Abstract 35 Table 1 Combined summary sensitivity and specificity of the MACS and T-MACS rules for the exclusion of AMI and ACS in the very low risk (for immediate discharge) strata of patients admitted to the ED with chest pain.

	MACS Rule		T-MACS Rule	
	AMI	ACS	AMI	ACS
ROC AUC	0.97 (0.95-0.97)	0.90 (0.87-0.92)	0.93 (0.90-0.95)	0.95 (0.93-0.97)
Sensitivity% (CI)	100 (54-100)	99 (97-100)	99 (98-100)	98 (96-99)
Specificity% (CI)	19 (14-20)	20 (14-26)	41 (34-49)	41 (33-49)

and acute coronary syndrome as search terms. After removal of duplicates, 2 authors reviewed the title and abstract to shortlist for full text review. Data was extracted independently by 2 authors, with disagreement resolved by discussion. Outcomes included were prevalent AMI and incident MACE. Quality assessment was performed using a QUADAS-2 model and meta-analysis was performed using STATA 15 running the METANDI and MIDAS commands.

Results 9 studies were included (5 reporting T-MACS and 4 MACS). Data showing the summary AUC, combined sensitivity, and specificity for prevalent AMI and incident MACE in the very low risk (safe for immediate discharge) strata are shown in Table 1. Representative Forrest Plots for MACS and T-MACS are shown in figures 1 and 2 respectfully.

Conclusion The MACS and T-MACS rules provide an accurate tool to identify a low risk chest pain population safe for immediate discharge from ED without the need for followup biomarker testing, with high sensitivity for AMI and ACS.

Conflict of Interest None

36 HIGHER SERUM VITAMIN D LEVELS ARE ASSOCIATED WITH HIGHER PHYSICAL HEALTH-RELATED QUALITY OF LIFE IN HIGH-RISK, OLDER ADULTS FOLLOWING NON-ST ELEVATION ACUTE CORONARY SYNDROME UNDERGOING INVASIVE CARE

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Introduction A large proportion of older patients with cardiovascular disease have low serum vitamin D levels. Such deficiency states have been linked with lower health-related quality of life (HRQoL). The Improve Cardiovascular Outcomes in High Risk PatieNts (ICON-1) study (NCT01933581) has previously demonstrated that serum vitamin D levels do not predict major adverse cardiovascular events (MACE) at 1 year in high-risk older adults being managed invasively for non-ST elevation acute coronary syndrome (NSTEACS). However, the relationship between serum vitamin D levels and HRQoL in older patients with NSTEACS is unclear. This further analysis of the ICON-1 cohort aims to investigate the relationship between serum vitamin D and HRQoL in high-risk, older adults managed invasively for NSTEACS.

Methods Patients aged ≥75 years presenting with NSTEACS (n=293) were recruited to the multi-centre prospective cohort ICON-1 study. Baseline serum total vitamin D was measured by electrochemiluminescent immunoassay prior to coronary angiography, split into two groups by the median for analysis. HRQoL was assessed within 24 hours post-procedure using the Short Form 36 Health Survey (SF-36) (License Number QM033917), values reported as norm-based scores. At one-year follow-up SF-36 scores were repeated. SF-36 consists of 4 physical subscales, summarised as Physical Component Summary. Statistical differences between groups were assessed with Kruskal-Wallis testing. Multi-variate linear regression was used to probe the impact of serum vitamin D on HRQoL adjusted for the a priori co-variates of age and sex.

