

**Spiral flow:** where the IVC and SVC combine in a spiral, iv) **Complex flow:** involving multiple vortices arising from the IVC and SVC flow. (B)-

also unchanged post-ablation (median PCr/ATP 1.74 vs 1.82,  $p = 0.39$ ), irrespective of ablation success.

**Conclusions** Even 'lone' AF is associated with LV dysfunction and impaired myocardial energetics. LV function partially improves with recovery of SR early post-ablation, indicating an acute haemodynamic effect. However, ablation fails to normalise LV function or reverse energetic impairment at later follow-up. These novel findings suggest that human AF may be the consequence (rather than the cause) of an occult cardiomyopathic process that develops with ageing and risk factors. Comprehensive therapeutic strategies that target and reverse this phenotype may reduce AF recurrence and improve clinical outcomes.

## Valve Disease/Pericardial Disease/ Cardiomyopathy

### 139 COMPLICATED INFECTIVE AORTIC ENDOCARDITIS: COMPARISON OF DIFFERENT SURGICAL STRATEGIES

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**Introduction** Infective endocarditis (IE) of the aortic valve complicated by root involvement or an infected prosthesis is a life-threatening condition. While homografts have been promoted previously for treatment, root replacement using stentless bioprostheses (SBP) is an attractive alternative. Still, there

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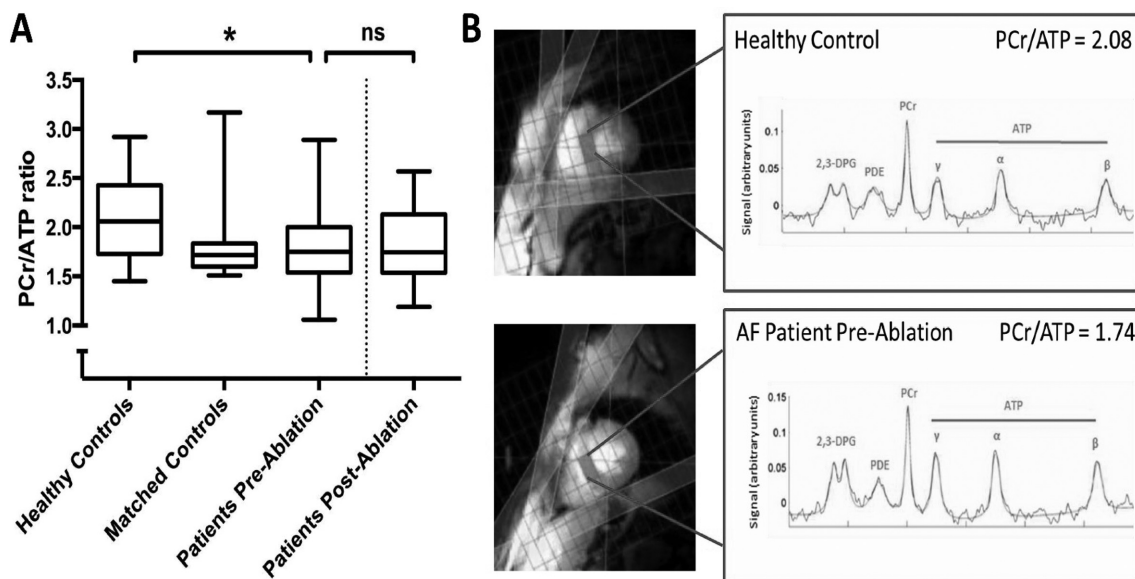
	Healthy Controls (n = 25)	Matched Controls (n = 18)	AF Patients (n = 53)	p value
Age (years)	51 (43–58)	66 (63–68) #	65 (57–70) #	<0.001
Male (%)	56	78	80	0.162
BMI (kg/m <sup>2</sup> )	25.7 (22–28)	27.4 (26–30)	27.2 (24–31) #	0.027
Resting pulse (bpm)	60 (54–66)	66 (60–71)	64 (54–80)	0.177
SBP (mmHg)	117 (110–125)	143 (125–157) #	130 (124–145) #	<0.001
DBP (mmHg)	70.9 ± 10	81.9 ± 12 #	81.3 ± 11 #	0.001

P value quoted from one-way ANOVA, Kruskal-Wallis test or Chi-square as appropriate. # denotes  $p < 0.05$  versus healthy controls. No statistically significant differences were detected between matched controls and AF patients on post-hoc testing.

