ABSTRACT

Preeclampsia is a pregnancy specific disorder which originates in the placenta, starting with inadequate cytotrophoblast invasion and ending with maternal endothelial dysfunction. The production of placental anti-angiogenic factor, soluble fms-like tyrosine kinase-1 (sFLT-1) have been shown to be up regulated in preeclampsia. This sFLT-1 is produced by the placenta and released into the maternal circulation which disrupts the maternal endothelium and results in hypertension, proteinuria and edematic symptoms of preeclampsia. The present research was done to study the role of placenta in preeclampsia and immunohistochemical expression of antiangiogenic factor sFLT-1 and angiogenic factor vascular endothelial growth factor (VEGF), endothelial nitric oxide synthase (eNOS) in the placental cells of preeclampsia compared with normal/uncomplicated pregnancies.

The study was carried out in 300 placentas, out of which 150 were control, 150 were preeclampsia. The histomorphometric study was done using H&E, PAS, Van Gieson and CD68 stains. The measurements were done using ocular micrometer and reticule. The distributions of sFLT-1, VEGF, eNOS immunoreactivity were determined by semi quantitative method. The data obtained were analyzed statistically.

The preeclamptic placenta showed significant differences in gross morphology, histomorphometry of villous and spiral artery compared to normal. The antiangiogenic factor sFLT1 was highly expressed in syncyiotrophoblast, syncytial knots and Hofbauer cells whereas VEGF and eNOS were reduced in preeclamptic placenta compared to normal. The excess sFLT-1 might have reduced the VEGF and eNOS expression in the placental cells. It was hypothesized that excess sFLT-1 circulation in the plasma of women with preeclampsia may be secreted by the placental cells.