Publication Brief

Comparison of Dynamic versus Static Variables in a Post Cardiopulmonary (CP) Arrest Pediatric Animal Model

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BACKGROUND
- Cardiac output (CO) and preload parameters are vital for the treatment of patients surviving cardiac arrest.
- Clinical cardiovascular monitors are invasive and complex so often do not measure CO and blood volumes.
- COstatus® offers a minimally invasive way to measure cardiac output, central blood volume (CBV) and total end diastolic volume (TEDV).

OBJECTIVE
To compare COstatus® values with intracardiac Millar Pressure Volume Catheter (MPVS) in a post-arrest pediatric animal model.

STUDY
- 8 anesthetized ~2-month old piglets were resuscitated after 4 minutes of untreated ventricular fibrillation.
- Animals were maintained in spontaneous circulatory low CO flow state for 120 minutes as CO, TEDV and CBV were measured by ultrasound dilution and compared to intracardiac left ventricle Millar pressure measurements.
- Measurements were taken at baseline before arrest and in the low CO flow state. Data was analyzed by Bland Altman and -nova., \( p \leq 0.05 \) was considered significant.

RESULTS
- 6 animals survived to the end of the CO low flow state. 96 comparisons were made.
- Post arrest altered CO, MAP and CBV, but not TEDV.
- CO and TEDV demonstrated good agreement to MPVS and end diastolic volume (EDV) throughout study.

STUDY’S CONCLUSIONS
- COstatus® is a viable alternative for measuring cardiac parameters when compared to intracardiac pressure volume catheter measurements in pediatric critical care.

COSTATUS® OBSERVATIONS
- Validation of COstatus® measurements against intracardiac pressure volume catheter measurements (Millar).

REFERENCES