

AWARD FOR THE BEST ORIGINAL RESEARCH PRESENTATION AT THE WCMSR BASED ON THE JUDGES AVERAGE SCORES, 1ST PLACE:

02. **MORPHOMETRY OF PLACENTAE OF ANAEMIC AND NON-ANAEMIC PREECLAMPTIC PATIENTS**



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<https://www.youtube.com/watch?v=0JIMP5Fyl7s&t=5937s>

INTRODUCTION: The etiology of preeclampsia (PE) still remains elusive. Nevertheless, early onset PE has been hypothesized to develop following defective implantation of the conceptus into the endometrium and subsequent placentation. Defective placentation leads to insufficient remodeling of spiral arteries thus hypoperfusion of the placenta and clinical manifestations. Anaemia is highly prevalent amongst pregnant women. It is postulated that hypoxia is one of the mechanisms by which PE develops. The severity of symptoms seen in patients with coexisting preeclampsia and anaemia has been linked to uteroplacental insufficiency. Few studies however, have defined the placental morphometry when the two conditions occur concurrently. **METHODS:** This unmatched case-control study was carried out at the Kenyatta National Hospital where 42 placentae were obtained; 21 from preeclamptic mothers who had anaemia in the first and third trimesters of pregnancy (cases) and 21 from preeclamptic mothers without a history of anaemia in pregnancy (controls). The tissues were obtained and macroscopically and microscopically examined to determine relative differences. Photographs of the placentae were taken using a 12 MP (f/1.8, 26mm wide, 1/2.55", 1.4 μm, dual pixel PDAF, OIS) camera. Photomicrographs were taken using a ZeissTM digital photomicroscope at ×400 magnification for stereological analysis. SPSS (Version 25.0) was used to input data where median values, interquartile ranges and frequency tables were obtained. Mann-Whitney U tests were run to compare differences in medians of the clinical, gross and histological features between the 2 groups. A p-value of ≤ 0.05 was considered statistically significant. **RESULTS:** Hemoglobin levels in the anemic group ranged between 7.0-10.5 g/dl in the 1st trimesters and 7.6-10.9g/dl in the 3rd trimester with patients being mild to moderately anemic. Gross placental infarction was observed in 17/21 (81.0%) of the cases and 15/21 (71.4%) of the controls. The gross morphometric parameters that were lower in cases were the placental weight and volume (p-values of <0.001, 0.001 respectively). The histopathological features observed were extensive perivillous and intervillous fibrin deposition and larger volumes of syncytial knots in the case group. The harmonic mean thickness of the interhaemal membrane was higher in the cases when compared to controls (p -value: <0.001). The estimated mean morphometric diffusing capacity was higher in cases when compared

to controls (p-value: 0.001). **CONCLUSION:** The frequency of gross and histopathological lesions seen in the PE placentae was increased when the patients had both preeclampsia and anaemia. Anaemia may thus exacerbate the pathology caused by preeclampsia. This may be the structural basis for the uteroplacental insufficiency observed when the two morbidities co-exist. It may therefore be prudent for clinicians to monitor maternal hemoglobin levels, in order to reduce the severity of preeclampsia when the two conditions co-exist.

Key words: Placenta; Pre-eclampsia; Anemia.