

**Purpose:** Continuous-flow left ventricular assist devices (LVAD) have become the standard of care for patients with advanced heart failure as a bridge to heart transplant (HTx). Transplanting these patients is usually challenging and the influence of LVAD bridging on post-transplant outcomes remains controversial. Experienced centers have comparable post-transplant results with the LVAD bridging; however, the international registries continue to identify it as a risk factor for increased mortality after HTx. We evaluate the influence of the Organ Care System (OCS) as a method of graft preservation on the postoperative results and early survival in LVAD patients bridged to HTx.

**Methods:** Retrospective study of all LVAD patients bridged to HTx at a single center from 07.2007 to 11.2013. Outcomes in the patients transplanted with the grafts preserved with OCS (n=8) were compared with the ones preserved on ice (n=14)-Standard of care (SOC).

**Results:** During this period 135 patients were implanted with LVAD and 22 (16.3%) were bridged to HTx. There was no significant difference in donor age (OCS Vs SOC 38±12 Vs 33±10 yrs; p=0.28) and recipient age (42±15 Vs 46±13 yrs; p=0.48), in the donor characteristics (gender, cause of death, previous cardiac arrest, diabetes mellitus, inotropic support) or recipient baseline characteristics (gender, type of VAD, time on VAD support, driveline infection, pulmonary vascular resistance and renal function. 30 days survival was 100% vs. 78% (OCS vs. SOC).

**Conclusion:** The OCS reduces the cold ischemic time and insult of prolonged cold storage. It allows for optimization of logistics and extended and meticulous preparation of the VAD and recipient. Despite the significant increase in out of body time we observed less right heart failure, better graft function and the recipients required significantly less blood products. Postoperative results are excellent, and use of the OCS in the transplantation of VAD patients has become the standard of care in our clinical practice.

Table 1. Relevant data

	OCS (n=8)	SOC (n=14)	P value
Cold ischemic time	89.6 ± 16.9 (59 - 116)	203.3 ± 30.4 (146-253)	0.001
OCS run length	287±130 (132 - 464)	N/A	N/A
Out of body time	378±128 (215 - 521)	203.3 ± 30.4 (146-253)	0.002
Mechanical circulatory support	12.5%	64.3%	0.031
Inotropic support >1wk	12.5%	64.3%	0.031
Blood Loss 24h (ml)	725±176	2175±1716	0.047
Blood products transfused 24h (units)	13.1±7.4	29.1±11.4	0.002
Length inotropes-hours	104±105 (30-336)	186±89 (92-360)	0.092
Length inhaled Nitric Oxide-hours	25.7±19.8	47.5±30.6	0.088
Renal Replacement therapy	37.5%	78.6%	0.081
ITU stay-days	9.38±14.08 (2-44)	29.6 ± 22.9 (2-74)	0.035
Hospital stay-days	27.6±9.9 (16-44)	52.2 ± 36.5 (2-121)	0.033

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### Extended Bridge To Transplant: 4 Years Outcomes With 3rd Generation LVADs in an Era of Restricted Transplantation

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**Purpose:** Mechanical circulatory support is well established as a bridge to transplant (BTT) for patients in end-stage heart failure. In recent clinical trials BTT rates are approximately 30% at 6 months. In the UK however there is a significant discrepancy between the number of patients on the waiting list and availability of donors.

**Methods:** A review of 102 consecutive patients receiving a 3<sup>rd</sup> generation LVAD between January 2009 and September 2013.

**Results:** Consecutive patients (N: 102; female 13; mean age 47±13) with 3<sup>rd</sup> generation LVADs. Intermacs: 1 N=6, 2 N=37, 3 N=25 and 4 N=34. Median follow up was 620±462 days with a median duration of support of 445±422 days. All cause mortality was 26% and 37% at one and two years respectively and survival on device was 75% and 68% for the same time points. Older age (>50) was the most significant factor related to reduced survival (P<0.05), and this was predominantly related to death within the first 90 days. Intermacs groups 1+2 had worse outcomes at 90 days compared to Intermacs 3+4 (P<0.05). In our cohort only 14/102 patients were transplanted at a median of 334±347 days, and only 3 were transplanted in the first 6 months.

**Conclusion:** In this single centre cohort of BTT 3<sup>rd</sup> generation VAD implants with a low rate of transplantation, we demonstrate excellent survival with up to 4.5 years follow up. This extended bridge to transplantation practice argues strongly in favour of adoption of destination therapy in the UK.

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### Two-year Survival After Continuous-flow Left Ventricular Assist Device Versus Heart Transplantation: An Italian Single Centre Perspective

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**Purpose:** Donor shortage and their ageing, in particular in Europe, limit the availability and the probability of success of heart transplantation (HTx). Meanwhile, the outcome after left ventricular assist device (LVAD) implantation is improving, but data on direct comparison are few. The aim of this study is to compare 2-year outcome in prospective patients treated with HTx or LVAD in a single centre.

**Methods:** We evaluated 213 consecutive patients with advanced heart failure (HF) treated with continuous-flow LVAD (n=49) or HTx (n=164) from 1/2006 to 2/2012 and follow up until 11/2013. Two-year outcome were compared in the overall population and in subgroups (LVAD and HTx matched groups; LVAD as bridge-to-transplant (BTT) indication vs. HTx).

**Results:** LVAD patients had a worse hemodynamic and clinical preoperative profile in comparison with HTx patients. After a median follow up of 24 month (interquartile 15 to 24 months), with 180 (85%) patients reaching 2-year follow up, 48 deaths occurred: 14 among LVAD patients (0.24 per patient-year) vs. 34 among HTx patients (0.13 per patient-year). Kaplan Meier estimated 2-year survival was 71.4% in LVAD vs. 79.3% in HTx patients (HR for death 1.56; 95%CI 0.84-2.92; p=0.16 for LVAD vs. HTx). Two-year survival was not significantly different also when comparing matched groups of LVAD (71.8%) and HTx (76.9%) patients (HR= 1.35; 95%CI 0.56-3.28, p=0.50). Patients undergoing LVAD implant as BTT (n=22, 45%) showed non-significantly higher 2-year survival (90.9%) in comparison with HTx patients (79.3%; HR 0.43, 95%CI 0.10-1.80, p=0.25), despite a rate of HTx as low as 32% (n=7) in the LVAD group with BBT indication.

**Conclusion:** in the short to mid term, LVAD is becoming a competitive treatment in comparison with HTx. The potential for long term LVAD treatment and donor hearts allocation priorities represent the contemporary challenge.

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### Depression Does Not Affect Outcomes in Patients with Left Ventricular Assist Devices

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**Purpose:** Depression is prevalent in patients with heart failure (HF) and is associated with an increased mortality and rehospitalization rate. The prevalence and clinical impact of depression in patients with continuous-flow left ventricular assist devices (LVADs) has not been established.

**Methods:** We performed a retrospective cohort study of patients who survived their index admission for continuous-flow LVAD implantation. We identified