**Myocardial work and strain in heart failure with reduced ejection fraction (HFrEF) post medical therapy**

**Background**

Global myocardial work (GMW) and global longitudinal strain (GLS) are known imaging tools useful in assessing left ventricular performance. This data is limited in the heart failure population. Our retrospective audit aims to review these parameters in patients with reduced ejection fraction post guideline-based medication titration (GBMT).

**Method**

We reviewed seventy-nine consecutive patients referred to the heart function clinic at Auckland City Hospital between April 2021 and September 2022. 47 patients were excluded due to lack of imaging data. From the remaining 33 patients, demographic and imaging data was collected pre and post GBMT including left ventricular ejection fraction (LVEF), global work index (GWI) and global work efficiency (GWE).

**Results**

Of the 33 patients, the average age was 63 years (range 40-83), 18% were Māori and 30% Pacific. Mean BSA was 2.1m2 (+/- 0.3m2). Mean baseline LVEF was 27% (+/-8%), mean GLS was -8.7% (+/-3.1%),18% were in AFib/flutter and 6% in paced rhythm.

At the end of GBMT, 64% had LVEF < 40%, 18% 41-49% and 18% with LVEF >50%. Mean GLS was -10%, -15% and -17% respectively. Mean GWI was 901mmHg%, 1524mmHg% and 1828mmHg% and mean GWE was 79%, 88% and 92% respectively.

**Conclusion**

In this cohort, most patients did not recover their LVEF to over 40% with the strain and myocardial work remaining severely impaired. Those with LVEF improvement to mid-range had mild-moderately reduced GLS and GWE but normal GWI. Of those with complete LVEF recovery, GLS remained mildly impaired with normal GW parameters. Further studies with larger cohorts would add to the prognostic value of these additional imaging tools.