operation in high risk patients. In this systematic review, we assessed the outcomes of mitral valve-in-valve replacement.

**Methods:** A thorough computer-based search was performed using 4 major databases. We included studies utilising TMVIv replacement in failed bioprosthetic valves, mitral ring repairs and mitral clips. The 30-day and outcome of all-cause mortality, stroke, major bleeding and reintervention was analysed.

**Results:** Seventeen observational studies were included in the analysis which comprised of 558 patients (437 bioprosthetic mitral valves, 110 mitral rings and 11 mitral clips). The mean age was 75 years with 39% of patients being male. 42.7% (238 patients) had New York Heart Association class 3 or 4 symptoms. The mean Society of Thoracic Surgeons score was 12.5%. Mean preoperative left ventricular ejection fraction was 55.5%. Patients with underlying mitral valve disease included 13.1% (73 patients) with mitral stenosis, 28% (158 patients) with mitral regurgitation and 10% (58 patients) with mixed mitral disease. Overall analysis demonstrated a low 30-day all-cause mortality of 2.5%. The rates of stroke and bleeding were also low at 0.7% (4 patients) and 6.8% (38 patients) respectively. 2.7% (16 patients) required reintervention with 0.4% (2 patients) needing surgical replacement and 0.4% (2 patients) with further valve-in-valve procedure.

**Conclusion:** TMVIv is a safe and feasible option in patients with failed mitral valve prosthesis who are high surgical risk for re-operations.

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**Abnormal Nail Fold Capillaroscopy: Findings in Patients with Chronic Total Occlusions (CTO)**

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**Aims:** Nail fold capillaroscopy (NFC) allows a simple, non-invasive direct examination of the microvasculature. NFC abnormalities have previously been associated with a number of coronary artery disease processes, in particular microvascular dysfunction. We sought to determine the prevalence of NFC abnormalities in patients with a CTO.

**Methods & Results:** 81 patients presenting for coronary angiography between June 2018 and January 2019 were studied. NFC was performed in 77 patients using a standardised protocol, prior to coronary angiography. An abnormal NFC was defined as the presence of microhaemorrhages, dilated capillaries or tortuous capillaries. Of those patients who underwent NFC, 27 (35.1%) had a CTO, whilst 50 (64.9%) had non-CTO disease. NFC abnormalities have previously been associated with a number of coronary artery disease processes, in particular microvascular dysfunction. We sought to determine the prevalence of NFC abnormalities in patients with a CTO.

An abnormal NFC was seen more commonly in patients with a CTO as compared to those with non-obstructive CAD (33.3% vs 8%, *p<0.05*). Patients with an abnormal NFC were more likely to have hypercholesterolaemia, than those without (100% vs 89.1%, *p<0.01*). In patients with an abnormal NFC compared with those without, there was no difference in age, gender, presence of atrial fibrillation or other cardiovascular risk factors. In those with a CTO, there was no correlation between NFC findings and degree of collateralisation.

**Conclusions:** An abnormal NFC is more commonly seen in patients with a CTO, which may reflect higher degree of coronary artery disease and microvascular dysfunction. NFC should be further investigated to determine its utility in routine cardiovascular screening and assessment (Fig. 1).

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**Activated Clotting Time Does Not Predict Radial Access Bleeding Complications**

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**Background:** In femoral access, activated clotting time (ACT) is used to guide sheath removal to reduce bleeding access site complications. Our local radial access protocol mandates immediate sheath removal followed by a standardised compression time irrespective of heparin dosing. We hypothesized that end-of-case ACT was an independent predictor of radial access bleeding complications.

**Results:** Complete data was available for 235 patients, 52% of procedures were performed for acute coronary syndromes and 33% underwent PCI. The mean heparin dose was 5987 units (0–20 000 units) with a mean ACT 169 s (95–393). 8 patients experienced a significant bleeding complication – 6 patients with significant haematoma, 2 pseudoaneurysms.