INITIAL RESULTS WITH A NOVEL INTRA-AORTIC CARDIORENAL SUPPORT DEVICE

Poster Contributions
Hall C
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Background: The Procyrion pump is an intra-aortic cardiorenal support device intended for heart failure (HF) patients refractory to medical management. Procyrion reduces dependence on hospital care by unloading the heart and perfusing the kidneys, diuresing the patient and improving HF symptoms caused by fluid overload.

Methods: Using a large animal model of heart failure, the Procyrion pump was implanted via catheter into the descending aorta, upstream of the renal arteries and downstream of the aortic arch. Acute hemodynamics measurements, including PV Loops, various pressures, urine output, and organ perfusion, were made to study the pump’s effects on heart failure.

Results: Initial results show significant decrease in afterload, improved myocardial oxygen supply/demand ratio, and significant increases in renal perfusion and urine output. Indicators and PV loop calculations also show other hemodynamic benefits, including increased cardiac contractility, ejection fraction, ventricular pressures, and volumes.

Conclusion: In addition to improving kidney perfusion to acutely correct fluid balance, an ideal long-term implantable and ambulatory device for cardiorenal HF patients also reduces afterload and minimizes coronary steal. The present work suggests the Procyrion pump may be able to simultaneously meet each of these goals in a clinically effective manner.