

EARLY EXPERIENCE WITH PULSATILE CATHETER (PUCA) PUMP FOR HEART FAILURE.

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Objectives: Recent advances in circulatory devices for short-term support aim to effectively unload a distended and failing left ventricle and thereby improve the hemodynamics. We have found interest in the newly and inexpensive developed commercially available pulsatile catheter (PUCA) pump.

Methods: The PUCA pump is a simple designed catheter with no active parts, which may be used minimally invasive in heart failure patients, with the tip inflow introduced via subclavian artery or ascending aorta into the left ventricle. The catheter outflow valve is positioned above the aortic valve. The catheter is connected to a membrane pump outside the body which is activated by commercially available intraaortic balloon drivers. **Results:** In an adult pig weighing 50 kgs, a Swan Ganz catheter (SG) and transesophageal echocardiography (TOE) were placed. Then sternotomy, heparinization and cannulation via the right carotid artery (due to the anatomics in pigs) were performed. The PUCA pump catheter tip was introduced into the left ventricle and the position of the catheter tip and the catheter outflow valve were verified by TOE. The PUCA pump was able to pump up to 3L/min, even if the heart was fibrillating. The measurements were documented by SG and TOE.

Conclusions: The PUCA pump may have an indication for short-term left ventricle support in patients where inotropy and intraaortic balloon pump is not enough to unload left ventricle effectively.