage and Prediction of Adverse Left Ventricular Remodeling of ST-Elevation Myocardial Infarction	Chen	J Magn Reson Imaging	2020	Low	This observational prospective cohort study included 24 consecutive STEMI patients (mean $\pm$ SD, 62 $\pm$ 10 years old, 75% men) after reperfusion.	Consecutive recruitment was performed.
Acute Microvascular Impairment Post-Reperfused STEMI Is Reversible and Has Additional Clinical Predictive Value: A CMR OxAMI Study	Borlotti	JACC Cardiovasc Imaging	2019	High	STEMI patients (mean $\pm$ SD, 62 $\pm$ 10 years old, 75% men) after reperfusion.	64 patients were included in four and a half years. This makes consecutive recruitment unlikely.
Elevated serum uric acid affects myocardial reperfusion and infarct size in patients with ST-segment elevation myocardial infarction undergoing primary percutaneous coronary intervention	Mandurino-Mirizzi	J Cardiovasc Med	2018	Unclear		Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Dynamic changes in injured myocardium, very early after acute myocardial infarction, quantified using T1 mapping cardiovascular magnetic resonance	Alkhalil	J Cardiovasc Magn Reson	2018	Unclear	Patients presenting with STEMI to the Oxford Heart Centre and who underwent primary percutaneous coronary intervention (PCI) were prospectively enrolled as part of the OxAMI Study [12, 13].	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
CMR Native T1 Mapping Allows Differentiation of Reversible Versus Irreversible Myocardial Damage in ST-Segment-Elevation Myocardial Infarction: An OxAMI Study (Oxford Acute Myocardial Infarction)	Liu	Circ Cardiovasc Imaging	2017	Unclear	Sixty ST-segment-elevation MI patients undergoing primary percutaneous coronary intervention (PPCI) within 12 hours of symptoms onset were prospectively enrolled as part of the OxAMI study (Oxford acute myocardial infarction).	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Acute Infarct Extracellular Volume Mapping to Quantify Myocardial Area at Risk and Chronic Infarct Size on Cardiovascular Magnetic Resonance Imaging	Garg	Circ Cardiovasc Imaging	2017	Unclear	Patients presenting with acute ST-segment-elevation myocardial infarction (STEMI) were prospectively recruited from a single UK tertiary center (study design: Figure 1).	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.

Morphine Does Not Affect Myocardial Salvage in ST-Segment Elevation Myocardial Infarction	Gwag	Plos One	2017	Low	The study population was selected from the Samsung Medical Center SMART-AMI-CMR registry. Between January 2008 and June 2014, 515 consecutive patients who presented with acute myocardial infarction and underwent CMR were enrolled in this registry	Consecutive recruitment was performed.
Multi-vendor, multicentre comparison of contrast-enhanced SSFP and T2-STIR CMR for determining myocardium at risk in ST-elevation myocardial infarction	Nordlund	Eur Heart J Cardiovasc Imaging	2016	Unclear	Patients from the CHILL-MI and MITOCARE trials (n = 215) underwent CMR imaging at one occasion within 1–8 days after primary PCI for first-time STEMI.	Recruitment was not described in sufficient detail in the CHILL-MI and MITOCARE trials to evaluate whether consecutive recruitment was performed.
T mapping for assessment of myocardial injury and microvascular obstruction at one week post myocardial infarction	Cameron	Eur J Radiol	2015	Low	Sixty two patients with first acute ST-segment elevation myocardial infarction (STEMI) were consecutively recruited at Aberdeen Royal Infirmary from September 2011 to April 2013 as part of the Nitrites in Acute Myocardial Infarction clinical trial [15].	Consecutive recruitment was performed.
Prognosis after ST-elevation myocardial infarction: a study on cardiac magnetic resonance imaging versus clinical routine	deWaha	Trials	2014	Low	Of 512 eligible consecutive patients undergoing primary PCI for STEMI, CMR was conducted in 438 patients. The reasons for a lack of CMR were claustrophobia (n = 19), death prior to CMR (n = 18), refusal (n = 15), pacemaker (n = 5), obesity (n = 7) and reasons that could not be further clarified (n = 10).	Consecutive recruitment was performed.
Impact of overweight on myocardial infarct size in patients undergoing primary percutaneous coronary interventions: A magnetic resonance imaging study	Sohn	Atherosclerosis	2014	Low	From January 2006 to November 2009, 349 STEMI patients visited the emergency room at Samsung Medical Center. Among them, 62 patients presented >12 h after symptom onset and 30 patients who did not receive primary PCI, but received coronary artery bypass surgery or thrombolysis, and were thus excluded from this study. Twenty-seven patients who refused to undergo CMR or did not undergo CMR because of hemodynamic instability were also excluded.	Consecutive recruitment was performed.