Results Mean age was 80.4±4.8 years (61.8% male). Baseline median vitamin D was 29.0 [IQR 16.0–53.0] nmol/L. Patients were split by the median baseline vitamin D: low serum vitamin D (n=147, median 16.0 [IQR 12.0–23.0] nmol/L) and high serum vitamin D (n=146, median 53.0 [IQR 40.0–75.0] nmol/L). Both at baseline and at 1 year, those with a high serum vitamin D had significant higher scores in physical functioning (P<0.0001 at baseline and P=0.002 at 1 year, respectively) and physical component score (P=0.002 at baseline and P=0.038 at 1 year) compared to those with a low serum vitamin D (Table 1). At baseline, there was a significant association between serum vitamin D and a higher physical functioning (β=0.15, P=0.028) and physical component scores (β=0.16, P=0.009), after adjustment for age and sex (Table 2). This association was also apparent at 1-year follow-up, with a significant adjusted association between serum vitamin D and physical functioning (β=0.21, P=0.003).

Abstract 36 Table 1 Norm-based SF-36 domain differences between those with high serum vitamin D versus those with low serum vitamin D, both at baseline and at 1-year follow-up. SF-36, Short Form 36

SF-36 domain	BASELINE		ONE YEAR FOLLOW-UP	
	Low vs. High serum vitamin D	*P value*	Low vs. High serum vitamin D	*P value*
Physical functioning	34.1 [27.8 – 44.6] vs. 44.6 [29.9 – 50.9]	< 0.0001	39.4 [27.8 – 48.8] vs. 46.7 [34.1 – 55.0]	0.002
Physical component score	32.4 [27.0 – 40.7] vs. 39.2 [29.3 – 50.1]	0.002	38.3 [28.8 – 48.3] vs. 44.7 [31.7 – 52.4]	0.038

Abstract 36 Table 2 Multiple linear regression analysis of serum vitamin D (high vs. low) and physical SF-36 scores. SF-36, Short Form 36; B, regression coefficient; SE(B), standard error of B; and β, standardised regression coefficient.

	BASELINE		ONE YEAR FOLLOW-UP	
	Physical functioning	Physical component score	Physical functioning	Physical component score
Model 1 – Unadjusted analysis	B=5.4 SE(B)=1.39 β=0.21 P=0.003	B=4.68 SE(B)=1.42 β=0.20 P=0.001	B=5.25 SE(B)=1.76 β=0.21 P=0.003	B=3.51 SE(B)=1.80 β=0.14 P=0.05
Model 2 – Adjusted for age and sex	B=2.1 SE(B)=1.20 β=0.15 P=0.028	B=3.74 SE(B)=1.42 β=0.21 P=0.009	B=3.86 SE(B)=1.74 β=0.15 P=0.03	B=-1.45 SE(B)=1.61 β=0.12 P=0.13

Conclusions There is an association, independent of age and sex, between serum vitamin D and physical health-related quality of life at both presentation and at 1-year follow-up after invasive management of NSTEACS in high-risk older adults. Although vitamin D deficiency has not been shown to predict MACE, it may play a plausible role in the significant morbidity experienced by older adults with cardiovascular disease.

Conflict of Interest None to declare

37 SHOCKWAVE INTRAVASCULAR LITHOTRIPSY IN CALCIFIED CORONARY LESIONS: A RETROSPECTIVE, OBSERVATIONAL, INTERNATIONAL MULTI-CENTRE ANALYSIS

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Introduction Sub-optimal stent expansion due to coronary calcification augments the risk of restenosis and stent thrombosis. Calcium modification is generally achieved by rotational atherectomy or specialized balloons (scoring and cutting balloons), which carries risk of complications. Intravascular lithotripsy (IVL) appears safe and also aids in cracking deep seated adventitial calcium. Although, there are reported studies on this novel technology, there is a lack of real-world data. In this study, we report the experience from 4 centres that undertake high-volume complex coronary interventions.

Methods We enrolled all patients treated with IVL between September 2018 and October 2019 at 4 centres (1 in UK and 3 in Italy). Procedural success and complication were assessed. The clinical outcomes evaluated were; cardiovascular death, target vessel MI (TVMI), target lesion revascularisation (TLR) and MACE (composite of cardiovascular death, TVMI and TLR).

