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A study of placental vascular changes in pre-eclampsia

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Pre-eclampsia is a significant burden on maternal health and contributes to 9% of maternal mortality. Pre-eclampsia is a clinical syndrome which presents after 20 weeks of pregnancy and induces hypertension, generalized edema and proteinuria. The etiology and pathogenesis of the condition is still unclear. Pre-eclamptic placentas usually have numerous immature blood vessels. Blood vessel maturity and stabilization is a function of pericytes in placental vasculature. In this study, we assess the extent of vascular density and degree of pericyte coverage in pre-eclamptic placentas in comparison to normal full term placentas. Using immunohistochemistry, representative normal and pre-eclamptic tissues were stained with anti CD34 antibody to highlight blood vessels and assess the degree of vascular density. Using double immunofluorescent staining, tissues were stained with anti CD34/NG2 antibodies to highlight the extent of pericyte coverage. Morphological changes were also examined and statistical analysis was performed. In this study, pre-eclamptic placentas appeared to have generally lower microvessel counts and less pericyte coverage although this did not reach statistical significance. These results may be attributed to the small number of cases included in the study. Further studies including more patients are recommended to accurately assess the vascular changes in pre-eclampsia.