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Research Details :

Research Title	: *A novel method for the assessment of the accuracy of computing laminar flow stroke volumes* *A novel method for the assessment of the accuracy of computing laminar flow stroke volumes*
Descriptipn	: Aims: Laminar flow stroke volume (SV) quantification in the ascending aorta or pulmonary artery can provide a measure for determining cardiac output (CO). Comparing flows across different valves can also compute shunt volumes and regurgitant fractions. Quantification methods for 3D color Doppler laminar flow volumes have been developed using reconstructive 3D, but these are cumbersome and time-consuming both in acquisition and measurement. Our study evaluated newly developed color Doppler mapping with real-time live 3D echo to test velocity, spatial and temporal resolution for computing SV. Methods and results: Five rubber tubes (diametersZ3.0, 2.25, 2.0, 1.9, 1.7 cm), a freshly dissected porcine aorta (Ao) and a pulmonary artery (PA) (both 2e3 cm diameter) were connected to a pulsatile pump in a water bath. Different SV, from 10 to 80 ml/beat, were studied at pump rates of 40e60 bpm in this phantom model with flow quantified by timed collection. The Nyquist limit was set between 43 and 100 cm/s and frame rate ranged from 14 to 23/s. ECG triggered 3D color Doppler volumes were acquired with a 2e4 MHz probe. The digital scan line data from the 3D volumes, with retained velocity assignments, was exported and analyzed offline by MatLab custom software
Research Type	: Article
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Researchers :

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Attatchments :

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