



Imaging

CARDIAC POWER OUTPUT IN CRITICALLY ILL SURGICAL PATIENTS: A SIMULTANEOUS PULMONARY ARTERY CATHETERIZATION AND TRANSTHORACIC ECHOCARDIOGRAPHY STUDY

Poster Contributions

Poster Sessions, Expo North

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Introduction: Cardiac power output (CPO) (W) is a novel hemodynamic endpoint of resuscitation. A paucity of data exists as to the non-invasive estimation of CPO in surgical intensive care unit (ICU) patients.

Methods: This 48 hours study enrolled 32 critically ill and/or injured adult surgical patients within 6 hours of ICU admission at a Level I Trauma Center. All patients required mechanical ventilation. Serial pulmonary artery catheter (PAC) and transthoracic echocardiography (TTE) measurements were obtained every 12 hrs (total = 5 points/patient). Cardiac power output [(mean arterial pressure x cardiac output)/451] was calculated using cardiac output obtained invasively by PAC and non-invasively by TTE. Pearson correlation coefficient and intraclass correlation (ICC) assessed relationship and agreement, respectively, between PAC and TTE measures of CPO. Repeated measures analysis of variance compared trends of CPO amongst survivors and non-survivors.

Results: The mean age was 49±20 years, 69% were male, and 84% were trauma patients with a mean Injury Severity Score of 24±10. Cardiac power output from PAC and TTE was significantly related (Pearson correlations, 0.65 to 0.78) and agreed moderately (ICC, 0.65 to 0.76) (all p <0.001). Serial CPO by PAC ranged from (0.66 to 2.70) W; (0.65 to 2.89) W; (0.58 to 2.84) W; (0.60 to 3.03) W; and (0.79 to 2.51) W. Regarding CPO trend, survivors did not differ from non-survivors on repeated measures over 5 points.

Conclusions: There were moderate to strong correlation and agreement between PAC and TTE derived CPO. None had a very low CPO (≤ 0.53 W) in this cohort, and there was no significant difference in trends of CPO amongst survivors and non-survivors over 48 hours of resuscitation.