Results During the study period, 100 lesions (in 94 patients) with a mean age of 71±9.7 years (range;30 - 88) were treated using IVL. 70% (n=70) were male, 85% (n=80) had hypertension, 51% (n=48) had diabetes and 20% (n=19) had chronic kidney disease. Acute coronary syndromes accounted for 40% of patients (n=38). De-novo lesions accounted for 66% of cases (n=66) and the remaining 34% (n=34) were restenotic lesions. Left anterior descending artery (56%) accounted for most cases followed by right coronary artery (22%), left circumflex artery (21%), left main (17%) and saphenous vein grafts (3%) procedures. Upfront use of IVL occurred in 18% of cases whilst the rest were bail-out procedures due to inadequate pre-dilatation with conventional balloons. Adjuvant rotational atherectomy (Rota-tripsy) was used in 10 cases (10%) prior to the use of IVL. The mean diameter of IVL balloon was 3.3 ± 0.5mm. Intravascular imaging (IVUS) was used in 19% of cases. Procedural success was achieved in 100% of cases with a complication rate of 2% (2-cases of coronary perforation and one of them resulted in in-hospital mortality). During the median follow-up of 150 days, there were no clinical events including cardiac death, TVMI and TLR.

Conclusion Initial experience and short-term clinical follow-up from IVL use appears safe and effective PCI strategy for dealing with calcified coronary lesions. A high success rate was observed with low event rates and procedural complications. We are enrolling more patients from other centres as part of a larger multi-centre registry and will be able to report this with higher numbers and longer follow-up at BCS 2020.

Conflict of Interest nil

38 LOCAL EXPERIENCE OF ULTRASOUND ASSISTED CATHETER DIRECTED THROMBOLYSIS IN LONDON NORTHWEST UNIVERSITY HEALTHCARE NHS TRUST FOR SUB-MASSIVE PULMONARY EMBOLISM

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Background and Objective Despite availability of sensitive diagnostic tests, the mortality and morbidity related to pulmonary embolism (PE) continues to cause tremendous economic burden. The objective of this service evaluation was to compare the length of stay and safety profile of newly adopted Ultrasound Assisted Catheter Directed Thrombolysis (UACDT) for patients with sub-massive PE and right heart strain to a historic control group of patients with a primary discharge diagnosis of PE.

Methods and Results The historic control group was made of patients identified with a primary discharge diagnosis of PE in the calender year 2016 (131 patients). Of these 75 (57.3%) patients had sub-massive PE defined as radiologically large thrombus burden and evidence of right heart strain seen on CT pulmonary angiogram (CTPA). Only patients with a length of stay (LOS, defined as date of discharge – date of scan in days) > 2 days were included in the analysis. The final historical control group was made of 68 (51.1% of the total cohort) patients, mean age = 67.5 ± 17.9 years, 28 (36.8%) males, mean pulmonary artery pressure (PAP) on echo = 37.3 ± 17.7 mmHg (echo data available in 74.7% of the cohort).

These patients were compared against the UACDT group. To be eligible for UACDT, patients needed to have sub-massive PE with radiologically large thrombus burden, right heart strain seen on CTPA and echocardiogram and elevated Troponin and or BNP on blood tests. The UACDT group comprised of 25 patients (mean age = 61.2 ± 14.1 years, 19 (76%) male, mean PAP 38.6 ± 22.3 mmHg on echo, all patients had echo data available prior to the procedure) that underwent the procedure at our district general hospital between June 2018 and Sep 2019. Time to procedure was a mean of 1.2 days (median of 1day with min of 0 and Max of 5 days).

There was no death in the UACDT cohort whilst 3 deaths (3.9%) were observed in the historical control group (p = 0.6). Death or readmission occurred in 8 (10.5%) of the historical control group compared to 1 (4%) in the UACDT group (p = 0.4). One (4%) patient had haematemesis post UACDT with new diagnosis of gastric Cancer. There were 3 (12%) patients with new diagnosis of cancer among UACDT group and further 2 with known metastatic cancer. The LOS numerically lower in the UACDT group compared to the historical