EP10.23-Fetal echocardiography/ normal reference ranges for the three-vessel view for the Japanese population

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Objectives
Many paper illustrates the importance of the three-vessel view (3VV) in fetal heart screening. However, the reference range for the 3VV has not been fully investigated. And the racial variability in fetal size and development can lead to variability in the size of fetal cardiac structures. The purpose of this study was to establish the gestational age (GA) specific reference range of the size of the 3VV in the Japanese population and to examine the result.

Methods
Two hundred Japanese uncomplicated singleton pregnancies with normal fetal hearts between 20-35 weeks of gestational age were included. We excluded all fetal echocardiographic examinations with abnormal findings and incomplete images. Informed consent was obtained from each mother, we conducted a prospective fetal echocardiographic evaluation of the size of the pulmonary artery (PA), the aorta (AO) and the superior vena cava (SVC) in the 3VV. We then calculated the PA/AO ratio.

Results
Strong correlations were found between the size of the 3VV and GA (p<0.001). The mean ratio of PA/ AO was 1.23±0.009, (95%CI 1.21-1.25) and that was not associated with GA (p=0.25).

Conclusions
Our study have provided the reference values of fetal heart three-vessel diameters during gestation for Japanese population. We showed that each vessel size was strongly correlated with gestational age and the ratio of PA/ AO takes a fixed value. Therefore, when the three-vessel view is scanned as a part of standard evaluation during prenatal screening, the interpretation of vessel size needs to be adjusted according to gestational age.

Figure. Scatter plot of the analyzed parameters in relation to GA. The regression line with 95% reference interval is also given.