Conclusions: In our retrospective observational study of TAVI measurement variability, we found that there was no significant difference in the measurement variability of annular area or coronary heights between TAVI operators or our experienced radiographers. However, clinical decision making was altered on five occasions with changes in valve sizing due to minor measurement variability.

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Mechanical Circulatory Support for Semi – elective PCI in High-risk Patients with Extracorporeal Membranous Oxygenation (ECMO) Compared to Impella Heart Pump Device

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Background: Impella and Veno-Arterial extracorporeal membranous oxygenation (VA-ECMO) provide consistent augmentation of cardiac output, which can alleviate haemodynamic fluctuations during high-risk PCI. Paucity of data Australian exists.

Methods: We retrospectively analysed (January 2010–January 2019) Liverpool Cardiac Catheterisation and ICU database for consecutive patients receiving Impella or VA-ECMO support for semi-urgent high-risk PCI (non-shock).

Results: 6 patients received VA-ECMO (3 with adjunctive IABP) and 9 IMPELLA for non-operable (heart team) high risk PCI. VA – ECMO group mean age 70.8 ± 14.6 years (44-82). All with severe LV dysfunction and MVD (4 severe LM ischaemia+MVD post-NSTEMI). All had general anaesthesia and ICU admission [LOS 9.5 ± days (24 –1)] and surgical cannulation. VA-ECMO dwell time 18.2 ± 8.8 hours (3-24 hours). 6 access site complications [1 minor bleed, 5 major bleed (4 femoral, 1 aural)], 2 limb ischemia (1 amputation).

IMPELLA patients mean age (66.5 ± 14 years (92 –51)). Severe LV dysfunction in 77.3%, MVD (4 severe LM ischaemia + MVD post NSTEMI). Majority non-GA sedation (88%). Impella removed immediately post procedure. 2 cases required ICU [ICU LOS 0.5 – 1.3 days]. 6 access site complications [3 minor (2) major bleeds, (1) limb ischemia requiring OT].

Impella was associated with reduced post-PCI and ICU LOS compared to VA – ECMO. Post PCI LOS 7 ± 8.4 days, median 4 days vs VAECMO mean15 ± 7.7 days, median 13 days (p value = 0.04). All PCI cases were successful with a 0% mortality and complete recanalisation.

Conclusions: VA-ECMO and Impella support for high-risk PCI (complex anatomy/non-operable/poor LV function) achieves excellent results. VA ECMO is resource intensive with high access-site complications, IMPELLA associated with significantly reduced ICU admissions, and reduced post PCI length of stay.

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Multi-vessel Coronary Artery Disease in STEMI: Prevalence, Management and Impact on Length of Stay

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Background: St George Hospital is a tertiary facility located in Southern Sydney offering 24/7 PCI for STEMIs. The prevalence of multi-vessel coronary disease (MVD) in STEMI is significant and the decision to treat non-culprit (NC) arteries during the index procedure, as a staged procedure or to not treat at all is contentious. The aim of this study was to assess the prevalence of MVD during STEMI, interrogate the management and look at the overall length of stay.

Methods: Data was retrospectively collected from consecutive patients presenting with STEMI in 2017 and 2018. Demographic, procedural and outcome data was recorded.

Results: There were 190 STEMI during the study period. 107 (56%) patients had MVD. Of this 22 (20%) had NC PCI during the index procedure, 28 (26%) had NC PCI as an inpatient, 27 (25%) had NC PCI as an outpatient, 17 (16%) had inpatient CABG, 4 (3.5%) were referred for outpatient CABG and 22 (21%) were medically managed. Excluding 2 extreme outliers, the average length of stay for those who had NC PCI during the index procedure was 5.08 days and as an inpatient was 7.5 days.

Conclusion: MVD is common during STEMI. Patients who received NC PCI during the index procedure had an overall shorter length of stay compared to those who had NC PCI as an inpatient.

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Non-adherence to Anti-platelet Therapy Increases Long-term Mortality After Percutaneous Coronary Intervention: 5-year Outcomes from the GenesisCare Cardiovascular Outcomes Registry (GCOR)

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Introduction: Secondary prevention therapies including dual anti-platelet therapy (DAPT) are recommended after percutaneous coronary intervention (PCI). However, long-term outcomes of patients who cease anti-platelet medication are unknown.