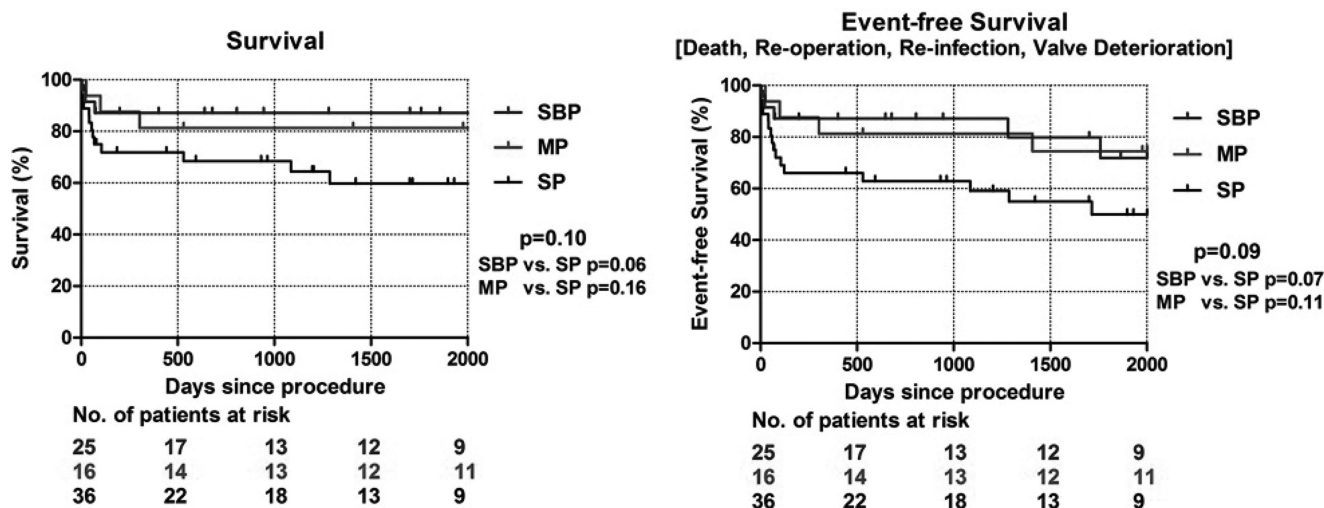
is ongoing debate about the optimal substitute in this setting. We compare outcomes of treatment with mechanical prostheses (MP), stented prostheses (SP) and SBP.

**Methods** Our in-hospital database was explored for patients treated surgically for aortic IE (2000–2015). Valve replacements with homografts were excluded ( $n = 12$ ). A total of 187 patients received MP ( $n = 45$ ), SP ( $n = 112$ ) or SBP ( $n = 30$ ). All patients with complicated IE (prosthetic valve endocarditis (PVE) or root involvement,  $n = 77$ ) were included as study cohort. The group was divided according to substitute received (MP ( $n = 16$ ), SP ( $n = 36$ ) and SBP ( $n = 25$ )). We analysed short-, long-term- and event-free-survival (100% complete).

**Results** SBP and SP patients were older (SBP:  $57.8 \pm 15.9$  yrs, MP:  $41.7 \pm 12.4$  yrs, SP:  $59.7 \pm 15.1$  yrs,  $p < 0.01$ ). SBP patients suffered more often from PVE (64.0% in SBP vs. 18.7% in MP and 36.1% in SP,  $p = 0.01$ ), and showed more often root involvement (100% in SBP vs. 93.7% in MP and 83.3% in SP,  $p = 0.08$ ). MP patients tended to have a higher rate of active intravenous drug use (SBP: 4.0%, MP: 25.0%,



**Abstract 138 Figure 1** (A) Myocardial energetics is impaired in patients compared to healthy controls, but not matched controls. (B) Representative 31P spectra from a mid-ventricular septal voxel in a healthy control (PCr/ATP ratio 2.08) and an AF patient pre-ablation (PCr/ATP ratio 1.74). PCr/ATP = ratio of area under phosphocreatine peak to average area under the three ATP peaks. Kruskal-Wallis test with post-hoc pairwise comparison adjusted for multiple testing (healthy controls, matched controls, patients pre-ablation) and separate related-samples Wilcoxon Signed Rank Test (patients pre-ablation and patients post-ablation). \*indicates  $p < 0.05$ ; centre line indicates median, box indicates interquartile range and error bars indicate range



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SP: 8.3%,  $p = 0.08$ ). Mean follow-up was 1489 days. Survival was best in the SBP group (87.1% vs. MP: 81.3%, SP: 71.9%) at one year and at five years (SBP: 87.1%, MP: 81.3%, SP: 59.8%, SBP vs. SP  $p = 0.06$ ). Event-free Survival was 87.1% (SBP), 81.3% (MP), 71.8% (SP) at one year and 74.5% (SBP), 71.8% (MP) and 49.9% (SP) at five years ( $p = 0.09$ ). Re-operation for re-infection occurred in 8.0% (SBP), 18.7% (MP) and 16.7% (SP) ( $p = 0.55$ ). No patient experienced valve deterioration.

