Outcomes following acute myocardial injury and type 2 myocardial infarction in patients with and without coronary artery disease

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. Cardiac troponin 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 (median [interquartile range] 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% [215/915] 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 infarction or infarction, suggesting that coronary investigation and secondary prevention may have a role in both conditions.

Conflict of Interest
None

Shockwave Intravascular Lithotripsy (IVL) for Calcified Coronary Lesions: A Real World Multicentre European Study with Long Term Follow Up

Introduction
The presence of calcium in atherosclerotic plaques is a challenge for successful angioplasty and is an
COMPARISON OF INVASIVE CORONARY ANGIOGRAPHY VERSUS COMPUTED TOMOGRAPHY ANGIOGRAPHY TO ASSESS MEHRAN CLASSIFICATION OF IN-STENT RESTENOSIS IN BIFURCATION PCI

Jahanzeb Malik, 1Danish Iltaf Satti, 1Rawalpindi Institute of Cardiology, Rawal Road, Rawalpindi, 46000, Pakistan; 2Cardiovascular Analytics Group, Hong Kong China-UK collaboration

Background and objective The Mehran classification is used to determine the presence of in-stent restenosis (ISR) and characterization of its subtypes in invasive coronary angiography (ICA). The utility of computed tomography angiography (CTA) for the assessment of Mehran classification is unknown. We aimed to compare the agreement and reproducibility of Mehran classification between ICA and CTA and evaluate the sensitivity and specificity of both imaging modalities.

Methods Consecutive patients who had ISR on ICA preceded with CTA before intervention were enrolled in our study. Modified Mehran’s classification was employed by CTA and ICA to classify ISR into four subtypes: focal (type I [A, B, C]), intrastent (type II [A, B, C]), proliferative (type III [A, B, C]), and total occlusion (type IV). Agreement between ICA classification and main vessel lesion length, reference vessel diameter (RVD), and bifurcation angles were compared.

Results Four hundred and five patients with 431 bifurcation PCI’s with ISR were included in this investigation. The total agreement between CTA and ICA for assessment of Mehran class was poor (kappa=0.168). Proliferative ISR (25% vs. 10%; p-value 0.012) and total occlusions (24% vs. 5%; p-value < 0.001) were reclassified more often between ICA and CTA, respectively. CTA assessment of lesion length was significantly longer than that of ICA measurements in all subtypes of ISR (32.15 ± 5.23 vs. 27.41 ± 3.63; p-value 0.004). ROC curve expressed CTA to be more sensitive and specific than ICA in diagnosing ISR.

Conclusion In conclusion, Mehran classification was significantly affected by imaging modality, and CTA results were more reproducible compared to ICA. Therefore, CTA evaluation of ISR may facilitate treatment options and generate a sound plan before the procedure.

Conflict of Interest None to declare

COMPARISON OF INVASIVE CORONARY ANGIOGRAPHY VERSUS COMPUTED TOMOGRAPHY ANGIOGRAPHY TO ASSESS MEHRAN CLASSIFICATION OF IN-STENT RESTENOSIS IN BIFURCATION PCI

Jahanzeb Malik, 1Danish Iltaf Satti, 1Rawalpindi Institute of Cardiology, Rawal Road, Rawalpindi, 46000, Pakistan; 2Cardiovascular Analytics Group, Hong Kong China-UK collaboration

Background and objective The Mehran classification is used to determine the presence of in-stent restenosis (ISR) and characterization of its subtypes in invasive coronary angiography (ICA). The utility of computed tomography angiography (CTA) for the assessment of Mehran classification is unknown. We aimed to compare the agreement and reproducibility of Mehran classification between ICA and CTA and evaluate the sensitivity and specificity of both imaging modalities.

Methods Consecutive patients who had ISR on ICA preceded with CTA before intervention were enrolled in our study. Modified Mehran’s classification was employed by CTA and ICA to classify ISR into four subtypes: focal (type I [A, B, C]), intrastent (type II [A, B, C]), proliferative (type III [A, B, C]), and total occlusion (type IV). Agreement between ICA classification and main vessel lesion length, reference vessel diameter (RVD), and bifurcation angles were compared.

Results Four hundred and five patients with 431 bifurcation PCI’s with ISR were included in this investigation. The total agreement between CTA and ICA for assessment of Mehran class was poor (kappa=0.168). Proliferative ISR (25% vs. 10%; p-value 0.012) and total occlusions (24% vs. 5%; p-value < 0.001) were reclassified more often between ICA and CTA, respectively. CTA assessment of lesion length was significantly longer than that of ICA measurements in all subtypes of ISR (32.15 ± 5.23 vs. 27.41 ± 3.63; p-value 0.004). ROC curve expressed CTA to be more sensitive and specific than ICA in diagnosing ISR.

Conclusion In conclusion, Mehran classification was significantly affected by imaging modality, and CTA results were more reproducible compared to ICA. Therefore, CTA evaluation of ISR may facilitate treatment options and generate a sound plan before the procedure.

Conflict of Interest None to declare

LONG TERM CLINICAL OUTCOMES OF PERCUTANEOUS CORONARY INTERVENTION VERSUS NO INTERVENTION IN PATIENTS WITH CHRONIC TOTAL OCCLUSION: A META-ANALYSIS OF RANDOMISED TRIALS

1Abdalazeem Ibrahim, 1Mohamed FARAG, 2Ying X GUE, 3Nikolaos SPINTHAKIS, 4Ayman AL-ATTA, 5Mohamed Eged. Cardiothoracic Department, Freeman Hospital, Newcastle-Upon-Tyne, UK, Freeman hospital, Freeman road, Newcastle, NET NE7 7DN, United Kingdom; 1Cardiothoracic Department, Freeman Hospital, Newcastle-Upon-Tyne, UK; 2Liverpool Centre for Cardiovascular Science, University of Liverpool and Liverpool Heart & Chest; 3Department of Postgraduate Medicine, University of Hertfordshire, Hertfordshire, UK; 2Cardiothoracic Department, Freeman Hospital, Newcastle-Upon-Tyne, UK; 4Cardiothoracic Department, Freeman Hospital, Newcastle-Upon-Tyne, UK

Introduction Chronic total occlusion (CTO) percutaneous coronary intervention (PCI) has substantially improved due to increasing operator experience and advancements in equipment, techniques, and management algorithms. However, the overall benefit of CTO PCI remains controversial, particularly since only a few randomized trials have been reported to date.

Methods We performed a meta-analysis to evaluate the efficacy of CTO PCI. The study outcomes were the occurrence of all-cause mortality, myocardial infarction, repeat revascularization, stroke, or freedom from angina at the longest documented follow up period.

Results In 5 trials including 1790 patients, mean age was 63 ± 10 years, 17% were female, with a median follow up of 2.9