

NON INVASIVE ESTIMATION OF LEFT ATRIAL PRESSURE AND MITRAL VALVE AREA WAVEFORMS DURING AN ENTIRE CARDIAC CYCLE

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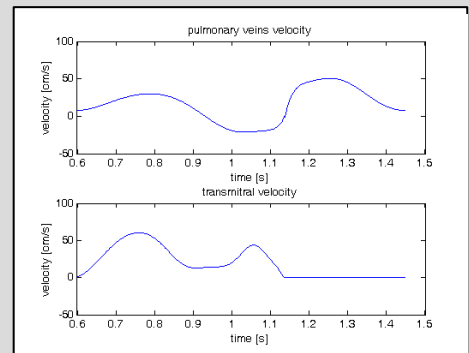
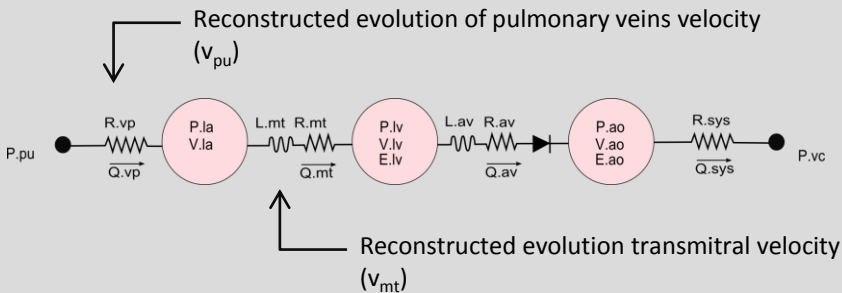
Abstract

To study heart and cardiac valve dysfunction, cardiologists need information about flow and pressures. Non-invasive information about pressure is actually limited to indices at some specified times based on trans-mitral and pulmonary flows. These data are typically obtained from echocardiographic measurements.

In this paper, we show that using a previously validated model of the cardiovascular system (CVS), with non-invasive echocardiographic (echo) measurements allows for a continuous evaluation of the left atrial pressure as well as the mitral valve area evolution.

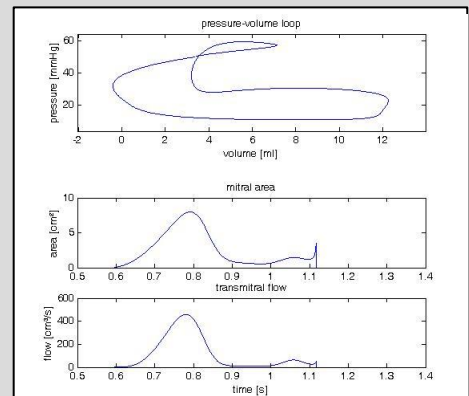
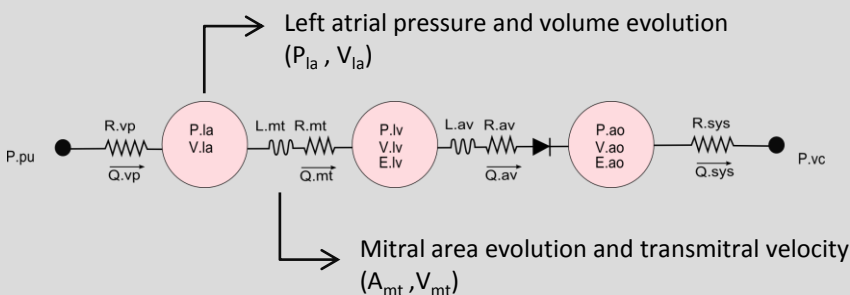
Methods & Results

Echo data as an input of the CVS model



Data from the average of several echo measurements normalized to a cardiac cycle of 0.85s.

Results from simulations



Conclusion

This model allows for a continuous evaluation of the left atrial pressure as well as the mitral valve area evolution using non-invasive echo data.

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