The role of late third-trimester ultrasound in the detection of fetal macrosomia in patients with gestational diabetes.

Gynecology and Obstetrics Department, First Faculty of Medicine, Charles University and General University Hospital, Prague, Centre for Experimental Medicine, Institute for Clinical and Experimental Medicine, Prague, Czech Republic, 3rd Department of Medicine, First Faculty of Medicine, Charles University and General University Hospital, Prague

Objective:
To analyze the accuracy of routine late third-trimester ultrasound examination in predicting fetal macrosomia in patients with gestational diabetes (GDM).

Methods:
Retrospective analysis of 254 singleton pregnancies complicated by GDM managed at a single tertiary center between 2016 and 2017 was performed. GDM was diagnosed according to the IADPSG criteria. Ultrasound biometry was performed between 36 to 39 weeks of gestation. BPD, HC, AC, FL were recorded and EFW was determined using Hadlock (BPD-HC-AC-FL) formula. Percentiles of measured parameters for specific gestational age were assigned (Hadlock et al, Radiology 1984;152:497-501; Yudkin et al, Early Hum Dev 1987;15:45-52). The studied outcome was fetal macrosomia defined as birthweight ≥ 4000g. The accuracy of ultrasound examination was assessed using the area under the receiver-operating characteristics curve (AUC). Positive (PPV) and negative (NPV) predictive values were calculated.

Results:
The overall prevalence of fetal macrosomia (birthweight ≥ 4000g) was 13% (n=33). Comparing to single measured parameters, the EFW percentile had the best predictive performance for fetal macrosomia (AUC 0.875, 95%CI 0.795-0.955), with a negative predictive value of 96.7% and a positive predictive value of 36.5%. The predictive performance of EFW percentile was higher in the subgroup of women requiring pharmacological treatment (insulin and/or peroral antidiabetics; AUC 0.955, 95%CI 0.858-1.00; PPV 77.8%, NPV 96.3%).

Conclusion:
Ultrasound biometry in the late third trimester is useful in ruling out those fetuses that are unlikely to become macrosomic by the time of birth. Among the patients treated pharmacologically, the examination is effective in predicting fetal macrosomia.

Acknowledgement:
Supported by AZV 15-27630A.