Impact of white blood cell count on myocardial salvage, infarct size, and clinical outcomes in patients undergoing primary percutaneous coronary intervention for ST-	Chung	Int J Cardiovasc Imaging	2014	Low	From January 2006 to November 2009, a total of 349 STEMI patients presented to Samsung Medical Center, Seoul, Korea. [...] In total, 198 patients were enrolled in this study and followed prospectively (Fig. 1).	Consecutive recruitment was performed.

segment elevation myocardial infarction: a magnetic resonance imaging study						
Intracoronary compared with intravenous bolus abciximab application during primary percutaneous coronary intervention in ST-segment elevation myocardial infarction: cardiac magnetic resonance substudy of the AIDA STEMI trial	Eitel	J Am Coll Cardiol	2013	Low	CMR substudy design. Consecutive patients enrolled at 8 sites were included in the CMR substudy.	Consecutive recruitment was performed.
Remote ischemic post-conditioning of the lower limb during primary percutaneous coronary intervention safely reduces enzymatic infarct size in anterior myocardial infarction: a randomized controlled trial	Crimi	JACC Cardiovasc Interv	2013	Low	Patients. Between March 2009 and December 2011, 753 pPCI were performed, including 224 anterior STEMI. The main reason for study ineligibility was severe multivessel disease that was likely to require staged PCI (Fig. 2) (23).	Consecutive recruitment was performed.
The assessment of area at risk and myocardial salvage after coronary revascularization in acute myocardial infarction: comparison between CMR and SPECT	Hadamitzky	JACC Cardiovasc Imaging	2013	Low	Included in this study were all patients with acute ST-segment elevation myocardial infarction (STEMI) or non-ST-segment elevation myocardial infarction (NSTEMI) undergoing both contrast-enhanced CMR and Tc99m sestamibi myocardial perfusion SPECT for assessment of myocardial salvage after primary angioplasty between October 1, 2006, and October 1, 2011.	Consecutive recruitment was performed.
Right ventricular injury in ST-elevation myocardial infarction: risk stratification by visualization of wall motion, edema, and delayed-enhancement cardiac magnetic resonance	Grothoff	Circ Cardiovasc Imaging	2012	Low	Of 524 STEMI patients undergoing primary angioplasty, 450 were referred to CMR 24–96 hours after reperfusion. Reasons for not undergoing CMR are listed in Figure 1.	Consecutive recruitment was performed.
Distal protection device aggravated microvascular obstruction evaluated by cardiac MR after primary percutaneous intervention for ST-elevation myocardial infarction	Yoon	Int J Cardiol	2012	Low	Individuals eligible for enrollment were consecutive patients aged over 30 and less than 80 years with STEMI presentation more than 30 min but less than 12 h after symptom onset, with 2mm or more of ST-segment elevation in 2 or more contiguous leads or with presumably new left bundle-branch block, in whom primary PCI was intended.	Consecutive recruitment was performed.
Comparison of magnetic resonance imaging findings in non-ST-segment elevation versus ST-segment elevation	Xu	Int J Cardiovasc Imaging	2012	Unclear	Patients with AMI were prospectively enrolled between January 2008 and December 2009.	Recruitment was not described in sufficient detail to evaluate whether

myocardial infarction patients undergoing early invasive intervention						consecutive recruitment was performed.
T2-weighted cardiac MR assessment of the myocardial area-at-risk and salvage area in acute reperfused myocardial infarction: Comparison of state-of-the-art dark blood and bright blood T2-weighted sequences	Viallon	J Cardio Magn Reson	2012	Low	Thirty patients admitted to our intensive care unit for a first acute ST-elevated myocardial infarction (STEMI) were consecutively included over a period of 4 months.	Consecutive recruitment was performed.
A high loading dose of clopidogrel reduces myocardial infarct size in patients undergoing primary percutaneous coronary intervention: a magnetic resonance imaging study	Song	Am Heart J	2012	Low	From January 2006 to November 2009, a total of 349 STEMI patients presented to our hospital. Among them, 62 patients presented >12 hours after symptom onset, 17 patients underwent coronary artery bypass surgery because of extensive coronary artery disease, and 13 patients received only medical treatment including thrombolytics. Primary PCI was successfully performed in 257 patients with STEMI. [...] Fifty patients did not undergo CE-MRI because of hemodynamic instability (n = 23), history of myocardial infarction (n = 10), requirement for multivessel intervention during the index procedure (n = 7), prior coronary artery bypass grafting (n = 6), and refusal to undergo CE-MRI (n = 4). Of 207 patients who underwent CE-MRI, 9 patients were excluded from the present analysis, including 3 patients with evidence of previous myocardial infarction on CE-MRI, 1 patient with subacute stent thrombosis before CE-MRI, and 5 patients with unavailable clopidogrel loading dose data in the referring hospital. Finally, 198 patients were included in this study.	Consecutive recruitment was performed.
