

ABSTRACT

Background: Cerebro-placental ratio (CPR) is an important predictor of the adverse perinatal outcome as it considers both middle cerebral and umbilical artery doppler studies. It's used to detect and assess the fetal response to hypoxia, the fetal diverts blood flow to the brain, increasing the middle cerebral artery diastolic flow, thereby decreasing the pulsatility index of middle cerebral artery and altering the CPR.

Objectives: We determined the prevalence and factors associated with abnormal CPR among pregnant women with hypertensive disorders at Mbarara Regional Referral Hospital (MRRH).

Methods: We conducted a cross-sectional study from December 2022 to May 2023 at High-risk ward of MRRH. We consecutively enrolled all women with hypertensive disorders, with gestational age ≥ 26 weeks and performed both umbilical and middle cerebral artery Doppler studies and calculated the CPR. The prevalence of women with an abnormal $CPR < 1.0$ was expressed as percentage. We used Modified Poisson regression analysis to determine the factors associated with abnormal CPR.

Results: We enrolled 128 women with hypertensive disorders in pregnancy, with a mean age of 28.8 ± 6.3 . Of these, 67(52.3%) had abnormal CPR. The factors associated with abnormal CPR were severe preeclampsia (aPR: 5.00 [1.28, 29.14]), eclampsia (aPR: 5.27 [1.11, 34.27]) and estimated fetal weight < 2500 grams (aPR: 1.59; 95% C.I [1.06, 2.39]).

Conclusion: On average, half of the women with hypertensive disorders have abnormal CPR. Pregnant women with estimated fetal weight < 2500 grams and those with severe preeclampsia or eclampsia are more likely to have abnormal CPR. We recommend routine Doppler ultrasound assessment of pregnancy women with hypertensive disorders, more especially among those ones with severe preeclampsia, eclampsia and estimated fetal weight < 2500 grams.