EP19.23: INTERGROWTH-21st and customized growth charts in fetuses with left heart obstruction: Perinatal biometry, cerebroplacental hemodynamics and outcome

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Introduction
In children with left heart obstruction (LHO), birth weight (BW) is crucial for surgical outcome and head circumference (HC) is believed to correlate with neurocognitive outcome. Congenital heart disease (CHD) studies use various customized growth charts making comparisons difficult. Our aim was to investigate international standardized growth charts from the INTERGROWTH-21st project in comparison to customized growth charts in LHO fetuses.

Methods
This is a retrospective cohort study consisting of 60 singleton pregnancies complicated by fetal LHO. For z-score calculations of estimated fetal weight (EFW) and biometric parameters the INTERGROWTH-21st calculator and algorithms of customized growth charts were used. Fetal biometric measurements were compared to postnatal biometry. Possible association between fetal Doppler results (MCA PI: middle cerebral artery pulsatility index, CPR: cerebroplacental ratio) and biometric parameters were examined. In addition, the ability of each antenatal chart to predict adverse perinatal outcome was evaluated.

Results
At a mean gestational age of 37 weeks all assessment charts showed significantly smaller mean values for fetal head circumference (HC) z-scores compared to normal population. Hadlock charts showed the highest detection rate for restricted fetal HC growth like microcephaly (HC <3rd centile). No association between MCA PI or CPR with restricted HC could be found. Significant associations were observed between EFW and 1-year survival as well as for FL and 1-year survival in non-SGA (small for gestational age) patients, both independent of the considered growth chart.

Conclusion
• Fetal HC tends to be smaller in LHO fetuses, regardless of the considered growth chart.
• EFW and 1-year survival rate were significantly associated.
• Prospective investigations should be carried out with internationally standardized growth charts to better examine their prognostic value in CHD fetuses.

Post abstract submission for ISUOG 2019, our results have been published by Archives of Gynecology and Obstetrics (https://doi.org/10.1007/s00404-019-05198-6).