

# Obstetric ultrasound findings of women presenting with preeclampsia at Kairuki Hospital from January 2023 to June 2023

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## Abstract

Preeclampsia attributes 2–8% of all pregnancies worldwide. In Africa and Asia only 9% of maternal deaths are due to this condition. Many deaths which are due to this condition occur in the developing countries. Doppler ultrasound radiological characteristics have been of great importance due to its contribution in early detection of uteroplacental insufficiency which has helped in definitive treatment and prevention of any fetal complications. The interventions to this conditions depends on the magnitude of the disease, though safe delivery for preterm to full term pregnancies showed less morbidity and mortality. This study was of great importance and necessary because, there was an

early intervention to all clients who were found to have abnormalities through identification of Doppler ultrasound radiological characteristics there was a good prediction of fetal outcome due to the early diagnosis of the problem and timely saving the fetal and maternal health.

**Objective:** To determine fetal Doppler ultra sound characteristics in Preeclamptic women.

**Methodology:** This was a longitudinal study which included direct participation of 196 clients. The laboratory and radiological investigations were done accordingly. The protein in urine as an important laboratory investigation was done using a urine dip stick by an investigator being assisted by a lab technician. An ultrasound Doppler scan was also done by a principal investigator also being assisted by two sonographers at Kairuki Hospital. This was a 95% of confidence level. An ultrasound machine was used to find out the magnitude of placenta calcification, restrictive index of the umbilical vessels and Fetal Biophysical profile. The study was done after obtaining an informed consent from the participant, all the pregnant participants who were attending at antenatal clinic and who were admitted in the wards, at a gestation age above 20 week with a raised blood pressure and other features like headache, blurred vision, epigastric pain and dizziness were involved in the study, all others with raised blood pressure at gestation age below 20 weeks were excluded in the study.

Results: The participants were investigated from different age groups. The leading group was the middle age: 26-35 years which contributed to 37.8% followed by the young age group of 15-25 years which contributed to 30.6%, the older group of 36-45 years was 24%, and the age group above 46 years presented 7.7%. The prime gravid group which had resulted to 64.3% showed that this was a risk group than the multigravida group which had only resulted to 35.7%. Placenta calcification grading was investigated about 17.95% had grade III. 47.2% Grade II and 34.9% grade I. Grade 0 had no calcification. 69.9% of the participants had abnormal fetal placenta blood flow (abnormal restrictive index-RI) and some had a reverse end diastolic umbilical blood flow as a result of abnormal placenta perfusion.80%

of the studied participant had a gestation age of 35,36 and 37 weeks The fetal radiological features based on umbilical Doppler velocimetry (restrictive index) had an impact to the preeclamptic patient due to a 69.9% of abnormal findings to all participants which was a direct indication of bad fetal outcome the gestation age of the clients were between 20 to 37 weeks. The biophysical profile had a 39.8% of reduced fetal movement as a risk outcome of unmanaged preeclampsia, 58.2% with abnormal fetal breathing rate was an indicator placenta insufficient, 68.4% had reduced fetal muscle tone as a result of abnormal placenta perfusion too due to Preeclampsia. The mostly affected gestation age with a poor and abnormal biophysical profile was the gestation age of 35,36 and 37 weeks because the clients with pre eclampsia were delivered as early as possible and could not reach up to 38 or 39 weeks. About 99.5% of all invested participants had protein in urine and this showed an involvement of organ damage in the urinary system. Ant hypertensive medications were the major drugs given due to aiming of lowering the blood pressure.

Conclusion and recommendations: This study revealed abnormal fetal radiological characteristics in most of Preeclamptic patients which might lead to abnormal fetal health. There is a need of early antenatal radiological screening to all Preeclamptic patients for early detection of placental as well as umbilical cord changes and intervention.