

Non invasive method to monitor arterial and cardiac hemodynamic parameters during systolic phase

Domaines d'application

Hemodynamics parameters monitoring – Cardiovascular diseases - Aging

Contexte

Total arterial stiffness plays a contributory role throughout aging and in numerous cardiovascular diseases, including arterial hypertension. Aortic stiffening is responsible for an increased characteristic impedance (ie, the impedance to the left ventricular pulsatile flow), thus increasing the forward pressure-wave amplitude that contributes to pulse pressure elevation. Aortic stiffening also increases pulse wave velocity, and this results in anticipated and enhanced wave reflections, further augmenting central pulse pressure. Unfortunately, there is no simple time-domain estimate of characteristic impedance. Furthermore, recent guidelines have reviewed the limitations of diastolic pulse contour analysis to estimate arterial stiffness in the time-domain.

Description de la Technologie

The invention concerns a non-invasive process for calculating an index of arterial stiffness or a stroke volume. Using the analysis of pulse wave velocity extracted from a recorded pressure of an artery, we developed and validated simple equations to monitor these hemodynamic parameters during the systolic phase.

Stade de Développement

Prototype validation is ongoing in an intensive care unit.
AP-HP is looking for an industrial partner to bring the product to the market.

Propriété Intellectuelle

Published patent US application
Israël/ European/ Canada patent application, PCT application