EFFECTS OF ANTENATAL ENDOTOXIN ON POSTNATAL ORGAN GROWTH IN RATS ---- EFFECTS OF DOSE AND SEX

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Objectives: Chorioamnionitis is known to cause preterm delivery and impairment of various developing organs. The aim was to study effects of antenatal intra-amniotic lipopolysaccharide (LPS) on postnatal growth of organs (brains, lungs, heart, kidneys and liver) in rats.

Methods: At 20 d gestation, pregnant SD rats were anesthetized and the uterus exposed under general anesthesia. The uterine wall was punctured and 0.1 µg or 1 µg E. coli endotoxin (O55:B5), or saline (0.1mL) was injected into each amniotic sac (LPS 0.1, LPS 1 and saline group, respectively). In control pups (no tx group), no fetal surgery was performed. At 0, 1, 4 and 8 weeks after birth, the pups were euthanized, the brain, lung, heart, kidney and liver were collected and weighed.

Results: The mortality rate was the highest in the LPS 1 group, followed by the LPS 0.1, saline and no tx groups. The body weights of LPS-exposed pups were lighter than saline or no tx pups at birth. At 8 wks, only in males, LPS 1 pups showed lighter body weight compared to the other groups. Also only in LPS 1 males, the weight of the lung, heart, and liver were lower than the other groups. In contrast, the brain weight was not different and was proportional to the body weight in all groups.

Conclusions: Antenatal amniotic exposure to LPS had long-term influence on the growth and development of various organs. Effects of fetal LPS exposure were different in different organs, dependent on LPS dose and influenced by sex.