**Conclusion** Despite a higher pre-operative risk of SBP patients, survival was similar compared to a younger cohort of MP patients and superior to patients with SP. This is most likely an effect of the more radical excision of infected material and should be the preferred surgical option particularly in older patients with complicated IE. In younger patients, the risk of re-infection should be weight against the risk of valve degeneration when the decision is made in favour of MP.

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#### TWO DECADES OF MITRAL VALVE SURGERY – TRENDS AND OUTCOMES IN ELDERLY PATIENTS

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**Introduction** Mitral valve (MV) surgery is the standard treatment for MV disease. During past decades interventional treatments were implemented, raising awareness of MV treatment particularly in the elderly patient group. We analysed changes of referral patterns, baseline characteristics and outcomes of elderly patients undergoing MV surgery during the past two decades.

**Methods** Our in-hospital database was retrospectively explored for patients treated surgically for MV disease. Patients with concomitant and redo-procedures, as well as endocarditis were left in the study cohorts. This yielded 1788 patients treated between 1994 and 2015. Of those 471 patients (26.3%) were aged  $\geq 75$  years. This group was further divided into two cohorts according to the year of their surgery, Decade-1 (1994–2005, total  $n = 701$ ,  $\geq 75$  yrs  $n = 113/16.1\%$ ) and Decade-2 (2006–2015, total  $n = 1087$ ,  $\geq 75$  yrs  $n = 358/32.9\%$ ).

**Results** Patient age increased from  $77.8 \pm 3.0$  yrs (Decade-1) to  $79.6 \pm 3.1$  yrs (Decade-2,  $p < 0.01$ ). Patients treated in Decade-1 were more likely to be in NYHA class IV (22.1% vs. 5.0%,  $p < 0.01$ ) and to have impaired renal-function (45.1% vs. 5.6%,  $p < 0.01$ ) and LV-Function (37.2% vs. 11.7%,  $p < 0.01$ ) as well as peripheral vascular disease (37.2% vs. 9.2%,  $p < 0.01$ ). Proportion of rheumatic MV disease decreased (26.5% [ $n = 30$ ] vs. 11.7% [ $n = 42$ ], while degenerative disease increased (43.4% [ $n = 49$ ] vs. 56.7% [ $n = 203$ ],  $p = 0.01$ ). The rate of MV-repair for degenerative disease increased from Decade-1 to 2 (51.0% [ $n = 25$ ] vs. 71.9% [ $n = 146$ ],  $p < 0.01$ ), the rate of re-operative procedures did not change (6.2% vs. 9.8%,  $p = 0.34$ ). MV surgery was more often performed as a combined procedure in Decade-2 (46.9% [ $n = 53$ ] vs. 62.6% [ $n = 224$ ],  $p < 0.01$ ). Correspondingly, ischaemic time increased from  $70.4 \pm 26.1$  to  $78.1 \pm 28.4$  min during the two decades ( $p = 0.01$ ). Post-operative 1-, 12- and 24 months survival improved significantly from Decade-1 to 2 (87.9%, 75.7%, 72.9% vs. 92.9%, 87.1%, 83.6%,  $p_{\text{logrank}}=0.01$ ).

**Conclusions** During two decades of MV surgery, the number of elderly patients increased and their survival continuously improved. While they were referred earlier for surgery, valve pathology changed towards degenerative disease, concomitant procedures increased and MV-repair was achieved more frequently.

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#### AORTIC ROOT REPLACEMENT IN PATIENTS WITH BICUSPID AORTIC VALVE DISEASE DOES NOT INCREASE OPERATIVE RISK – A SINGLE CENTRE EXPERIENCE

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**Objective** Bicuspid aortic valve disease (BAV) is associated with aortic root dilation (RD), increasing the risk of adverse aortic root events. Current guidelines recommend concomitant root replacement (ARR) in patients undergoing aortic valve replacement (AVR) when the root diameter (ARD) is  $\geq 45$  mm. However, ARR is believed to increase surgical risk and adherence to the guidelines is low. We reviewed current practice of