MYOCARDIAL RESPONSE TO CHORIOAMNIONITIS IN PRETERM FETAL SHEEP

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Background and aims: Exposure of the fetus to antenatal inflammation can occur from chorioamnionitis which may progress to a systemic fetal inflammatory response syndrome (FIRS). It is not known whether the fetal myocardium participates in this FIRS. We hypothesized that the myocardium would have indicators of inflammation and injury.

Methods: Fetal sheep were exposed to intra-amniotic (IA) endotoxin or saline 2d or 7d before preterm delivery at 124 ± 1 days gestational age of gestation (term 150 days). Protein and mRNA levels in hearts were determined by real-time PCR, Western blotting and immunohistochemistry.

Results: After IA exposure 2d before delivery, mRNA decreased compared to controls (100%) for hypoxia-inducible factor (HIF)-1 α (18%), inducible NO-synthase (iNOS) (5%), toll-like receptor 2 (TLR2) (12%) and TLR4 (16%). Interleukin (IL)-6 mRNA increased to 146% after 2d and 390% after 7d. Protein levels of phosphorylated signal transducer and activator of transcription (STAT)-3 were decreased to 37% after 7d. HIF-1 α protein level in cardiomyocytes decreased to 17 % after 2d. Fetal plasma level of cardiac troponin I decreased at both time points (21%, 47%).

Conclusions: Acute (2d) endotoxin-induced chorioamnionitis suppressed mediators of cellular inflammatory response whereas a 7d exposure to endotoxin caused mild cardiac inflammation. There was no indication of severe cardiac injury.