

at the forefront UChicago Medicine

Cost Comparison between Subclavian Artery Accessed Intra-Aortic Balloon Pump and NuPulseCV iVAS as a Bridge to Transplant

Thomas Lammy BS, Colleen LaBuhn APN, Pamela Combs PhD, Edith Gonzales APN, Takeyoshi Ota MD, Tae Song MD, David Onsager MD, Valluvan Jeevanandam MD.

University of Chicago Heart & Vascular Center

Background

Increased scrutiny over financial performance and outcomes across healthcare systems makes it crucial to find alternatives that add cost value while maintaining the highest standard of care for patients.

The Intra-Aortic Balloon Pump (IABP) can be used as a bridge to heart transplantation.

| Device | Age | Male | ICM | Support (days) | Cost |
|----------------|---------|----------|---------|-------------------|-----------|
| sIABP (n=6) | 59 ± 7 | 4 (67%) | 0 (0%) | 16 ± 7 | \$237,257 |
| iVAS (n=6) | 57 ± 14 | 6 (100%) | 3 (50%) | 66 ± 22 | \$360,727 |

Results

 Placing IABP through the subclavian artery (sIABP) allows the patient to ambulate and participate in physical therapy.

NuPulseCV iVAS is a minimally invasive support device that allows for long term support using the principles of counter pulsation

Blood Pump

Skin Interface Device (SID) transdermal electro-mechanical conduit; designed to minimize infection



Arterial Interface Device (AID) Maintains access to artery; Facilitates easy pump replacement

Internal Drive Line

Subcutaneous ECG leads Access to heart not needed



Patient Connector
Proprietary easy
connect/disconnect of
driveline by patient



\$50,000

| ,000 | | | | | | | |
|------|--|--|--|--|--|--|--|
| \$0 | | | | | | | |

| Device | Average Cost per Day |
|----------------|----------------------|
| sIABP (n=6) | \$14,828.00 |
| iVAS (n=6) | \$5,465.00 |

Comparison Chart

| | sIABP | iVAS | | |
|---|--------------------------------|--------------------------------------|--|--|
| Pneumatic Supply | Helium; wheeled 100lbs console | Ambient air; 5.7 lbs wearable driver | | |
| Location of support | ICU | Home | | |
| Complexity of Care | ICU nurse; hourly | Patient self care | | |
| Durability | Short term – days | Long term – months | | |
| Need for reoperation/re- positioning | High | Low | | |

Aim

The aim of this review is to compare the financial implications of a sIABP with iVAS as a bridge to heart transplant.

Methods

Chart review was performed prior to the new allocation system on 12 consecutive patients supported by either iVAS or sIABP that received a heart transplant.

For consistency, only patients that remained in the hospital on support until transplant were included. Metrics observed: hospital-operating costs and duration. (Metrics were broken down by patient from initiation of support to heart transplant.)

 Due to the small sample size, total payments were not included, eliminating the variance in hospital specific contracts and payer mix. There is a significant reduction in resource utilization with iVAS vs sIABP.

Conclusions

60% less cost (direct and indirect) per day on iVAS vs sIABP:

- Iess ICU with iVAS
- Iess need for repeat procedures with iVAS with increased durability/stability of the balloon.
- less need for PT due to increased independence with iVAS.