

Placental Hypoxia Developed During Preeclampsia Induces Telocytes Apoptosis in Chorionic Villi Affecting The Maternal-Fetus Metabolic Exchange

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Resumen

Telocytes (TC) are a new type of stromal cells initially found and studied in digestive and extra-digestive organs. These cells have a small cell body with 2 to 5 thin and extremely long cytoplasmic prolongations named telopodes. In recent years, TC have also been described in placental chorionic villi, located in a strategical position between the smooth muscle cells from fetal vessels and the myofibroblasts in the stromal villi. Unlike other organs, the placenta is not innervated and considering the strategic location of TC is has been postulated that TC function would be related to signal transduction mechanisms involved in the regulation of the fetal vessels blood flow, as well as in the shortening/lengthening of the chorionic villi, providing the necessary rhythmicity to the process of maternal/fetal metabolic exchange. Preeclampsia (PE) is a systemic syndrome that affects 4%-6% of pregnancies worldwide. It is characterized by a placental state of ischemia-hypoxia which triggers an oxidative stress stage with the concomitant production of reactive oxygen species (ROS) leading to an increase in the degree of placental apoptosis. Placental vascular tone is regulated by the vasodilator nitric oxide (NO) and, in PE cases, NO is diverted towards the formation of peroxynitrite, a powerful oxidative agent whose activity leads to an increase of placental apoptosis degree that compromises TC and myofibroblasts, a key feature we would like to emphasize in this work.

Palabras clave

Palabras clave de autor: ADAMTS-13; apoptosis; nitrosative stress; placenta; telocytes

KeyWords Plus: VON-WILLEBRAND-FACTOR; NITRIC-OXIDE SYNTHASE; PREGNANCY-INDUCED HYPERTENSION; CAJAL-LIKE CELLS; INTERSTITIAL-CELLS; OXIDATIVE STRESS; INVASIVE CYTOTROPHOBLASTS; TROPHOBLAST DEPORTATION; ANTIOXIDANT VITAMINS; VONWILLEBRAND-FACTOR

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