Complications

Abstract 32 Figure 2

Conclusion IE is a rare disease. Documentation of some IE risk factors, and documented discharge advice was poor at our centre. Our Endocarditis Team meet weekly, have a significant input in IE patient management and ensure adequate follow up is arranged for patients. We plan to join an international IE registry. An IE ward round proforma has been created along with a teaching session for staff to improve awareness and understanding of IE. A discharge information pack including information on IE, dental advice and IE and dental warning cards has been created. We plan for a virtual IE support group given current COVID-19 restrictions. We plan to create an outpatient IE treatment pathway with potential for improvement in patient experience and potential for significant cost savings.

Conflict of Interest None

Acute coronary syndromes & Interventional cardiology

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ABSOLUTE CORONARY BLOOD FLOW AND MICROVASCULAR RESISTANCE MODELLING IN PATIENTS WITH CORONARY ARTERY DISEASE

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Background Ischaemic heart disease causes reduced coronary blood flow (CBF). CBF is not routinely measured in the catheterisation laboratory. Cardiologists therefore rely upon surrogate indices of CBF like fractional flow reserve (FFR). Whilst valuable in guiding revascularisation decisions, FFR reports CBF as a fraction of a hypothetical and unknown value. It is therefore, semi-quantitative and cannot assess microvascular physiology. FFR-guided PCI is associated with incomplete symptom resolution in around 20% of patients. These limitations may be resolved by a new method (virtuQ™) which computes absolute coronary blood flow (aCBF) and coronary microvascular resistance (CMVR) from angiography and standard pressure wire measurements. The aims of our study were

to establish the relationship between FFR and aCBF, and to investigate the contribution of CMVR to aCBF.

Methods virtuQ™ software was used to reconstruct the 3-D arterial anatomy of 229 vessels from 151 patients undergoing angiography and FFR assessment for coronary syndromes. aCBF and CMVR were computed by a numerical method based upon the reconstructed anatomy, pressure conditions and Navier-Stokes equations. The reduction in aCBF due to epicardial disease was also calculated. Percentage flow reduction (predicted by FFR) was compared to aCBF reduction in mL/min. A threshold for intervention for aCBF reduction was derived. Agreement between FFR and aCBF reduction was assessed by Cohen's kappa (κ) statistic.

Results virtuQ™ computed all physiological parameters in 207/229 cases (90%). Physiological results are summarised in table 1. Calculated by regression intercept using an FFR-aCBF plot, the derived threshold for physiological significance for aCBF reduction was ≥ 23 mL/min (figure 1). Overall agreement between FFR and aCBF reduction was moderate ($\kappa=0.70$). Agreement between FFR and aCBF reduction was high in cases where FFR was >0.80 (90.0%) and perfect when FFR ≤ 0.70 (100%), but poor when FFR was 0.70-0.80 (68.2%). For cases in which FFR was ≤ 0.80 ($n=109$), 19.5% were discordant, associated with increased CMVR (1.24 vs 0.58 mmHg.min/mL, $P<0.0001$). A hybrid assessment strategy (FFR alone if >0.80 or ≤ 0.70 , with aCBF used if FFR 0.70-0.80)

Abstract 33 Table 1 Summary of physiological parameters computed in virtuQ™

Physiological parameter (Median)	All cases (n=207)	Females (n=45)	FFR positive (n=113)	FFR negative (n=94)
Baseline aCBF (mL/min)	57.4	55.0	55.9	57.9
Hyperaemic aCBF (mL/min)	85.2	79.5	92.3	82.3
aCBF Reduction (mL/min)	21.1	21.1	34.6	12.0
Baseline CMVR	1.28	1.59	1.24	1.33
Hyperaemic CMVR	0.72	0.86	0.65	0.80

Abstract 33 Figure 1

increased agreement to near perfect ($\kappa=0.90$) and required aCBF to be measured in 32% of cases. CMVR was higher in females at baseline and hyperaemia (1.59 vs 1.21 and 0.86 vs 0.68 mmHg·mL·min⁻¹, respectively, $P<0.05$).

Conclusions In the largest study of aCBF to date, 19.5% of cases identified as physiologically significant by FFR were identified as non-significant by aCBF reduction criteria. Pressure-flow discordance was associated with variability in CMVR and may explain why around 20% of patients experience persistent angina following FFR-guided PCI. Combined FFR + aCBF assessment may be valuable, particularly in the FFR grey zone. *virtuQ™* may have a complementary role in selecting patients for PCI and help diagnose microvascular disease.

