INTRODUCTION

- In the U.S., 5.7 million people have heart failure (HF) with approximately 55,000 deaths per year. Recently, the left ventricular assist device (LVAD), a mechanical pump that restores normal hemodynamics and end-organ blood flow by supplementing the action of the dysfunctional left ventricle, has emerged as an alternative option to medical management of end-stage HF.
- In 2010, the HeartMate II was approved by the U.S. FDA for destination therapy, long-term support for patients who are not candidates for a heart transplantation. Results of studies showed that management of end-stage HF with a LVAD both as a bridge to transplantation and as destination therapy demonstrated improved quality of life and survival. More than 6000 LVADs have already been implanted in patients, given the unmet need for donor hearts and the increasing heart failure population, the incidence of LVAD use is expected to grow.

PURPOSE/OBJECTIVES

To study the functional outcomes of patients with left ventricular assist devices (LVAD) who were receiving inpatient rehabilitation

MATERIALS AND METHODS

- 11 patients (8 men, 3 women) average age 61.8 years old with class III or IV heart failure with LVAD were included in this retrospective cohort study
- Patients participated in a standard inpatient rehabilitation program for 3 hours/day
- Patient data was analyzed regarding demographics, pertinent clinical characteristics, LVAD model, and goal of LVAD therapy, acute care length of stay (LOS), functional independence measure (FIM) scores on admission, at time intervals during stay, and at discharge
- Outcome measures used were LOS, Change in functional status (FIM gain), FIM efficiency (FIM gain/IRU LOS), discharge destination (home, skilled nursing facility, or acute unit of the hospital)
- Descriptive statistics were used to analyze data including mean, standard deviation (SD), paired t-tests for comparison of subjects’ functional status at baseline and discharge

RESULTS

<table>
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<tr>
<th>Subject No.</th>
<th>Admission FIM</th>
<th>Discharge FIM</th>
<th>FIM Gain</th>
<th>FIM Efficiency</th>
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M = Functional Independence Measure, SI = study interval, IRU = inpatient rehabilitation unit
*The patients admitted to in IRU with cardiac diagnoses

DISCUSSION

- Patients with LVADs who were undergoing early intense rehabilitation, improved to performing ADLs by 12 weeks post implantation
- Establishing an inpatient rehabilitation program for patients with LVADs requires multidisciplinary collaboration among the LVAD team, rehab staff, and family members
- This study included a small sample size, sample of convenience, medical complexity and function varied, therapy regimes differed

CLINICAL SIGNIFICANCE

- Evidence shows that physical therapy and overall inpatient rehabilitation improves outcomes for patients that are post-LVAD implantation
- This suggests that inpatient rehabilitation units that are in close proximity to heart transplantation and LVAD centers should move towards implementing physical therapy programs for this patient population
- If physical therapy were to become a staple in rehabilitation of patients that are post-LVAD surgery, physical therapists may need further education on LVAD protocol, complications that occur with associated co-morbidities, and post-surgical LVAD complications.

CONCLUSION

- The patients with LVADs in this study achieved clinically meaningful functional gains from inpatient rehabilitation that compared favorably with national benchmarks for patients with cardiac diagnoses
- The majority of the subjects were discharged home. IRUs should consider implementing rehabilitation programs for this growing patient population.

REFERENCE


REFERENCES


ARTICLE #3 SUPPORTING EVIDENCE

- A third article titled “Effectiveness of Acute Inpatient Rehabilitation After Left Ventricular Assist Device Placement” determined effectiveness of acute inpatient rehabilitation with improving the functional status of patients with an LVAD placement
- Data analysis showed a mean improvement in the FIM scores of 22.05 from start of treatment to discharge. This article found a mean FIM efficiency of 2,374 and found that people who have undergone placement of an LVAD have improved function and ability to perform activities of daily living after admission to inpatient rehabilitation.