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O-050 - GESTATIONAL DIABETES MELLITUS IMPACTS FETAL PROGENITOR CELL RESPONSES WITH IMPLICATIONS FOR OFFSPRING

F. Algaba-Chueca, A. Megía, E. Maymó-Masip, M. Ballesteros, A. Guarque, J. Vendrell and S. Fernández-Veledo

Hospital Universitari Joan XXIII, Tarragona.

Resumen

Objectives: To understand the impact of GDM on fetal precursors isolated from amniotic membrane and to assess whether they are related to fetal adiposity and maternal characteristics.

Material and methods: Observational case control study. Eighteen pregnant women and their offspring, 9 with gestational diabetes (GDM) and 9 controls were included. Placental tissue, maternal and cord blood were collected at delivery and mesenchymal stem cells from amniotic membranes (hAMSC) were obtained. Differentiation and proliferation capacities and migration, invasion and chemotactic abilities were assessed. Gene expression analysis was conducted and the relationship with maternal and neonatal clinical and metabolic parameters was studied.

Results: GDM derived hAMSC showed impaired osteogenic differentiation and lower proliferation capacities compared with controls. They also showed a downregulation of angiogenic factors and higher migration and chemotactic ability. Genes involved in the inflammatory response were upregulated (*TNFa, MCP1*, *CD40 and CTSS*) whereas *IL33* was donwregulated in GDM cells. Also, macrophages obtained from membranes of GDM mothers showed a more proinflammatory gene expression profile. Furthermore, maternal insulin resistance and BMI were associated with a genes involved in the inflammatory response and angiogenesis and this profile determined fetal insulin resistance and body composition.

Conclusions: GDM determines biological characteristics of hAMSCS including a more proinflammatory environment and its related to maternal and fetal nutritional and metabolic status, supporting the notion that fetal adaptive programming in the setting of GDM might have a direct impact on offspring.

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