Association between glycometabolic compensation and pregnancy-associated plasma protein A in pregnant women with pregestational diabetes

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Objective. In women with pregestational diabetes mellitus (DM), the estimation of aneuploid risk needs adjustment for maternal serum values of pregnancy-associated Plasma Protein A (PAPP-A), a key regulator of insulin-like growth factor bioactivity. To date, it is unclear whether there is a correlation between glycometabolic compensation and plasma markers used for aneuploidy risk estimation. We aim to investigate whether glycated haemoglobin (Hb1Ac) values influence PAPP-A levels.
Materials and Methods. A retrospective analysis was conducted. Pregnant women with type 1 and type 2 DM, who had performed the combined test at our Fetal Medicine and Surgery Department were included in the analysis. Correlation coefficients between PAPP-A and Hb1Ac in the pregestational period and during the various trimesters of pregnancy were evaluated.
Results. 90 women were enrolled. PAPP-A (2.4 *versus* 1.4; p = 0.003) was higher in women with type 1 DM. A significant correlation was found between PAPP-A and first-trimester Hb1Ac (R = -0.29; p = 0.02). At multivariate analysis adjusting for possible confounders (ethnicity, BMI, maternal age, parity), in women with type 2 DM PAPP-A decreases by 0.03 units for each unit increase in Hb1Ac and increases by 2.7 for Hispanic women compared with Caucasians. In women with type 1 DM, the correlation between PAPP-A and pre-gestational and first-trimester Hb1Ac was significant (R = -0.67 and R = -0.54, respectively; p = 0.001).
Conclusions. Our preliminary data suggest that glycometabolic compensation influences PAPP-A levels and therefore it may be considered as part of accurate risk estimation of aneuploidies during first-trimester screening.