has not been fully established. This study aimed to explore optimal approach for FMR associated with ICM by reviewing the outcomes of our surgical cases. 

Methods: This study enrolled 74 cases (EF <40%), who underwent CABG with or without mitral valve surgery in the last 5 years. We performed CABG only in 56 patients with mild FMR, plus annuloplasty in 15 patients with moderate FMR, and plus chordal-preserving MVR in 3 patients with severe FMR. Preoperative EF was 33±6.6%, 32±9%, and 27±6%, respectively. Results: Two cases died within 30 days postoperatively. Actuarial survival of the CABG group was 90% in 1-year and 82% in 3-years. In this group, 42 cases (75%) presented less than mild degree of FMR postoperatively, while 27 cases (49%) showed greater than 5% -point increase of EF postoperatively. Three of the annuloplasty group and one case of the MVR group presented with cardiac death long-term, whereas all surviving cases were classified in NYHA functional class I or II at the latest clinical review. 

Conclusions: CABG improved LV function and reduced FMR in ICM patients, indicating that additional annuloplasty may be reasonable for moderate or more FMR. Chordal-preserving MVR may be the option in more advanced cases.

Workshop 5

WS5-2

Practical Applicability of Landiolol for Rapid AF and Refractory VT with Advanced LV Dysfunction

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Background: Landiolol effectively controls rapid atrial fibrillation or flutter (AF/AFL) and ventricular tachyarrhythmias (VTs) in patients with left ventricular (LV) dysfunction. However, predicting responders and patients who will experience adverse effects remains a challenge. This study was conducted to elucidate potential applicability of landiolol for rapid AF/AFL and refractory VTs in patients with advanced LV dysfunction. 

Methods: A total of 39 patients with AF/AFL with ventricular response ≥120 bpm and 12 with VTs refractory to class III anti-arrhythmic agents were retrospectively enrolled. Responders were defined for AF/AFL when ventricular response was suppressed to less than 110 bpm or decreased by ≥20% and for VTs when VTs did not relapse within 24 hours after starting landiolol.

Results: For AF/AFL (72±11 year-old, LVEF = 34±16%), 29 (74%) showed an adequate response within 3 hours. Of 29 responders, 9 (31%) experienced spontaneous sinus conversion. Only LVEF before starting ladiolol was associated with efficacy. For VTs (59 year-old, LVEF = 26±17%), 7 (58%) were responders. Adverse effect occurred in 5 patients, consisted entirely of hypotension, and related to enlarged LV dimensions and higher BNP level before landiolol infusion. 

Conclusions: Landiolol is effective in the advanced LV dysfunction patients with both AF/AFL and refractory VTs. Preserved LVEF is important for both efficacy and safety in landiolol treatment.

WS5-5

Implantable Cardioverter Debrillator in Heart Failure Patients with End-stage Renal Disease on Dialysis

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Background: Implantable cardioverter-debrillator (ICD) is an effective treatment to reduce the risk of sudden cardiac death (SCD) and all-cause mortality in high-risk patients with heart failure (HF). The aim of this study is to evaluate the mortality in ICD patients with end-stage renal disease (ESRD). 

Methods: We retrospectively evaluated 840 patients (58±15 years, 609 men) who were implanted ICD between 1990 and 2014. 43 patients (5%) undergoing dialysis for chronic renal failure were defined as having ESRD. Results: During a median follow-up period of 29 [12-70] months, 120 patients (15%) were died from any cause. ESRD patients had a significantly lowered mortality than other patients (21% vs. 15%, p<0.05). There was no difference in left ventricular ejection fraction (LVEF) and the rate of primary prevention for SCD between ESRD patients and others. Multivariate Cox regression analysis showed that ESRD (HR 2.23, 95% CI: 1.10-4.48, p<0.05), LVEF ≤35% (HR 2.42, 95% CI: 1.52-3.86, p<0.05) was the independent predictor of mortality in HF patients with ICD. 

Conclusions: ICD patients with ESRD have the significantly higher mortality than patients without ESRD. Strategies to reduce mortality among ICD patients with ESRD need exploration.

WS6-2

Crucial Roles of Rho-kinase, Cyclophilin A and its Receptor, Basigin, for Cardiac Hypertrophy, Fibrosis and Failure-Novel Therapeutic Targets

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The RhoA/Rho-kinase pathway plays an important role in various fundamental cellular functions, including contraction, motility, proliferation and apoptosis, whereas its excessive activity is involved in the pathogenesis of cardiovascular diseases by accelerating migration, proliferation, and inflammation. We have recently demonstrated that cyclophilin A (CypA) is secreted from VSMC, inflammatory cells, activated platelets and cardiac fibroblasts in response to several stimuli including angiotensin II and mechanical stretch, and promotes cardiac hypertrophy, fibrosis and failure. One of the recent topics is that the secretion of CypA, an important mediator of oxidative stress, is regulated by the RhoA/Rho-kinase system. Moreover, we have shown that basigin (Bsg), a transmembrane glycoprotein that activates MMPs, is one of the extracellular receptor for CypA and promotes cell proliferation and inflammation. Here, we developed tissue-specific genetically-modified mice (e.g. EN-Rock1/-, ROCK2/-, CypA+/-, Bsg+/-) and explored their roles in the development of cardiac hypertrophy and failure in mouse models. In vivo and in vitro studies demonstrated that the Rho-kinase-CypA-Bsg system plays a crucial role in cardiac hypertrophy, fibrosis, inflammation and dysfunction, suggesting that the system is a novel therapeutic target of heart failure (HF) in humans. In a clinical study, we have demonstrated that plasma CypA levels have prognostic impacts in HF patients, which are further enhanced when combined with BNP.

WS6-4

Regulation of Mitochondrial Functions by Sirtuin Proteins in Heart Failure Patients

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Sirtuins, NAD+-dependent protein deacetylases, have been reported to play a role in stress tolerance and longevity. There are seven isoforms of sirtuins, namely SIRT1-7. Among these, SIRT1 is the most intensively studied in cardiac tissues. SIRT1 and SIRT3 deacetylate diverse target molecules, resulting in promotion of ATP production, suppression of the opening of the mitochondrial permeability transition pore and decrease in production of reactive oxidative species in individual mitochondria. Furthermore, SIRT1 and SIRT3 promote turnover of mitochondria, thereby increasing the young and efficient population of mitochondria by generating fresh ones (mitogenesis) and removing damaged ones (mitophagy). All