

miR125b1 and TROP2 in preeclampsia complicated by foetal growth restriction: a morphological and bio-molecular study

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Trophoblast cell surface antigen 2 (TROP2) is a transmembrane glycoprotein originally identified in human trophoblast cell lines and is highly expressed in a variety of epithelial cancers. The TROP2 gene was validated as a direct target of miR-125b1. The purpose of our study was: - to investigate the expression of TROP2 protein in normal placental tissues, in placentas affected by preeclampsia as well as in placentas with preeclampsia complicated by foetal growth restriction (IUGR); - to verify how miR-125b1 was involved in the regulation of TROP2 gene expression. TROP2 protein expression was assessed by immunohistochemistry and quantitative western blotting analyses while miR-125b1 expression was detected by quantitative real-time PCR. The studies were made in normal and pathologic placental tissues. Increasing expression of TROP2 was detected in physiological placental tissue, in according with the increasing gestational age. Probably, it means that TROP2 is related with the differentiation of the cytotrophoblast in syncytiotrophoblast, that occurs during the development of placenta. Moreover, miR-125b1 showed an unchanged expression during normal pregnancy. Higher expression of TROP2 protein was detected in placental tissues collected from patients with preeclampsia complicated by foetal growth restriction, compared with those from preeclampsia and gestational age-matched control samples. The miR-125b1 expression in samples from placentas affected by preeclampsia complicated by IUGR was detected higher than in normal placentas and in placentas affected by preeclampsia. These results suggest that miR-125b1 is not involved in the overproduction of the TROP2 mRNA although the high expression of the miRNA. Our study suggests a possible involvement of TROP2 in the differentiation of the syncytiotrophoblast from villous cytotrophoblast and a possible role of this protein in preeclampsia complicated by foetal growth restriction.

Keywords

Preeclampsia, TROP2, IUGR, placenta, mir-125b1.