Methods: Patients discharged on evidence-based medications were stratified into those continuing DAPT or anti-platelet monotherapy (MAPT), or no antiplatelet therapy at 2 years. We assessed the association of DAPT and MAPT adherence with 5-year all-cause mortality adjusted for baseline clinical and lesion characteristics,
Results: Data were available for 7091 patients undergoing PCI to from November 2008 - January 2018, with over 99% follow-up data for patients at 5 years. At discharge 98.9% of patients were prescribed anti-platelet therapy, and 91.2% received DAPT. Adherence at 1 and 2 years with DAPT was 67.1% and 32.8% respectively. Predictors of DAPT adherence at 2 years were age (OR 1.11, p<0.001), diabetes (OR 1.95, p=0.007), and peripheral vascular disease (OR 2.32, p<0.003).

Conclusion: Patients discharged on evidence-based anti-platelet therapy after PCI who continue this for 2 years continue to have greater freedom from all-cause death at 5 years than those who cease anti-platelet medication earlier. Those who cease DAPT therapy at 1 year then continue single antiplatelet therapy have similar rates of mortality to those who continue DAPT.

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658
Optimal Door-to-balloon Time for Primary Percutaneous Coronary Intervention in ST-elevation Myocardial Infarction
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Background: Door-to-balloon time (DTBT) for ST-elevation myocardial infarction (STEMI) is a key performance indicator by which hospital primary percutaneous coronary intervention (PPCI) services are assessed. Recently, European Society of Cardiology guidelines decreased their recommended DTBT from <90 minutes to ≤60 minutes, though with limited evidence. We aimed to evaluate the optimal DTBT for PPCI for STEMI.

Methods: We included all patients presenting with STEMI undergoing PPCI between 2013 and 2017 enrolled prospectively in the Victorian Coronary Outcomes Registry. Patients transferred from another facility, had prior thrombolysis, or DTBT >3 hours were excluded. Patients were divided into 4 groups based on DTBT (A: ≤60 minutes, B: 61-90 minutes, C: 91-120 minutes, D: 121-180 minutes). The primary endpoint was 30-day mortality.

Results: Of 5,200 patients included, the median DTBT was 64 minutes (IQR: 45-89), 76.2% achieved the current DTBT target of ≤90 minutes and 46.1% achieved a DTBT of ≤60 minutes. Longer DTBT was associated with older age, diabetes, less pre-hospital notification and more cardiogenic shock (all p<0.05). Longer DTBT was associated with higher mortality at 30-days (A: 3.8%, B: 9.0%, C: 10.8%, D: 11.8%, p<0.001). Multivariable analysis confirmed prolonged DTBT to be an independent predictor of higher 30-day mortality, with DTBT 61-90 minutes (OR 1.42, 95% CI 1.02,1.99, p=0.037) and DTBT 91-120 minutes (OR 1.85, 95% CI 1.24,2.75, p<0.003).

Conclusion: DTBT of ≤60 minutes for PPCI for STEMI is associated with significant reduction in 30-day mortality. Achieving a DTBT ≤60 minutes will require significant improvements in in-hospital and pre-hospital systems of care.

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659
Outcomes in Femoral Access Patients with Large Abdominal Circumference
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Background: One of the predictors of vascular complications in patients undergoing coronary angiography and percutaneous coronary intervention via femoral artery access (TFA), is obesity. Fat distribution may have a technical impact on accessing the femoral artery and control of bleeding afterward. We examined the outcomes of patients with abdominal circumference (AC) ≥100 cm in diameter from the Standard Versus Ultrasound-Guided (US) Radial and Femoral Access (SURF) Trial.

Methods: Of the 1388 patients randomised into radial or femoral access and standard or US-guidance in a 2x2 factorial design, 570 patients underwent TFA had AC measured. AC was measured at the level of the iliac crest. We analysed outcomes of patients with abdominal circumference (AC) ≥100 cm in diameter from the Standard Versus Ultrasound-Guided (US) Radial and Femoral Access (SURF) Trial.

Results: Of 5,200 patients included, the median DTBT was 64 minutes (IQR: 45-89), 76.2% achieved the current DTBT target of ≤90 minutes and 46.1% achieved a DTBT of ≤60 minutes. Longer DTBT was associated with older age, diabetes, less pre-hospital notification and more cardiogenic shock (all p<0.05). Longer DTBT was associated with higher mortality at 30-days (A: 3.8%, B: 9.0%, C: 10.8%, D: 11.8%, p<0.001). Multivariable analysis confirmed prolonged DTBT to be an independent predictor of higher 30-day mortality, with DTBT 61-90 minutes (OR 1.42, 95% CI 1.02,1.99, p=0.037) and DTBT 91-120 minutes (OR 1.85, 95% CI 1.24,2.75, p<0.003).

Conclusion: DTBT of ≤60 minutes for PPCI for STEMI is associated with significant reduction in 30-day mortality. Achieving a DTBT ≤60 minutes will require significant improvements in in-hospital and pre-hospital systems of care.