Microvascular resistance predicts myocardial salvage and infarct characteristics in ST-elevation myocardial infarction	Payne	J Am Heart Assoc	2012	Low	Consecutive acute STEMI patients undergoing primary PCI at a regional cardiac center were screened.	Consecutive recruitment was performed.
Quantification of myocardial area at risk: validation of coronary angiographic scores with cardiovascular magnetic resonance methods	Moral	Rev Esp Cardiol (Engl Ed)	2012	Low	Between October 2008 and June 2010, 75 consecutive patients with ST-segment elevation AMI successfully reperfused through primary percutaneous coronary intervention (PCI) and undergoing CMR within the first week after reperfusion were prospectively studied in a single center trial.	Consecutive recruitment was performed.

Analysis of post-infarction salvaged myocardium by cardiac magnetic resonance. Predictors and influence on adverse ventricular remodeling	Monmeneu	Rev Esp Cardiol (Engl Ed)	2012	Low	This prospective study included patients who, between February 2008 and August 2010, were admitted consecutively to a tertiary hospital with a first STEMI, and underwent primary percutaneous coronary intervention (PCI) or were treated with a pharmacoinvasive strategy (thrombolysis during the first 12 h after the onset of symptoms, followed systematically by PCI at least 3 h later; revascularization was carried out in those patients with severe residual lesions), <sup>8</sup> and evaluated by means of CMR prior to hospital discharge and 6 months later.	Consecutive recruitment was performed.
Aborted Myocardial Infarction: Evaluation of Changes in Area at Risk, Late Gadolinium Enhancement, and Perfusion Over Time and Comparison With Overt Myocardial Infarction	Lee	AJR Am J Roentgenol	2012	Low	Of 412 consecutive patients who underwent cardiac MRI from January 2006 to December 2007, we retrospectively reviewed 57 patients with STE- MI who underwent a successful percutaneous coronary intervention and optimal medical therapy.	Consecutive recruitment was performed.
Cardiovascular magnetic resonance-derived intramyocardial hemorrhage after STEMI: Influence on long-term prognosis, adverse left ventricular remodeling and relationship with microvascular obstruction	Husser	Int J Cardiol	2013	Unclear	We prospectively included patients admitted to our institution with a first STEMI from November 2001 to December 2010. Patients who died or had a reinfarction or otherwise complicated clinical course or cardiac surgery as well as those who denied participation in the registry, were transferred to other hospitals after reperfusion or those who had contraindications to CMR were not included in the study. Patients underwent CMR at 1 week and, in order to evaluate LV remodeling, at 6 months after STEMI.	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Reliability of myocardial salvage assessment by cardiac magnetic resonance imaging in acute reperfused myocardial infarction	Desch	Int J Cardiovasc Imaging	2012	Low	Twenty consecutive patients presenting to a single tertiary care center with STEMI reperfused by primary percutaneous coronary intervention within 12 h after symptom-onset underwent 2 CMRI scans.	Consecutive recruitment was performed.
Dynamic Changes in ST Segment Resolution After Myocardial Infarction and the Association with Microvascular Injury on Cardiac Magnetic Resonance Imaging	Weaver	Heart Lung Circ	2011	Unclear	Patients with a first STEMI were prospectively enrolled at a single centre. STEMI was defined in accordance with consensus guidelines [22] and the culprit artery was confirmed on primary PCI. Only patients with TIMI 0–2 flow were included in order to prevent the underestimation of ST elevation on presentation due to partial reperfusion.	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.

