Glen Atlas, J Bioengineer & Biomedical Sci 2015, 5:1
http://dx.doi.org/10.4172/2155-9538.S1.002

OMICS International
conferenceseries.com

International Conference on
Significant Advances in Biomedical Engineering
April 27-29, 2015 Philadelphia, USA

Additional Hemodynamic measurements with the Esophageal Doppler monitor

Glen Atlas
Rutgers New Jersey Medical School, USA

The Esophageal Doppler Monitor (EDM) has traditionally been used for the minimally-invasive and continuous assessment of both cardiac output and intravascular volume. These measurements are based upon a beat-to-beat analysis of the velocity of distal thoracic aortic blood flow. The purpose of this paper is to compare the different mathematical models of LV contractile function which could utilize the EDM. These include velocity-based models: Peak velocity, (PV); ejection fraction, EF, $\overline{EF}$; and maximum LV radial shortening velocity, max|dR/dt|. Also examined are acceleration-based models: Mean acceleration, (MA); force, (F); the maximum rate of rise of systolic arterial blood pressure, max(dP/dt); and kinetic energy, (KE). When normalized and subsequently observed on a dimensionless basis, acceleration-based models appear to have a statistically significant greater sensitivity to changes in LV contractility. Furthermore, by combining simultaneous arterial blood pressure measurements with EDM-based flow information, the components of afterload and their effects on LV contractility could be estimated.Future research is warranted to determine the applicability and limitations of the EDM in assessing LV contractility and related hemodynamic parameters.

Biography

Glen Atlas is a Professor in the Department of Anesthesiology at Rutgers New Jersey Medical School and is an Adjunct Clinical Professor in the Department of Chemistry, Chemical Biology and Biomedical Engineering at Stevens Institute of Technology. He is also an adjunct member of the graduate Faculty at Rutgers University, Department of Biomedical Engineering.

glenatlasmd@gmail.com

Notes: