

individualized counseling to every patient and their caretakers at every visit.

**Objective:** To determine the pharmaceutical care outcome of a clinical pharmacist in the HF Clinic, by evaluating the extent of dose optimization of guideline-recommended HF pharmacotherapy and improvement in patient outcomes such as New York Heart Association (NYHA) class and left ventricular ejection fraction (LVEF) 6 months after consistent follow up.

**Materials & methods:** Patients with HF reduced Ejection Fraction (HFrEF) recruited into the HF Clinic between April 2016 and January 2018, and who have completed 6-month follow up were included. Data was collected retrospectively. Baseline pharmacotherapy, NYHA class and LVEF were recorded at the first clinic visit and compared with corresponding parameters at 6 months.

**Result:** 100 patients were included. The cohort had a mean age of 52.46 ( $\pm 12.1$ ) years. 83% were males, 36% had an ischemic etiology, 29% had diabetes, 57% had hypertension and 22% had atrial fibrillation. At baseline, use of beta blocker (BB), angiotensin-converting enzyme inhibitor (ACEI) and mineralocorticoid receptor antagonist (MRA) was 86%, 70% and 56% respectively. At 6 months, this increased to 89%, 79% and 67% respectively. At baseline, those achieving optimal dosage for BB, ACEI and MRA were 8%, 6% and 11% respectively. At 6 months, this increased to 40%, 50% and 23% respectively. Half of them had a reduced diuretic requirement by 50% after 6 months. 29% of patients had symptomatic HF (NYHA class II or more) at baseline, decreasing to 4% at 6 months. The improvement in LVEF within 6 months was statistically significant (mean 37.3 $\pm$ 14.0 versus 27.5 $\pm$ 9.8,  $p < 0.001$ ).

**Conclusion:** The dedicated clinical pharmacist in the HF clinic reinforced the management strategy of the multidisciplinary team as described above. This was manifest in improvement in guideline-based pharmacotherapy, NYHA class and LVEF.

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### 33. Two-Dimensional Echocardiography Strain Imaging for Viability Assessment in Ischemic Cardiomyopathy: Comparison with Cardiac Magnetic Resonance Imaging

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**Background:** Two-dimensional (2D) speckle tracking echocardiography (STE) enables assessment of global and regional strain of the left ventricle (LV). Previous studies that strain imaging can ascertain myocardial viability. However, these studies were conducted principally in Europe and analysis done using EchoPac (General-Electric-Vingmed). There was no study using a different system (Philips-Qlab) and in an Asian population.

#### Objective:

- 1) To determine the correlation between segmental LV strain (Philips Qlab) and myocardial viability assessed by cardiac magnetic resonance (CMR).
- 2) To determine the cut-off value for segmental strain for viability.

**Methodology:** 150 patients with ischemic cardiomyopathy who had undergone viability assessment with CMR over a one-year period (2015) were retrospectively screened. Cine MRI followed by contrast enhanced MRI were done to assess LV function and the extent of scar tissue in each LV segment. Non-viable myocardium was defined as scar tissue of > 50% of wall thickness. Only 51 patients had 2D echocardiography images of sufficiently good quality to allow strain analysis. Analysis was done using the Philips Qlab (version 10.0).

**Results:** Majority of subjects were male (84.3%) with mean age of 58 $\pm$ 10 years. 37.3% had diabetes, 76.5% had hypertension, 60.8% had dyslipidaemia, and 49% were current smokers. All patients had undergone coronary angiography and 56.9% had triple vessel disease. 70.6% had LV ejection fraction (EF) of < 40%. A weak but significant correlation was found between global LV strain (GLS) and global extent of scar tissue ( $R = 0.36$ ,  $P = 0.011$ ). Mean segmental strain values for viable and non-viable myocardial segments were -17.00 $\pm$ 5.36% and -4.88 $\pm$ 2.41% respectively ( $P < 0.001$ ). A cut-off strain value of -7% had 84.07% sensitivity, 82.63% specificity, 56.3% positive predictive value, 95.1% negative predictive value and 82.9% accuracy in identifying non-viable myocardium.

**Conclusion:** Although GLS and total scar score had weak correlation, a cut-off strain value of -7% had good accuracy in discriminating between viable and non-viable LV segments when compared to contrast-enhanced CMR. Therefore, 2D STE may be an alternative method for assessing myocardial viability in patients with good echocardiography windows.

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### 34. Prevalence of Myocardial Bridging Detected With 320-Slice Multidetector Computed Tomography Coronary Angiography

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**Background:** Myocardial bridging is a congenital anomaly in which a portion of the coronary artery takes an intramuscular course resulting in a tunneled segment. Myocardial bridges are present in about one third of adults and most commonly localised in the middle segment of the left anterior descending coronary artery (LAD). Generally, myocardial bridging is described as benign condition with good prognosis, although this condition still contributes to ischaemia symptoms. The current gold standard for diagnosing it is by coronary angiography with the typical "milking effect" and a "step down step up" phenomenon induced by systolic compression of the tunneled segment. The milking effect may be missed in thin bridges, hence new imaging techniques such as computed tomography coronary angiography (CTCA) may be required to detect it. To date, there is no local data in Singapore reporting the prevalence of this frequent coronary anomaly.

**Objective:** The purpose of this study was to determine the prevalence of myocardial bridging in the study population and to assess the characteristic of anatomical myocardial bridging defined by CTCA.

**Methods:** A retrospective single centred study was conducted involving 560 patients who underwent CTCA examination at National