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Reversal of fetal ductal constriction after maternal restriction of polyphenol-rich foods: an open clinical trial.

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Author information

Abstract

OBJECTIVE: To test the hypothesis that maternal restriction of polyphenol-rich foods (PRF), which, like non-steroidal anti-inflammatory drugs (NSAID), inhibit prostaglandin synthesis in the third trimester, reverse fetal ductal constriction (DC).

STUDY DESIGN: An open clinical trial of 51 third trimester fetuses with DC with no history of NSAID intake was designed. All mothers were submitted to a food frequency questionnaire and were oriented to withdraw PRF, being reassessed after 3 weeks. Doppler parameters were assessed before and after discontinuation of these substances. A control group of 26 third trimester normal fetuses, with no ductus arteriosus (DA) constriction, in which no dietary intervention was offered, was reviewed after 3 weeks. Student's t-test and Wilcoxon's test were used.

RESULT: Mean gestational age was 32±3 weeks (28 to 37 weeks). After discontinuation of PRF (≥3 weeks), 48/51 fetuses (96%) showed complete reversal of DC, with decrease in mean ductal systolic velocity (1.74±0.20 m s⁻¹ to 1.31±0.34 m s⁻¹, P<0.001), mean diastolic velocity (0.33±0.09 m s⁻¹ to 0.21±0.07 m s⁻¹, P<0.001) and mean right to left ventricular dimension ratio (1.37±0.26 to 1.12±0.17, P<0.001) and increase in mean ductal pulsatility index (PI) (1.98±0.36 to 2.46±0.23, P<0.001). Median daily maternal consumption of PRF was 286 mg per day and decreased after orientation to 0 mg per day, P<0.001. In the control group, with GA of 32±4 w (29-37 w), there was no significant differences in median daily maternal consumption of PRF, mean ductal systolic velocity, diastolic velocity, PI and right ventricular to left ventricular diameter ratio (RV/LV) ratio.

CONCLUSION: Reduction of maternal PRF intake during pregnancy, especially in the third trimester, is followed by complete reversal of DC (wide open DA), which may influence maternal dietary habits in late pregnancy.

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