**Service Priorities and Programmes**

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# Exercise training for patients with advanced heart failure after left ventricular assisted device implantation in out-patient cardiac rehabilitation program – first clinical experience in Hong Kong

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## Introduction

Left ventricular assisted device (LVAD) has been accepted as mechanical circulatory support for patient with end-stage systolic heart failure as bridge-to-transplant. Many of these patients were frail and severely deconditioned. Cardiac rehabilitation and exercise training has been shown to be safe and has an impact on exercise capacity and quality of life (QoL) in other countries.

## Objectives

(1)To set up the first Cardiac Rehabilitation (CR) as out-patient program and (2)to design a safe and effective tailor-made exercise training program for advanced heart failure with LVAD implantation in HK

## Methodology

The pilot phase was started after an oversea visit with exchange of knowledge in Singapore and subsequent completion of “HeartMateII® Clinical Operations and Patient Management Guide Learning Interactive” online. A total of 13 patients (12 male, 1 female) joined CR program 3-4 months after LVAD implantation in QMH. During the pilot phase, 2 male patients were successfully bridged to heart transplantation. Six patients (men 100%, mean age 56+7, BMI 25.5+5.7) completed the 12-month low intensity exercise program. Mean training session per patient was 20+7. Treadmill aerobic walking exercise and light resistance training for the large muscle groups of lower limbs were chosen as predominant exercise with frequency 1

session/1-2 week. The duration was started with 12.5+/-6 min. in beginning and progressed to 21+/-4 min. with 5-min. warm up and 5-min. cool down. Data were obtained and compared with baseline, 5 months and 12 months (end of CR program).

**Result**

There were statistically significant improvement in Six-Minute Walk Distance (403.83+/-38.73 to 462.83+/-28.79 & 464.67+/-57.56 meters respectively; both at $p<0.05$) and home walking exercise (108.33+/-63.46 to 250.83+/-137.20 & 265+/-122.11 min/week respectively, both at $P<0.05$) at mid-term and upon completion of CR. At the end of CR, functional capacity in term of New York Heart Association Classification and General-Health-Perception (SF-36) were improved significantly (2.33+/-0.82 to 1.5+/-0.55; 48.33+/-18.72 to 74.67+/-19.42 respectively, both at $p<0.05$). In conclusion, exercise program specifically designed for LVAD patients is safe and effective. CR program in GH offers an ideal setting for the provision of supervised tailor-made exercise training for this frail high risk group. With close collaboration with Cardiac LVAD team, our physiotherapy team has embraced the new technology with self-initiated, pro-active learning and regular reviews.