Galectin-3 expression among women with Gestational Diabetes type 2

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INTRODUCTION

Gestational diabetes mellitus (GDM) is defined as glucose intolerance that was diagnosed during pregnancy. It is categorized as diet-controlled gestational diabetes (GDMA1) or gestational diabetes that requires medication (GDMA2). Galectin-3 (Gal-3) is a galactoside-binding lectin that mediates interactions with numerous ligands of significance in the process of cell growth, differentiation, inflammation, and fibrosis.

OBJECTIVES

To evaluate Gal-3 mRNA and protein expression in maternal serum, placenta, and umbilical blood cord of women with GDMA2 and normal pregnancies (NP).

METHODS

Sixty pregnant women (30 with GDMA2 and 30 NP) were recruited during admission for delivery. Blood samples were obtained from the parturients and umbilical cords, as well as placental tissue for mRNA, protein extraction and immunohistochemistry.

RESULTS

Gal-3 mRNA expression was significantly increased in maternal serum and placentas of women with GDMA2 compared to NP.Gal-3 mRNA was decreased in GDMA2 cord blood compared to NP, as well as to GDMA2 maternal serum mRNA and GDMA2 placental mRNA. Gal-3 GDMA2 placental protein expression was increased compared to NP. Immunostaining revealed that Gal-3 is significantly upregulated in GDMA2 placental extravillous trophoblast.

Figure 1: *Gal-3 mRNA expression in maternal and neonatal blood and in placental tissue*

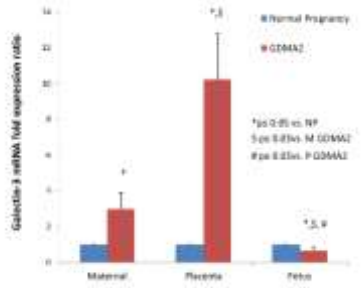


Figure 2 *: Gal-3 protein is overexpressed in GDMA2 placental tissue*

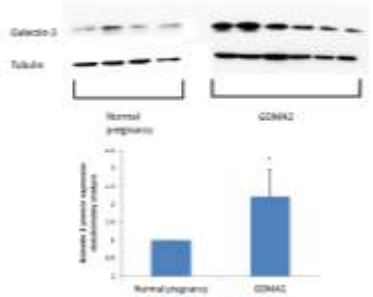
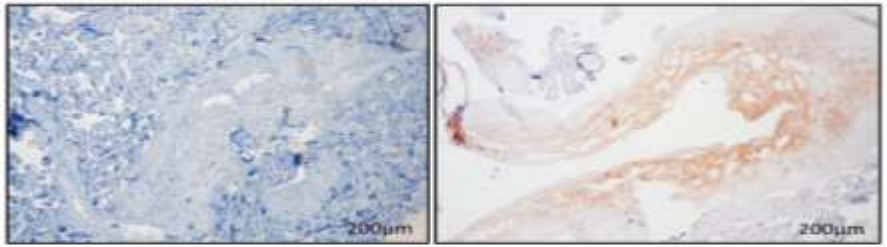


Figure 3*: Gal-3 is overexpressed in GDMA2 extravillus trophoblast*



CONCLUSIONS

Our findings suggest that although Gal-3 is strongly expressed in GDMA2 maternal serum and placental tissue, it is decreased in cord blood. It implies that the placenta protects the fetus from the damages of inflammatory responses, which are common in a diabetic environment.