Background Acute myocardial injury and type 2 myocardial infarction typically occur in the setting of a concurrent illness. Differentiating acute myocardial injury from type 2 myocardial infarction is challenging as it relies on the assessment of myocardial ischaemia. Indeed, some have questioned whether this distinction is important, as patients with both conditions are at increased risk of future cardiovascular events. Whether this risk is similar and the role of identifying those with coronary artery disease is uncertain.

Methods We conducted a secondary analysis of a multi-centre randomised controlled trial of 48,282 consecutive patients with suspected acute coronary syndrome. Patients with an adjudicated diagnosis of acute myocardial injury and type 2 myocardial infarction were stratified according to whether they were known previously to have coronary artery disease defined as prior coronary revascularisation, myocardial infarction, or angina. Cardiovascular death or myocardial infarction adjusted for the competing risk of non-cardiovascular death and all-cause death at one year was compared.

Results In 9,115 patients with elevated cardiac troponin concentrations, 1,676 (18%) and 1,121 (12%) had acute myocardial injury and type 2 myocardial infarction, respectively. Patients with either condition known to have coronary artery disease were older (mean [standard deviation] age 78 [11] versus 73 [16] years) and more likely to be female (55% versus 45%) than those with no prior history. Coronary artery disease was previously identified in 40% (454/1,121) and 30% (509/1,167) of those with type 2 myocardial infarction and acute myocardial injury, respectively. Cardiovascular death or myocardial infarction at one year was more common in patients known to have coronary artery disease than those without for both acute myocardial injury (23% [115/509]) versus 14% [158/1,167]; P<0.001) and type 2 myocardial infarction (20% [91/454] versus 10% (69/667); log-rank P<0.001) (Figure 1). Similarly all-cause death at one year was higher in patients with known coronary artery disease for both acute myocardial injury (31% [357/1,167] versus 18% [123/667]; P<0.001) and type 2 myocardial infarction (40% [115/290] versus 30% [135/454]; P<0.001) (Figure 2).

Conclusion Coronary artery disease is recognised in around one third of patients with acute myocardial injury and type 2 myocardial infarction and is associated with higher rates of cardiovascular events and all-cause death. Risk doubled in those with coronary artery disease and was similar whether the index diagnosis was myocardial injury or infarction, suggesting that coronary investigation and secondary prevention may have a role in both conditions.

Conflict of Interest none