Reperfusion haemorrhage as determined by cardiovascular MRI is a predictor of adverse left ventricular remodelling and markers of late arrhythmic risk	Mather	Heart	2011	Unclear	We prospectively enrolled 53 patients hospitalised in our institution between August 2008 and October 2009 with first presentation acute ST-elevation myocardial infarction (MI) and treated successfully with PPCI within 12 h of symptom onset.	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Timing of cardiovascular MR imaging after acute myocardial infarction: effect on estimates of infarct characteristics and prediction of late ventricular remodeling	Mather	Radiology	2011	Unclear	Fifty-seven patients were recruited.	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Myocardium at risk in ST-segment elevation myocardial infarction comparison of T2-weighted edema imaging with the MR-assessed endocardial surface area and validation against angiographic scoring	Fuernau	JACC Cardiovasc Imaging	2011	Low	In brief, between November 2006 and February 2008, 251 consecutive patients were enrolled and underwent primary percutaneous coronary intervention for STEMI (Fig. 1).	Consecutive recruitment was performed.
The evaluation of an electrocardiographic myocardial ischemia acuteness score to predict the amount of myocardial salvage achieved by early percutaneous coronary intervention Clinical validation with myocardial perfusion single photon emission computed tomography and cardiac magnetic resonance	Engblom	J Electrocardiol	2011	Unclear	Patients with clinical signs of first-time MI constituted the study population of interest. Patients were retrospectively included if they had ST-elevation in 2 consecutive leads, no history of old MI, a single occluded vessel (thrombolysis in myocardial infarction [TIMI] flow 0), followed by successful revascularization by pPCI (TIMI grade 3 flow). For inclusion, the patients were also required to have imaging of MaR, either by MPS approximately 3 hours after a prereperfusion injection of technetium Tc 99m tetrofosmin or by T2-weighted CMR 1 week after the acute event.	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Prognostic value and determinants of a hypointense infarct core in T2-weighted cardiac magnetic resonance in acute reperfused ST-elevation-myocardial infarction	Eitel	Circ Cardiovasc Imaging	2011	Low	Of 407 eligible consecutive STEMI patients, this prospective study included 346 patients (Figure 1).	Consecutive recruitment was performed.
Long-term prognostic value of myocardial salvage assessed by cardiovascular magnetic resonance in acute reperfused myocardial infarction	Eitel	Heart	2011	Low	Of 267 consecutive patients with STEMI, this prospective CMR study included 208 patients.	Consecutive recruitment was performed.
Cardiovascular magnetic resonance of the myocardium at risk in acute reperfused myocardial infarction: comparison	Ubachs	J Cardio Magn Reson	2010	Unclear	Thirty-seven patients (age; 62 ± 10, 32 males) with first-time myocardial infarction, presenting with acute ST-elevation myocardial infarction	Recruitment was not described in sufficient detail to evaluate whether

of T2-weighted imaging versus the circumferential endocardial extent of late gadolinium enhancement with transmural projection					(STEMI), due to a single occluded coronary artery as seen by angiography, were included in the study.	consecutive recruitment was performed.
Myocardial salvage by CMR correlates with LV remodeling and early ST-segment resolution in acute myocardial infarction	Masci	JACC Cardiovasc Imaging	2010	Low	Between May 2006 and January 2009, 297 consecutive acute ST-segment elevation MI patients from three tertiary referral centres [156 at UZ Leuven, Leuven, Belgium (Centre A), 73 at La Sapienza University Hospital, Rome, Italy (Centre B), and 68 at Fondazione G. Monasterio, Pisa, Italy (Centre C)] were prospectively studied by CMR at 1 week (baseline) and 4 months (follow-up) after MI.	Consecutive recruitment was performed.
A pilot study of rapid cooling by cold saline and endovascular cooling before reperfusion in patients with ST-elevation myocardial infarction	Gotberg	Circ Cardiovasc Interv	2010	Unclear	From March 2007 to October 2009, patients were enrolled in this prospective, randomized, single-center study to test the feasibility and safety of an infusion of cold saline together with endovascular hypothermia, using the Celsius Control System (Innercool Therapies Inc, San Diego, Calif) as an adjunct therapy in patients with an acute STEMI eligible for primary PCI.	Recruitment was not described in sufficient detail to evaluate whether consecutive recruitment was performed.
Quantification of myocardial area at risk with T2-weighted CMR: comparison with contrast-enhanced CMR and coronary angiography	Wright	JACC Cardiovasc Imaging	2009	Low	One hundred nineteen consecutive patients underwent CMR during the in-hospital phase.	Consecutive recruitment was performed.
Impact of primary coronary angioplasty delay on myocardial salvage, infarct size, and microvascular damage in patients with ST-segment elevation myocardial infarction: insight from cardiovascular magnetic resonance	Francone	J Am Coll Cardiol	2009	Low	Between October 2007 and May 2008, 75 consecutive patients with first STEMI undergoing PPCI within 12 h after the onset of symptoms were prospectively enrolled in the study.	Consecutive recruitment was performed.