diabetes mellitus (DM), 5 of which were diagnostic at presentation. 67 (45%) had undiagnosed dyslipidaemia. Of the 63 younger patients who had echocardiograms prior to discharge, 37 (48%) had evidence of left ventricular dysfunction.

Conclusion The gender imbalance observed in STEMI presentations was exaggerated in younger patients. Our study correlates with previous literature suggesting that smoking carries a greater attributable risk for AMI in patients ≤ 45 years and reinforces the importance of smoking cessation in young males. These patients have high rates of undiagnosed DM and dyslipidaemia. The high rate of LVD is likely to have a significant impact on health outcomes in this young population.

7 MANAGEMENT OF AORTIC ROOT ANEURYSMS; A SINGLE SURGEON EXPERIENCE OVER TWENTY YEARS

K O' Sullivan, A Graham. *Royal Victoria Hospital, Belfast, UK*

10.1136/heartjnl-2021-ICS.7

Introduction The aortic root is a complex anatomical structure. For many years, the Bentall operation was considered the gold standard approach to aortic root aneurysms regardless of the presence of absence of intrinsic lesions of the aortic valve. More recently valve sparing root replacement (VSRR) has been developed to avoid the requirement for anticoagulation particularly in younger patient cohorts with structurally normal valves and functional regurgitation. The purpose of this study is to review a single surgeon experience of managing aortic root aneurysms over twenty years. This includes the introduction of valve sparing root replacement and the associated learning curve.

Methods A retrospective institutional review of all patients undergoing aortic root surgery between 2003-2020 was undertaken. Data was retrieved from an institutional database search and patient follow-up attained from up to date regional electronic care records. Graphpad prism was used to carry out Kaplan Meier survival analysis comparing groups. A p value < 0.05 was considered statistically significant [table 1].

Results A total of 62 aortic root procedures were undertaken, 42 (69%) Bentall and 20 (31%) VSRR. VSRR was commenced in 2007 and the frequency increased over time. Of 23 VSRR undertaken, 20 were successful. Three of these

were for acute dissection. Mean follow up for Bentall patients was 98 months, for VSRR 62 months. Complications of Bentall included prosthetic valve endocarditis n=3 (7%), graft infection n=2 (5%), late cerebrovascular events n=3 (7%). There was no significant difference in survival between groups.

Conclusion While Bentall remains the gold standard therapy for aortic root aneurysms in many cases, valve sparing root replacement is an excellent option for well selected patients and our series demonstrated a lower incidence of serious endocarditis and graft infections. Furthermore, it carries the added advantage of not requiring anticoagulation in younger patients.

8 STENT OPTIMIZATION USING OPTICAL COHERENCE TOMOGRAPHY AND ITS PROGNOSTIC IMPLICATIONS AFTER PERCUTANEOUS CORONARY INTERVENTION

^{1,2,3}H Rai, ¹F Harzer, ⁴T Otsuka, ^{5,6}YS Abdelwahed, ⁷P Antuña, ⁸F Blachutzik, ⁹T Koppa, ⁴L Räber, ⁵DM Leistner, ⁷F Alfonso, ⁸H Nef, ¹M Seguchi, ¹A Aytakin, ¹E Xhepa, ¹S Kufner, ¹S Cassese, ⁹K-L Laugwitz, ^{2,10}RA Byrne, ^{1,11}A Kastrati, ^{1,11}M Joner. ¹Klinik für Herz- und Kreislauferkrankungen, Deutsches Herzzentrum München, Germany; ²Cardiovascular Research Institute Dublin, Mater Private Dublin, Ireland; ³School of Medicine, RCSI University of Medicine and Health Sciences; ⁴Universitätsklinik für Kardiologie, Inselspital Bern, Bern, Switzerland; ⁵Charité – Universitätsmedizin Berlin, Germany; ⁶DZHK (German Centre for Cardiovascular Research), partner site Berlin, Germany; ⁷Hospital Universitario de La Princesa and Universidad Autónoma de Madrid, Spain; ⁸Universitätsklinikum Gießen und Marburg, Giessen, Germany; ⁹Klinikum rechts der Isar, Munich, Germany; ¹⁰School of Pharmacy and Biomolecular Sciences, RCSI University of Medicine and Health Sciences; ¹¹DZHK (German Centre for Cardiovascular Research), partner site Munich Heart Alliance, Munich, Germany

10.1136/heartjnl-2021-ICS.8

Introduction Stent under-expansion has been known to be associated with worse outcomes. We sought to define optical coherence tomography (OCT) assessed optimal stent expansion index (SEI) which associates with lower incidence of major adverse cardiac events (MACE) during follow-up.

Methods We included 370 lesions who underwent PCI during 2012-2018 at five high volume European centers, with their final procedural results imaged using OCT. Stent expansion index (SEI) was calculated separately for both stent halves by dividing minimum stent area by the mean reference lumen area [(proximal reference area + distal reference area)/2]. (Figure 1, Panel A) Follow-up MACE was defined as a composite of all-cause death, myocardial infarction, stent thrombosis and target lesion revascularization.

Results A total of 316 cases (370 lesions) were analysed. Minimal stent area (MSA) of the whole cohort was 6.02 (4.65, 7.93) mm², while SEI was 0.79 (0.71, 0.86). During a median follow-up duration of 557 (326, 1,096) days, we recorded 47 (12.7%) incidences of MACE. Receiver operating characteristic (ROC) curve analysis identified 0.85 as SEI cut-off powered to predict MACE during follow-up (AUC= 0.60, sensitivity= 0.85, specificity= 0.34). (Figure 1, Panel B) MACE was observed in 38/249 (15.3%) of lesions with SEI <0.85 and in 9/121 (7.4%) of lesions with SEI ≥ 0.85 (p=0.03). Adaptive Lasso regression identified SEI <0.85 (OR=4.76, 95% CI=1.70-13.30, p=0.0029) and coronary calcification at baseline (OR=2.70, 95% CI=1.11-6.58, p=0.0292) as

Abstract 7 Table 1 Patient characteristics

	TRR n= 42	VSRR n= 20	Total n= 62
Reoperation for Bleeding	6 (14%)	3 (15%)	9 (14.5%)
Other Reoperation – Early	3 (7%)	0 (0%)	3 (5%)
Other Reoperation – Late	1 (2%)	1 (5%)	2 (3%)
Permanent CVA	4 (9%)	0 (0%)	4 (6%)
PPM	1 (2%)	1 (5%)	2 (3%)
Surgical infection – Early and late	5 (12%)	0 (0%)	5 (8%)
Prolonged ICU (in elective cases)	3 (7%)	0 (0%)	3 (5%)
Prosthetic valve endocarditis	3 (7%)	0 (0%)	3 (5%)
Aortic graft infection	2 (5%)	0 (0%)	2 (3%)
Lower respiratory tract infection	0 (0%)	1 (5%)	1 (2%)