Service Priorities and Programmes

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Early physiotherapy intervention for patients after HeartMate II left ventricular assist device implantation

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Introduction

For the last ten to twenty years, the usage of internal mechanical circulatory assist device (left and/or right ventricular assist device) has been gaining ground in helping patients with end stage heart failure due to the limited supply of donor heart for heart transplantation. Literature has shown that these critically ill patients (INTERMACS Level 1-4) who might have bedridden for some time due to poor heart condition and other organ failure are complicated with neuromuscular deconditioning that impairs their physical function and subsequent quality of life. Studies have shown that mobilization of critically ill patients in the intensive care unit (ICU) can have a significant impact on functional outcomes. However, there is a lack of information regarding early rehabilitation in patients who require HeartMate II left ventricular assist device (LVAD).

Objectives

To report the outcomes of an early rehabilitation program for patients with HeartMate II left ventricular assist device (LVAD) implantation

Methodology

All patients admitted to the Cardiothoracic Surgical ICU for HeartMate II LVAD implantation were included in the study. Outcome measures included: (1) Day to extubation, (2) Day to sit-out, (3) Day to start walking exercise, (4) Day to tolerate walking 200 meters, (5) 6-minute walk test before discharge from hospital.

Result

From August 2010 to November 2012, eight patients received the HeartMate II LVAD implantation. All patients were male with a mean age of 50±6.77 at operation. One patient (12.5%) was excluded from the analysis due to severe neurological complication. The data of the remaining seven (87.5%) patients were analyzed. All patients were extubated as early as day one (1.57±0.49) and sat out of bed as early as day three (3.43±0.78) post-operatively. With a program of muscle strengthening exercise and balance training, most patients started walking exercise as early as day

six (6.71±1.47) after operation and by 15.25±2.56 days, they could tolerate walking exercise for a distance of 200 meters. The pre-discharge 6-minute walk test scored 316.00±98.86 meters. No complications were recorded due to early mobilization. Upon discharge from hospital, all patients had progressed from New York Heart Association (NYHA) Functional Classification Class IV to Class I & II. Early mobilization program has shown to be safe and can significantly improve the patients' physical function and subsequent quality of life.