Heart failure (HF) is a complex clinical condition caused by structural or functional cardiac disorders that impair the ability of one or both ventricles to fill with or eject blood. Although many conditions may lead to HF, the predominant causes are ischaemic and non-ischaemic heart disease, and high blood pressure. (1) Heart transplantation remains the gold standard therapy for end-stage HF. Nevertheless, for patients who are ineligible for transplant, the available management options include destination therapy with left ventricular assist device (LVAD) or medical therapy. (2)

The purpose of this research is to determine whether LVAD or medical therapy is more effective in decreasing mortality and increasing functional status (measured by 6 min walk distance) in patients with end-stage HF. A search strategy was developed and applied to both PubMed and Scopus. Key terms such as heart failure, LVAD, medical therapy, functional status, fluid balance and quality of life were used. Exclusion criteria such as year and language of publication were applied to further refine the search results. The ten most relevant publications were used for the purpose of this research. HF affects an estimated five million patients in the United States. Of these, 60% have heart failure with left ventricular dysfunction and reduced ejection fraction. LVAD is a mechanical device that is surgically implanted into a patient’s chest to help restore blood flow and thus relieve symptoms such as fatigue and breathlessness. On the other hand, medical therapy includes aggressive use of angiotensin-converting enzyme inhibitors, beta blockers, diuretics, and to relieve congestion, create fluid balance and improve patient symptoms. Studies show therapy with permanent LVADs doubled the one-year survival of patients with end-stage heart failure as compared with medical treatment alone. Furthermore, LVAD patients experienced 340 days alive out of the hospital, compared with 180 for patients on medical therapy. (2)

Methods

Search PubMed and Scopus for: heart failure, medical therapy, left ventricular assist device and functional status

Results

What is more effective, LVAD or medical therapy in improving functional status and decreasing mortality rate in end-stage heart failure?

<table>
<thead>
<tr>
<th>Article</th>
<th>Research Design</th>
<th>Population</th>
<th>Measurements/Statistical Analyses</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogers et al. (2010)</td>
<td>Observational Study</td>
<td>All-cause advanced heart failure patients enrolled in the LVAD bridge to transplantation (n = 218) and medical therapy group (n = 377) were analyzed</td>
<td>The baseline severity was used as an a priori quality measure for the comparison of the two groups.</td>
<td>LVAD patients had a significant improvement in functional capacity compared to medical therapy patients.</td>
</tr>
</tbody>
</table>

Discussion

Comparative Effectiveness of Left Ventricular Assist Device (LVAD) and Medical Management in end-stage heart failure

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Abstract

Heart failure (HF) is a complex syndrome in which structural or functional cardiac disorders impair the ability of one or both ventricles to fill with or eject blood. Although many conditions may lead to HF, the predominant causes are ischaemic and non-ischaemic heart disease, and high blood pressure. Heart transplantation remains the gold standard therapy for end-stage HF. Nevertheless, for patients who are ineligible for transplant, the available management options include destination therapy with left ventricular assist device (LVAD) or medical therapy. The purpose of this research is to determine whether LVAD or medical therapy is more effective in decreasing mortality and increasing functional status (measured by 6 min walk distance) in patients with end-stage HF. A search strategy was developed and applied to both PubMed and Scopus. Key terms such as heart failure, LVAD, medical therapy, functional status, fluid balance and quality of life were used. Exclusion criteria such as year and language of publication were applied to further refine the search results. The ten most relevant publications were used for the purpose of this research. HF affects an estimated five million patients in the United States. Of these, 60% have heart failure with left ventricular dysfunction and reduced ejection fraction. LVAD is a mechanical device that is surgically implanted into a patient’s chest to help restore blood flow and thus relieve symptoms such as fatigue and breathlessness. On the other hand, medical therapy includes aggressive use of angiotensin-converting enzyme inhibitors, beta blockers, diuretics, and to relieve congestion, create fluid balance and improve patient symptoms. Studies show therapy with permanent LVADs doubled the one-year survival of patients with end-stage heart failure as compared with medical treatment alone. Furthermore, LVAD patients experienced 340 days alive out of the hospital, compared with 180 for patients on medical therapy.

Introduction

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Discussion

Findings:

- LVAD patients had a significant improvement in functional capacity compared to medical therapy patients.

Limitations of the Study:

- Only two search engines were used to search for literature.

Future research:

This study was performed in a selected patient population, and applicability to the broader population of non-transplant-dependent patients with HF, including those with less advanced heart failure and functional capacity was not determined.

Conclusion

Compared with LVAD, medical therapy produced similar survival and increased hospitalizations in functional class IV symptoms at baseline. However, despite this, the LVAD group had a lower mortality rate and a higher quality of life as measured by the 6 min walk distance, which improved to 350 and 360 m at 6 and 24 months, respectively. Survival with improved functional status was better with LVAD compared with medical therapy, suggesting a greater improvement in functional status and quality of life with LVAD.