Conclusion

In normal fetuses, the DPVBs and DPVBd increase with the growth of GA, and have good correlation with GA, BPD, FL and PA respectively. Normal reference ranges of DPVBs and DPVBd have been provided. These normative data may be a new tool for assessment of fetal heart, especially has potential applications in screening of complex congenital heart defects.

EP13.08 Quantification the distance of pulmonary valve to pulmonary artery bifurcation of normal fetuses in second and late trimester

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Objectives

To quantitatively study the distance of pulmonary valve to pulmonary artery bifurcation (DPVB) of normal fetuses in second and late trimester using fetal echocardiography.

Methods

The distances between pulmonary valve to pulmonary artery bifurcation in end-systole (DPVBs) and in end-diastole (DPVBd) were measured in a standard short axis view or right ventricular outflow tract view using fetal echocardiography on 419 normal fetuses. The gestation ages ranged from 20 to 35+ weeks. Fetal non-cardiac biometric parameters included biparietal diameter (BPD), femoral length (FL) and gestation age (GA) based on menstrual age, pulmonary valve annulus diameters (PA) at end-systole were measured. The correlation between DPVBs, DPVBd with non-cardiac biometric parameters were analyzed.

Results

In normal fetuses, the DPVBs was (1.14 ± 0.24) cm with a range of 0.67 to 1.61 cm, the DPVBd was (0.93 ± 0.20) cm with a range of 0.53 to 1.33 cm. The DPVBs and DPVBd were found increased with the growth of GA, and were positively correlated with GA, BPD, FL and PA, (r=0.827, 0.798, 0.793, 0.769; 0.802, 0.764, 0.773 and 0.771, respectively, all P<0.001). The linear regression equations between DPVBs, DPVBd and GA, BPD, FL, PA were: Y= 0.054 × GA - 0.369; Y=0.184 × BPD-0.179; Y=0.217 × FL+0.011; Y=1.602 × PA+0.156; Y = 0.045 × GA-0.330; Y=0.152 × BPD -0.157; Y=0.182 × FL-0.018; Y =1.380 × PA+0.080.

Figure 1. The end-systolic distance (DPVBs) between pulmonary valve and bifurcation measured by 2D echocardiography

Figure 2. The end-diastolic distance (DPVBd) between pulmonary valve and bifurcation measured in 2D echocardiography