Abstract: P101

Cardiac rehabilitation program for end-stage heart failure patients with left ventricular assist devices in Hong Kong

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Background
Implantation of modern durable left ventricular assist device (LVAD) in advanced heart failure (HF) patients is associated with increased survival and improved quality of life. Exercise-based cardiac rehabilitation (EBCR) has been demonstrated to exercise capacity in HF patients but data on effect of EBCR in advanced HF patients with LVAD are limited.

Objectives
To evaluate the effect of EBCR program on the functional capacity of advanced heart failure patients with LVAD

Methods
Out of the current 64 LVAD recipients in Hong Kong, 43 patients who have had LVAD implanted and survived 1 year were screened. The EBCRP consisted of cardiorespiratory and strength training exercise once a week for a total of 24 sessions (6 months). The functional rehabilitation outcome was evaluated by 6 minute walk test (6MWT) at baseline, before LVAD implantation, pre-EBCR and by end of EBCP (6 months). The muscle strength was evaluated by an isokinetic knee extension strength test defined by 10 repetitive maximum (RM) torque of quadriceps strength before starting EBCR and at 6 months upon termination of EBCR.

Results
A total of 33 LVAD patients were recruited into our EBCR program. There were 27 (82%) men with mean age of 48.7±13.6 years. Average duration from LVAD surgery to commencement of EBCR was 5.3 months. Baseline 6MWT could not be performed in 21 patients due to extreme poor functional class (NYHA class IV) with prolonged hospitalizations requiring inotropes and circulatory support. For the other 12 patients, there were no significant differences in 6 MWT at baseline and post LVAD before starting EBCP. Overall 6MWT significantly improved by end of EBCR (pre- EBCR mean 382.2, ±95.2m vs post -EBCR mean 440.8 ±88.2m p= 0.001). There were significant improvement in quadriceps strength by the end of EBCRP program. (pre- CRP 1.8 ± 2.5 kg vs post CRP 3.5±3.5 kg p<0.001).

Conclusions
LVAD patients show high level of impairment of functional capacity despite after LVAD implantation with improved circulatory output. EBCR program allowed greater improvement in exercise capacity evolution and peripheral physiology such as muscle strengthening.