Late stimulation of myocardial recovery, following insertion of a continuous flow LVAD

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The use of mechanical assist devices for the treatment of advanced heart failure has increased dramatically in recent years.

Significant recovery of myocardial function following insertion of left ventricular assisted device (LVAD) occurs in a small percentage of patients due to unloading alone. Several strategies for enhancing the degree of recovery using combination therapy have been introduced. Most of these strategies depend on early use of pharmacologic agents to stimulate reverse remodelling followed by inducing physiologic hypertrophy.

We here report the use of the funny current inhibitor ivabradine late after insertion of Heart Mate II in Doha. This was performed following experimental studies in a small animal model which showed the drug induces reverse re-modelling when used in combination with unloading by abdominal heart transplantation. Sequential studies were performed using non-invasive myocardial function and exercise testing after reducing the pump speed to 6,000 RPM, which in effect stops forward flow through the pump. This was performed under full heparinisation. These tests have shown progressive recovery of function following the institution of the combination therapy.

Further studies using LVAD’s as a platform for recovery are being investigated at QCRC. These studies include formal exercise program and gene and cell therapy. In addition, an extensive basic science program to investigate the mechanisms of recovery is in progress.