Conflict of Interest None

34 NEXT GENERATION P2Y12 INHIBITORS IMPROVE SURVIVAL IN ACS: AN ANALYSIS FROM THE BRITISH CARDIOVASCULAR INTERVENTION SOCIETY DATABASE

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Background Dual antiplatelet therapy (DAPT) is the standard care following presentation with an acute coronary syndrome (ACS), but there remains debate regarding the relative benefits of the available P2Y12 receptor antagonists and their optimal combination with aspirin, particularly in those treated with percutaneous coronary intervention (PCI).

Methods We performed a retrospective analysis of all PCI procedures undertaken in patients with ACS recorded in the British Cardiovascular Intervention Society (BCIS) database between 2007 and 2014 who were treated with DAPT consisting of aspirin and one of either clopidogrel, prasugrel or ticagrelor. The primary outcome measure was 30-day all-cause mortality, with secondary outcome measures of mortality at 1 and 5 years. Odds ratios (OR) for mortality were determined from multivariable logistic regression models allowing for clustering by hospital.

Results Among 259,255 eligible patients with 2 million person-years of observation, 7.4% (19,101) of patients had

ticagrelor, 7.4% (n=19,161) had prasugrel and 85.2% (n=220,993) were treated with clopidogrel for ACS. A total of 41,107 (12.2%) patients died during a median of follow-up of 3.2 years (IQR: 1.6–5.2 years). Crude mortality rates were 34.7 (clopidogrel), 30.6 (prasugrel), and 36.9 deaths per 1000-person-years for ticagrelor treated ACS. In an age-sex unadjusted multinomial logistic regression analysis, mortality rates at 1 year in those treated with aspirin and ticagrelor were 64% lower [OR 0.34, 95% CI (0.32–0.36)] than those receiving DAPT with clopidogrel. DAPT with prasugrel was associated with a 27% lower mortality compared to DAPT with clopidogrel (OR 0.73 (0.69–0.77), $p<0.0001$). Stratifying by ACS status, the age-sex adjusted 1-year mortality rate for ticagrelor compared with clopidogrel was 63% lower [(OR 0.37 (0.34–0.40)] in STEMI and 80% lower in NSTEMI [(OR 0.20 (0.18–0.23), $p<0.0001$)]. The reduction in mortality at 1 year in the prasugrel versus clopidogrel group was relatively greater (57%) in individuals with STEMI [(OR 0.43 (0.40–0.45), $p<0.0001$)] compared to those with NSTEMI [(OR 0.64 (0.55–0.74), $p<0.0001$)].

Conclusions This very large, real-world dataset of patients presenting with ACS demonstrates a significant net clinical benefit favouring the use of ticagrelor and prasugrel over clopidogrel in ACS patients for DAPT. This analysis concurs with the data from the landmark TRITON and PLATO RCTs, suggesting these agents should be considered as the standard of care in the management of ACS.

Conflict of Interest None

35 THE IMPACT OF CARDIOVASCULAR DISEASE ON SEX-SPECIFIC ADVERSE OUTCOMES FOLLOWING INTACT ABDOMINAL AORTIC ANEURYSM REPAIR: A SYSTEMATIC REVIEW, META-ANALYSIS & META-REGRESSION

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Introduction Cardiovascular disease is a major cause of death in men with an AAA. Women experience higher operative mortality than men for open (OAR) and endovascular (EVAR) repair of intact abdominal aortic aneurysm (AAA), but the reason for this is not yet established. This study aimed to define differences in cardiovascular pre-operative co-morbidity and peri/post-operative complications for men and women under-going OAR and EVAR, to explore the impact of cardiovascular disease on adverse outcomes following intact AAA repair.

Methods A systematic review, meta-analysis and meta-regression of sex-specific differences in mortality and complications was conducted and reported according to PRISMA and Cochrane guidance, and registered with Prospero (CRD42020176398). Papers reporting outcomes for men and women, following intact primary AAA repair, from 2000-2020 world-wide were included. Separate analyses were conducted for EVAR and OAR. Data sources included: Medline, Embase and CENTRAL databases 2005-2020 searched using ProQuest Dialog™.