|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Study | Population | Control population | Total sample size | Relevant outcome measures | miRNA | Comparator | Follow up time | Retrospective v Prospective | Y/N predictor of cardiac death |
| Widera, Gupta et al. (2011) | Patients admitted with ACS (hs-cTnT and clinical picture) | - | 444 | All cause mortality | MiR-1, miR-133a, miR-133b, miR-208a, miR-208b, and miR-499 | hs-cTnT | 6 months | P | n/a – no added prognostic information |
| Eitel, Adams et al. (2012) | STEMI admission, receiving angioplasty | - | 216 | MACE - death, reinfarction, and new congestive heart failure | miR-133a | Cardiac magnetic resonance (CMR) imaging and clinical characteristics | 6 months | P | n/a – no added prognostic information |
| Costa, Cortez-Dias et al. (2012) | AMI patients from OACIS registry between 1998 and 2009 | - | 42 | Death, re-infarction or hospitalization for cardiac causes | miR-375\* nil comparator | Nil | 1-2 years | P | Yes – high levels |
| Matsumoto, Sakata et al. (2012) | 19 in cardiac death group + 21 survival group | - | 40 | Cardiac death | miR-155 and miR-380\* | Nil | 3 years | R | [miR- 155] and [miR-380⁄\*] were approximately 4- and 3-fold higher in population with cardiac death within 1yr post discharge |
| Devaux, Vausort et al. (2013) | Patients admitted with AMI | - | 150 | LV contractility | miR-16, miR-27a, miR-101 and miR-150 | Multi-parameter clinical model + NtproBNP | 6 months | P | Yes - added to the predictive value of their model for outcome  Upregulated miR-16, miR-27a  Downregulated miR-101, miR-150 |
| Bauters, Kumarswamy et al. (2013) | First presentation AMI + consistent medical treatment regime | - | 246 | Correlation with cardiac biomarkers + LV remodelling | miR-133a and miR-423-5p | cardiac biomarkers (BNP, CRP, and cardiac troponin I) | 1 year | P | n/a - association |
| Gidlof, Smith et al. (2013) | Suspected ACS presenting to ED | - | 407 | Mortality, heart failure, LVEF | miR-1, miR-208b and miR-499-5p | TnT | 30 days | P | n/a - association |
| Goretti, Vausort et al. (2013) | First presentation of STEMI | - | 30 | LV function and remodeling after MI (change in LV end-diastolic volume (ΔEDV)) | miR-150 alongside NT-proBNP | NT-proBNP alone | 4 months | P | Yes downregulated miR-150 |
| Devaux, Vausort et al. (2013) | 21 AMI patients who developed HF | 65 AMI patients with no HF at 1 yr | 86 | Heart failure | miR-192, miR-194, and miR-34a | Nil | 1 year | R | Yes upregulated miR-192, miR-194, and miR-34a |
| Matsumoto, Sakata et al. (2013) | 359 AMI patients | 30 healthy controls | 389 | Composite of cardiogenic death + heart failure | miR-328, miR-134 | hs-cTnT | 6 months | P | Yes – upregulated miR-328, miR-134.  Greater sensitivity and specificity |
| He, Lv et al. (2014) | 359 First presentation AMI | - | 359 | Mortality, heart failure | miR-208b and miR-34a | NT-proBNP as comparator | 6 months | P | Yes – upregulated miR-208b and miR-34a |
| Lv, Zhou et al. (2014) | 200 patients admitted with STEMI | 100 healthy controls | 300 | Cardiac death, heart failure | miR-323-3p, miR-652, miR-27b, miR-103 and miR-208a | biomarkers of LVEF and NT-proBNP | 5 years | P | Yes – miR-652 downregulated, miR-323-3p levels remained elevated +1yr stable biomarker for ACS |
| Pilbrow, Cordeddu et al. (2014) | 142 NSTEMI patients | - | 142 | 1yr and 2yr cardiovascular mortality | miR-499-5p and miR-21 | Single point hs-cTnT | 2 years | P | Yes – upregulated miR-499-5p,  No for miR-21 |
| Olivieri, Antonicelli et al. (2014) | 246 first STEMI, successful PCI; life expectancy >1yr | - | 246 | MACE - heart failure and cardiovascular hospitalisation/death | miR-145 | NT-proBNP, CK-MB individually | 1 year | P | Yes – upregulated miR-145 |
| Dong, Liu et al. (2015) | 873 Documented CAD patients (diagnostic angiography) | - | 873 | Cardiovascular death | miR-126, miRNA-197 and miRNA-223 | conventional cardiovascular risk factors (BMI, diabetes mellitus, HTN, history of MI, hyperlipidemia, ever smoker) | 4 years (median) | P | Yes – miR-197, miR-223 for ACS group (not for SAP group) |
| Schulte, Molz et al. (2015) | 1155 Patients presenting with acute chest pain to ED | - | 1155 | All cause mortality or MI | miR-133a, miR-208b, miR-223, miR-320a, miR-451 and miR-499 | Nil | 2 years | P | No – borderline significance for high miR-208b for 30 day mortality |
| Devaux, Mueller et al. (2015) | 142 STEMI treated with angioplasty  single-centre | 18 healthy controls | 160 | Adverse cardiovascular events – death, MI, unstable angina, stroke or hospitalization due to acute heart failure. | Serum miR-1-3p, -122-5p, -133a-3p, -133b, -208b-3p and -499a-5p at the time of cardiac catheterization | CKMB, NT-proBNP, renal (Cr, urea, uric acid and eGFR), liver biomarkers (ALT, AST, γ-GT, bilirubin), inflammatory (WBC and neutrophil counts, CRP, IL-6) and HbA1C. Troponin I | 20.8 months | P | Yes – higher Circulating miR-122-5p/133b ratio |
