Introduction  Women with singleton pregnancies complicated by hypertension (PH), pre-eclampsia (PE), eclampsia (E) and fetal hypotrophy (FGR) have higher resistance in the uterine arteries (UtA) than healthy pregnant. Doppler assessment of UtA is widely applied in singleton pregnancies especially in combined screening model for PE and FGR. Twin pregnancies are associated with an increased risk of obstetric complications. Early PE is 9 times more common in multiple than singleton pregnancies. There is no data if combined model for PE and FGR for singletons is applicable for twins.

Objectives  Assessment of correlation between UtA pulsatility index (PI) and the occurrence of PH, PE and FGR in twin pregnancies.

Methods  Cross-sectional, prospective transabdominal evaluation of UtA. PI values were referred to the final obstetric results. Patients in twin pregnancies between 11 weeks of gestation and the day of delivery were included in the study. Several measurements, in different periods, were made for the investigated patients. Data was analyzed by logistic regression model with robust estimators of standard errors accounting for longitudinal structure. The dependent variable was the zero-one variable, where one means the appearance of any given symptom and zero its absence.

Results  583 ultrasound examinations in 62 patients in twin pregnancies. There were 49 (79%) dichorionic and monochorionic, 13 (21%) pregnancies, including one monoamniotic (1%) pregnancy. The values of UtA PI for all measurements are located in the range of 0.34 - 3.84 and are higher than reported by Geipel et al. (2010). In the study population, a negative relation between UtA PI and the occurrence of PH, PE (OR 0.017, p = 0.052) and FGR (OR 0.36, p = 0.15) was observed. The risk of all these complications increases with decreasing PI in UtA.

Conclusions  The data obtained so far suggest that the mechanisms of gestational hypertension, pre-eclampsia and fetal hypotrophy is different in twin pregnancies than in singleton pregnancies, may be caused by other than vascular factors and may need another screening than for singletons.