

# Measurement of Cerebro-Placental Doppler Ratio and Amniotic Fluid Index as a Predictor of Perinatal Outcome in Prolonged Pregnancy

## ABSTRACT

### **Background:**

The terms post-term, prolonged, postdates and post mature are often loosely used interchangeably to signify pregnancies that have exceeded a duration considered to be the upper limit of normal.

### **Objective:**

The aim of this work was to study the role of Doppler velocimetry of the umbilical and middle cerebral arteries represented by the cerebroplacental ratio and amniotic fluid volume in the prediction of adverse fetal outcome in post-term pregnancies.

### **Materials and Methods:**

This is a prospective case control study conducted at Ain-Shams University Teaching Hospital for Obstetrics and Gynecology, Egypt. The study included 50 pregnant patients who were divided into two groups; group 1 included 25 pregnant ladies with gestational age of 41 weeks attending the casualty department in labour or in prodroma of labor. while, group 2 included 25 pregnant ladies with gestational age of 41 weeks not in labor and reaching the hospital for ANC, who were selected for termination based on the biophysical profile and poor Doppler indices or CTG changes. All patients were submitted to antenatal fetal surveillance tests including modified biophysical profile (MBPP) which consists of the non-stress test (NST), amniotic fluid index (AFI), and color Doppler velocimetry of fetoplacental and fetal vessels including MCA PI, UA PI, and CPR. The accuracy of cerebroplacental ratios (the middle cerebral artery PI divided by the umbilical artery PI) and amniotic fluid volume as a means of predicting intrauterine fetal distress and adverse perinatal outcome in post-term pregnancies.

### **Results:**

Cerebroplacental ratio showed the highest sensitivity (95%) in comparison with other parameters, so it is a good test to reassure the obstetricians of the fetal well being. Prominent changes in AFI (i.e. <50% increase or decrease) is not associated with adverse perinatal outcome irrespective of the rate of change provided that the final value remains >5.0 cm. A significant association with FHR decelerations and presence of meconium is proved to exist when AFI is <5.0 cm.

### **Conclusion:**

The addition of cerebral/umbilical ratios to antenatal surveillance protocols is expected to improve the perinatal outcome. It should be tried in the various high risk pregnancies whenever uteroplacental insufficiency is suspected.