| Cortez-Dias, Costa et al. (2016) | 316 patients | 67 healthy controls | 383 | MI, hospitalisation for unstable angina, stroke, revascularization procedures or heart failure requiring hospitalisation. | miR-133a | Age, gender, hypertension diabetes, and smoking adjustment  Nil comparator | 2 years | P | Lower cumulative survival for high levels of miR-133a |
| Ke-Gang and Xue-Jing (2016) | 179 cardiogenic shock patients | - | 179 | All cause mortality | miR21, miR122a, miR320a and miR423 | Nil | 90 days | P | Yes – higher levels |
| Jantti, Segersvard et al. (2016) | 111 patients undergoing coronary angiography (82 with stable CAD and 29 with ACS) | - | 111 | MACE: death, nonfatal myocardial infarction, and need for revascularisation | miR133a | Nil | 32 months (median) | P | No added prognostic information |
| De Rosa, De Rosa et al. (2017) | 44 patients (SITAGRAMI trial) | 18 matched controls | 62 | Adverse ventricular remodelling (AVR) + combined cardiovascular endpoint (cardiovascular death, MI, stroke, CABG, coronary re-intervention, rehospitalisation for UA) | miR-1, miR-21, miR-29b and miR-92a | MRI parameters for AVR - infarct volume, LVEF, LVEDV | 6 months | P | Nil clinical outcome prediction |
| Grabmaier, Clauss et al. (2017) | 1112 patients (Atherogene study) 430 ACS and 682 SA | - | 1112 | Mortality | miR-19a, miR-19b, miR-132, miR-140-3p, miR-142-5p, miR-150, miR-186, and miR-210 | Troponin, NT-proBNP, LVEF, and numbers of affected vessels. | 4 years | P | Yes – for mortality in ACS (Except miR-142-5p) |
| Karakas, Schulte et al. (2017) | 100 AMI and 80 UA | 80 healthy controls | 260 | Left ventricular remodelling, MACE | miR-208b | Nil | 6 months | P | Yes - upregulated |
| Liu, Yuan et al. (2017) | 72AMI + 10 coronary disease | 10 healthy control | 92 | MACE | miR-184 | Nil | 1 year | P | Yes- upregulated |
| Liu, Sun et al. (2017) | 104 CAD | 50 healthy controls | 154 | Mortality, cardiovascular events | miR-23a | Nil | 1 year | P | Yes - upregulated |
| Toni Antti Juhani Jantti, Segersvard et al. (2017) | 179 patients (European multi-center CardShock study) | - | 179 | Mortality | miR-423-5p | CardShock risk stratification + hsTnT, ALT, NTproBNP, and lactate), clinical data | 90 days | P | Yes - upregulated |
| Zhang, Lang et al. (2017) | 140 AMI patients who had PCI | - | 140 | MACE - death, HF, cardiogenic shock/ hypotension, malignant arrhythmia, recurrent myocardial infarction, and LVEF<50%. | miR-208b-3p | hsCRP, NT-proBNP, Clinic SYNTAX score (CSS - calculated by coronary angiograph and clinical data), LVEF (Echo) | 3 years | P | Yes - upregulated |
| Alavi-Moghaddam, Chehrazi et al. (2018) | 21 STEMI patients | 8 age and gender matched controls | 30 | Survival post AMI at 6 months | miR-208b | Cardiovascular risk factors smoking, DM, HTN, Hyperlipidaemia, Reduced EF, age, gender, cTnT | 6 months | P | Yes – upregulated  MiR-208b predicting death at 6 months post AMI. |
| Liu, Niu et al. (2018) | 145 NSTEMI | 30 control (non matched) | 175 | Angina, reinfarction, arrhythmia | miR-1, 133, 208, 499 | cTnT | 10days | P | Yes miR-499 upregulation |
| Lin, Zhang et al. (2019) | 113 (54 Post AMI CCF, 59 post AMI no CCF) | 59 healthy controls (age and sex matched) | 172 | Post AMI CCF | miR-29a, miR-133a, miR-208b, miR-499, miR-150, miR-194, miR-  192, and miR-34a | BNP | 1 year | R | Yes miR-150 down regulation in post MI CCF;  miR-150 added to prognosis alongside biomarker BNP in predicting CCF post AMI at 1 year |
| Mayer, Seidlerova et al. (2019) | 826 (487 CAD and 339 CVA patients) |  | Pilot study 100 patients  Validation study 5miRNA’s - | All cause mortality  CVS mortality | miR-133a, 1, 21, 34a, 126, mmu-miR 499, miR-223, 197, 19a, 214 (pilot)  miR-1,19,126,133, 223 (validation cohort) | BNP, cTnI, | 6-36 months after ACS/Revasc/CVA) interview - Follow up mean 2050 days (5.6yrs) | P | Yes miR-1, -19, -126, -133, -223 associated with 5yr all cause death and CVS mortality.  miR-19a downregulation predicted CVS and all cause mortality in CAD patients at 5 years when accounting for other miRNA |
| Tang, Lei et al. (2019) | 115 CAD patients pilot and 1230 CAD patients validation | nil | 1199 | MACE – CVS death, MI, stent thrombosis  Bleeding events on dual antiplatelets in CAD post PCI | miR-126, 130a, 142, 27a, 21, 106a | CVS RF, Medications – CCB’s,BB’s, ACE-I, PPI’s, biochemical parameters including CK, Lipids. | 3 years | P | miR-142 upregulated in MACE  miR-126-5p upregulated in MACE |

**Table S1. Study Characteristics**

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