

IMAGING AND DIAGNOSTIC TESTING

REAL-TIME THREE-DIMENSIONAL QUANTITATIVE ECHOCARDIOGRAPHY ASSESSMENT OF RIGHT AND LEFT VENTRICULAR MASS IN HEALTHY HUMAN FETUSES

ACC Poster Contributions
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Background: Our goals in this study were to verify the feasibility of 3D echocardiography measurement on healthy human fetuses, and to develop normal values of fetal ventricular mass during the second and third trimesters.

Methods: 49 consented healthy pregnant women at perinatology clinics received high-resolution real-time 3D echocardiography with the SONOS 7500 echo system using a multifrequency X4 matrix array transducer (Philips). Real-time fetal right and left ventricular (RV,LV) 3D data were analyzed by TomTec 3D view software (TomTec Imaging, Germany) to trace endocardial and epicardial boundaries.

Results: Borders were visualized for tracing in all 49 fetuses at 16.0-34.1 weeks gestation (mean 23.79±4.71 weeks); LV masses at end diastole (ED) ranged from 0.168~5.912g (mean 1.746 ± 1.320g) while LV masses at end systole (ES) ranged from 0.179~5.198g (mean 1.730 ± 1.153; p = NS); RV masses at ED were 0.273~4.883g (mean 1.679 ± 1.130g) and masses at ES were 0.179~5.145g (mean 1.625 ± 1.002g). The ventricular mass correlated exponentially with gestation age, appearing as a change in slope at 27 to 29 weeks, and the volume/mass ratio of each ventricle correlated linearly with gestation age.

Conclusions: Fetal ventricular chamber masses could be measured both at ED and ES and were not significantly different when measured by real-time 3D echocardiography.

