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## Fetal ductal constriction caused by maternal ingestion of green tea in late pregnancy: an experimental study.

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### Abstract

**OBJECTIVES:** The aim of this study was to test the hypothesis that experimental maternal intake of green tea in late pregnancy causes fetal ductus arteriosus constriction, probably because of prostaglandin inhibition.

**METHODS AND RESULTS:** Twelve fetal lambs (pregnancy > 120 days) were assessed before and after maternal administration of green tea (n = 8) or water (n = 4; controls) as the only source of liquid. After 1 week, echocardiography showed signs of constriction of the ductus arteriosus in all fetuses from mothers ingesting green tea, with increase in mean systolic velocity (from  $0.70 \pm 0.19$  m/s to  $0.92 \pm 0.15$  m/s, 31.4%,  $p = 0.001$ ) and mean diastolic velocity ( $0.19 \pm 0.05$  m/s to  $0.31 \pm 0.01$  m/s, 63.1%,  $p < 0.001$ ), decrease of pulsatility index ( $2.2 \pm 0.4$  to  $1.8 \pm 0.3$ , 22.2%,  $p = 0.003$ ) and increase of mean right ventricular/left ventricular diameter ratio ( $0.89 \pm 0.14$  to  $1.43 \pm 0.23$ , 60.6%,  $p < 0.001$ ). In the four control fetuses, there were no significant changes. All lambs exposed to green tea also showed at autopsy dilated and hypertrophic right ventricles, which was not present in control fetuses. Histological analysis showed a significantly larger mean thickness of the medial avascular zone of the ductus arteriosus in fetuses exposed to green tea than in controls ( $747.6 \pm 214.6$   $\mu\text{m}$  vs  $255.3 \pm 97.9$   $\mu\text{m}$ ,  $p < 0.001$ ).

**CONCLUSIONS:** This study in fetal lambs shows a cause and effect relationship between experimental maternal exposure of green tea and fetal ductus arteriosus constriction in late pregnancy.

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