Haemodynamic evaluation in pregnancies complicated by T1DM (Type 1 Diabetes Mellitus): differences in LGA (Large for Gestational Age) *vs* AGA (Appropriate for Gestational Age) newborns

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Objective. Currently few data about maternal haemodynamic in pregestational diabetes are available. Our aim was to study maternal haemodynamic in T1DM patients and to define whether there is a relationship between haemodynamic parameters and foetal overgrowth.

Materials and Methods. A prospective case-control study comparing 49 T1DM women referred to our Maternal-Foetal Unit between 2018 and 2023 and 128 controls was conducted. All patients had a BMI < 30 kg/m² and a good glycaemic control in periconceptional period and during all gestation. Haemodynamic assessment was performed by ultrasonic cardiac output monitor (USCOM) at five intervals: 9-16, 16-24, 24-30, 30-35 and after 36 weeks. INES charts were employed to evaluate newborn's weight centile.

Results. From the first evaluation until term Cardiac output (CO) and INO (Inotropic Index) were lower in T1DM than controls; TVR (Total Vascular Resistance) were higher from the third evaluation. 12/49 newborns were LGA (24%), 37/49 (76%) were AGA. CO was higher in LGA group than in AGA group from the second evaluation: 6.93 ± 1.38 *vs* 5.9 ± 1.02 ($p < 0.03$) at 16-24 weeks; 7.29 ± 1.72 *vs* 6.10 ± 0.85 ($p < 0.04$) at 24-30 weeks; 6.70 ± 1.29 *vs* 5.74 ± 0.829 ($p < 0.02$) at 30-35 weeks. At the logistic regression the only parameter significantly associated with foetal macrosomia was the CO at 24-30 weeks.

Conclusions. Women with T1DM have significant differences in haemodynamic adaptation respect to normal pregnancies despite a good metabolic control. Maternal CO should be considered as a significant variable that influences foetal growth in diabetic pregnancies.