Category :**Cardiovascular: Monitoring**

A103 - ***Right ventricular pressure monitoring in acute ischemic right ventricular dysfunction: an animal model***

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Introduction:

Right ventricular dysfunction is a major cause of morbidity and mortality in intensive care and cardiac surgery. Early detection of right ventricular dysfunction may be facilitated by continuous right ventricular monitoring strategies. The objective is to evaluate the relationship between hemodynamic parameters derived from the right ventricular pressure monitoring and the right ventricular end-systolic elastance (Ees) in a right ventricular ischemic model.

Methods:

Acute ischemic right ventricular dysfunction was induced in 10 anesthetized pigs by progressive embolization of microsphere in the right coronary artery. Right ventricular hemodynamic performance was assessed using the Ees from a right ventricular conductance catheter during inferior vena cava occlusion.

Results:

Acute ischemia resulted in a significant reduction in right ventricular Ees from 0.26 (interquartile range: 0.16 to 0.32) to 0.14 (0.11 to 0.19) mmHg·ml-1, $p<0.010$), cardiac output from 6.3 (5.7 to 7) to 4.5 (3.9 to 5.2) l/min, $p=0.007$, mean systemic arterial pressure from 72 (66 to 74) to 51 (46 to 56) mmHg, $p<0.001$, and SvO2 from 65 (57 to 72) to 41 (35 to 45) %, $p<0.001$). Linear mixed-effect model analysis was used for assessing the relationship between Ees and right ventricular pressure derived parameters. The reduction in right ventricular Ees best correlated with a reduction in dP/dtmax and single-beat Ees. Normalizing dP/dtmax by heart rate resulted in an improved surrogate of Ees.

Conclusion:

Stepwise decreases in right ventricular Ees during acute ischemic right ventricular dysfunction were tracked by dP/dtmax derived from the right ventricular pressure waveform.