six biomarkers, including adiponectin, complement component C7, quiescin sulphhydryl oxidase 1, insulin like growth factor binding protein acid labile subunit, pregnancy zone protein and phosphatidylinositol-glycan-specific phospholipase D, from the Boruta analyses (Fig. 1a) conferred an AUC of 0.90 indicating excellent discriminatory capacity between RHD cases and controls (Fig. 1b). ClueGo pathway analysis of these biomarkers support the presence of an ongoing inflammatory response in RHD (Fig. 2), at a time when severe valve disease has developed, and distant from previous episodes of acute rheumatic fever. This biomarker signature could have potential utility in recognizing different degrees of ongoing inflammation in RHD patients, which may, in turn, be related to prognostic severity.

Conflict of Interest None

# 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. 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 in patients with known coronary artery disease was 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 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% [115/509] versus 30% [113/454]; 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

# 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...
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 ISR 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

Abstract 49 Table 1 Clinical outcomes over the median follow up of 641 days

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>non-cardiac deaths</td>
<td>18 (6.5%)</td>
</tr>
<tr>
<td>Cardiac death</td>
<td>15 (5.5%)</td>
</tr>
<tr>
<td>TVMI</td>
<td>3 (1.0%)</td>
</tr>
<tr>
<td>TLR per lesion</td>
<td>14 (5.09%)</td>
</tr>
<tr>
<td>TVR per lesion</td>
<td>15 (5.50%)</td>
</tr>
<tr>
<td>MACE</td>
<td>38 (13.90%)</td>
</tr>
<tr>
<td>Stent thrombosis (Definite and probable)</td>
<td>2 (0.74%)</td>
</tr>
</tbody>
</table>

independent risk factor for restenosis and stent thrombosis. Despite conventional tools (non-compliant, scoring and cutting balloons and rotational atherectomy), cracking calcium can still be challenging and incomplete. Intra-vascular lithotripsy (IVL) has shown promising results, although long-term data on safety and efficacy from real-world is lacking. In this study, we report long-term outcomes following use of IVL from a European multi-centre experience.

Methods This was a multicentre, retrospective observational study in which we enrolled all patients treated with shock-wave lithotripsy from November 2018 to June 2021. Procedural success, complications and in hospital events were evaluated. The clinical outcomes during follow-up included cardiac death, target vessel myocardial infarction (TVMI), target lesion revascularisation (TLR), and major adverse cardiac event (MACE) (composite of cardiac death, TVMI, and TVR).

Result A total of 272 patients were treated with IVL, with a mean age of 72 ± 9.1 years and 78.5% (n=216) were male. Forty percent (n=110) were diabetic while 16% (n=45) had chronic kidney disease. Acute coronary syndrome was the presentation in 36%(n=99) while 51%(n=141) had stable angina. De novo lesions accounted for 78% (n=215) of the cases and the remaining were in-stent restenosis (21%; n=58). The LAD was the commonest artery treated 50% (n=139) followed by RCA 24%(n=68). Intracoronary imaging was performed in 33% of cases. Upfront IVL strategy was adopted in 37% (n=101) while 63% (n=171) were bail out procedures due to inadequate predilatation. Adjuvant rotational atherectomy was used on 31 (11.4%) cases. Procedural success was achieved in 96% (260) cases with coronary perforation in 8 cases (3-cases needed covered stents). There was no in-hospital mortality. Clinical outcomes over the median follow up of 641-days (1.7 years) are shown in the table.

Conclusion This is the largest multicentre registry with long term follow up. It has demonstrated that IVL appears to be safe with high success rates, low rates of complication and no in-hospital mortality. The long-term follow-up show promising results with low rates of hard-endpoints and revascularization rates.

Conflict of Interest None

META-ANALYSIS OF RANDOMISED TRIALS

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

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

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10.1136/heartjnl-2022-BCS.51

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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