Abstract 33 Table 2 Multivariate analysis of characteristics associated with an increased mortality (in bold). HR – hazard ratio, CI – confidence interval, MI – myocardial infarction, CABG – coronary artery bypass graft, PCI – percutaneous coronary intervention, LV – left ventricular, CVA – cerebrovascular accident, LMS-PCI – left main stem percutaneous coronary intervention. Level of significance set at p<0.05

Predictors of 1-year mortality			Multivariate analysis	
Variable	HR (95% CI)	p-value	HR (95% CI)	p-value
Age, years	**1.14 (1.08-1.21)**	**<0.0001**	**1.12(1.03-1.22)**	**0.008**
Sex (female)	0.78 (0.50-1.21)	0.261		
Length of stay	1.05 (1.02-1.07)	0.001		
Acute coronary syndrome	4.03(1.73-9.38)	0.001	1.16 (0.46-2.93)	0.756
Cardiogenic shock	**33.25 (12.15-91.02)**	**<0.0001**	**16.40 (4.04-66.65)**	**<0.0001**
Previous MI	1.12 (0.72-1.73)	0.627		
Previous CABG	0.68 (0.34-1.36)	0.278		
Previous PCI	0.57(0.32-1.02)	0.057		
Diabetes	**1.88 (1.18-2.99)**	**0.008**	**2.59 (1.30-5.17)**	**0.007**
Hypertension	0.65 (0.41-1.03)	0.06		
Hypercholesterolemia	1.17(0.76-1.80)	0.47		
Smoker (ex or current)	1.28(0.81-2.02)	0.29		
Creatinine clearance	**0.96 (0.94-0.97)**	**<0.0001**	**0.98 (0.96-1.00)**	**0.031**
Severe LV impairment	**2.33 (1.47-3.68)**	**<0.0001**	**3.52 (1.69-7.33)**	**0.001**
Peripheral vascular disease	**3.55 (2.13-5.91)**	**<0.0001**	**2.73 (1.22-6.13)**	**0.015**
CVA	0.54 (0.21-1.39)	0.204		
Multi-vessel disease	1.82(0.71-4.64)	0.212		
Vascular access (Radial)	1.51 (0.99- 2.32)	0.058		
LMS-PCI	3.11 (1.69-5.72)	<0.0001	1.01 (0.33-3.12)	0.986

well as increasing proportion of patients with multivessel disease (p=0.011). Increasing age, the presence of cardiogenic shock, severe left ventricular impairment, peripheral vascular disease, diabetes mellitus and low creatinine clearance were identified as independent predictors of mortality after PCI (Table 2).

Conclusion This study has shown that PCI in octogenarians is a safe and effective revascularisation option, which is increasingly being used in the real-world clinical practice. Further randomised clinical trial data is needed to enhance the evidence base for this challenging patient population.

Conflict of Interest None

34 DIAGNOSTIC PERFORMANCE OF VIRTUAL FRACTIONAL FLOW RESERVE DERIVED FROM ROUTINE CORONARY ANGIOGRAPHY USING SEGMENTATION FREE REDUCED ORDER (1- DIMENSIONAL) FLOW MODELLING

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Introduction Fractional flow reserve (FFR) improves the assessment of the physiological significance of coronary lesions compared with conventional angiography. However, it requires additional interventional techniques and equipment to perform. Recently proposed virtual functional indices are derived from coronary imaging alone but require complex computational fluid dynamics modelling, which is time-consuming and hence cannot influence immediate clinical management. We tested the diagnostic performance of a virtual FFR (1D-vFFR) using routine angiographic images and a rapidly performed reduced order computational model.

Methods Quantitative coronary angiography (QCA) was performed in 102 vessels (85 patients) with coronary lesions assessed by invasive FFR. A 1D-vFFR for each lesion was created using reduced order (one-dimensional) computational flow modelling based on parameters derived from conventional angiographic images and patient specific estimates of coronary flow. The diagnostic accuracy of 1D-vFFR and QCA derived stenosis was compared against the gold standard of invasive FFR using area under the receiver operator characteristic curve (AUC).

Results QCA revealed the mean coronary stenosis diameter was 44% ± 12% and lesion length 13 ± 7 mm. Once angiographic analysis of the coronary artery had been performed calculation of the 1D-vFFR took less than one minute. Coronary stenosis (QCA) had a significant but weak correlation with FFR (r=-0.2, p= 0.04) and poor diagnostic performance to identify lesions with FFR <0.80 (AUC 0.39, p=0.09), (sensitivity – 58% and specificity – 26% at a QCA stenosis of 50%). In contrast, 1D-vFFR had a better correlation with FFR (r=0.32, p=0.01) and significantly better diagnostic performance (AUC 0.67, p=0.007), (sensitivity – 92% and specificity - 29% at a 1D-vFFR of 0.7).

Conclusions 1D-vFFR improves the determination of functionally significant coronary lesions compared with conventional angiography without requiring a pressure-wire or hyperaemia induction. It is fast enough to influence immediate clinical decision-making but requires further clinical evaluation.

Conflict of Interest None