

METHOD FOR ESTIMATING THE VENTRICULAR STROKE VOLUME FROM THE PULMONARY ARTERY PRESSURE

A researches from Fundación Jiménez Díaz, CIBER, and CIC BiomaGUNE have developed a method for estimating ventricular stroke volume from the pulmonary artery pressure, a method for estimating stroke volume variation over the respiratory cycle from the pulmonary artery pressure, an apparatus of the same and a computer program product of the same.

The Need

Estimation of left ventricle stroke volume (SV) by systemic arterial pressure waveform analysis (PWA) has been extensively studied and has multiple clinical applications, mostly in critical care. The role of right ventricle (RV) performance during acute conditions is being increasingly remarked during the last years, so there is an increasing need of pulmonary hemodynamic monitoring in clinical.

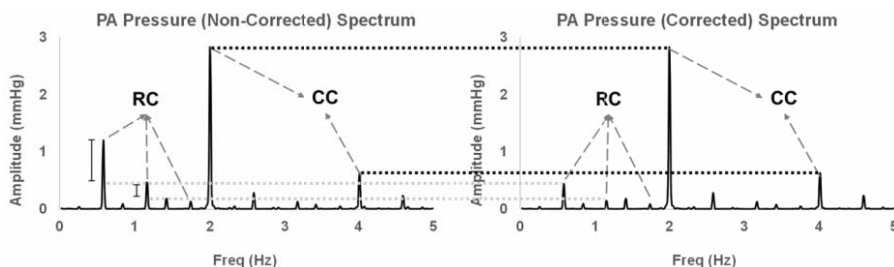
The Solution

In this regard, beat by beat evaluation of RV SV can bring physiological insights useful to improve clinical pulmonary hemodynamic monitoring tools.

It has been designed a new device that simultaneously acquires pulmonary artery pressure or flow from monitoring devices commonly used in intensive care patients. The subsequent analysis of these signals makes it possible to carry out the correction and obtain the variables for the estimation of the right ventricular stroke volume and its variability.

Innovative Aspects

- It provides the correlation between the values measured beat by beat between the right ventricular stroke volume and the different measurements made in the pulmonary artery pressure.
- Right ventricular stroke volume can be estimated by analyzing the morphology of the pulmonary artery pressure curve.
- The respiratory components (RC) of PAP signal are significantly reduced without affecting the cardiac components (CC) of the PAP signal.
- It works independently on the state of the subject.



Effect of correction on PA pressure amplitude spectrum. Flow amplitude spectrum is shown in upper panel for reference. Correction decreased the respiratory component without affecting the cardiac component.

Stage of Development:

Validated in animal models (pigs).

Intellectual Property:

European patent application filed (february, 15th 2023). Suitable for international extension (PCT application).

Aims

Looking for a partner interested in a license and/or a collaboration agreement to develop and exploit this asset.

Contact details