

EFFECTS OF ABDOMINAL DECOMPRESSION ON FETAL UMBILICAL ARTERY AND MIDDLE CEREBRAL ARTERY BLOOD FLOW

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BACKGROUND:

Abdominal decompression is a method where an airtight frame exerting negative pressure is placed at a pregnant woman's abdomen. This was supposed to improve utero-placental blood flow but the effects of decompression on fetal circulation haven't been adequately studied yet.

OBJECTIVE:

We utilized doppler ultrasonography to investigate the effects of decompression on blood flow in the umbilical artery and middle cerebral artery.

METHODS:

Women with singleton pregnancies attending antenatal abdominal decompression were enrolled in the study. Doppler velocity waveforms were obtained from umbilical artery and fetal middle cerebral artery before and after a 30 minutes decompression session. Resistance indices were compared using Student's t test ($p < 0.05$ significant).

RESULTS:

23 pregnant women were included at an average gestational age of 36+1 weeks. The mean resistance index before decompression in the umbilical artery was 0.58 ± 0.10 and after decompression 0.54 ± 0.07 ($p = 0.06$). In the middle cerebral artery the values were 0.72 ± 0.11 and 0.77 ± 0.08 , respectively ($p = 0.01$).

CONCLUSION:

Significantly increased resistance index in the middle cerebral artery implies a higher fetal brain oxygenation after decompression. This is further corroborated by the trend towards a decrease in umbilical artery resistance index. Our findings could be beneficial in high-risk pregnancies, e.g. preventing prematurity complications in cases of IUGR or late preterm hypertensive disorders of pregnancy.

