IS4-04 Elevated inflammatory mediators after applying an extracorporeal circuit in a neonatal sepsis model
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We aimed to study the changes in cytokines and oxidative mediators in a neonatal sepsis model when applying an extracorporeal circuit (ECC). Of 28 anesthetized and mechanically ventilated 3-day-old piglets, 14 underwent cecal ligation and perforation (CLP), of which 7 underwent ECC for 3 hours from 3 to 6 h after CLP. The remaining 14 were sham, of which 7 underwent ECC. Mean pulmonary artery blood pressure (mPAP), arterial blood gases and serum interleukin (IL)-6, IL-10, tumor necrosis factor (TNF), interferon gamma (IFN-γ), total hydroperoxide (TH), and nitric oxide metabolites (NOx) were measured at pre-CLP and at 3, 6, and 9 h in the CLP groups, and continued in the sham groups at 12, 15, 18, and 24 h. The CLP group with ECCs compared to the CLP group without it showed higher IL-6, IL-10, and NOx at 6 h and higher mPAP and TH at 6 and 9 h. The sham group with ECCs compared to the one without it showed higher IL-6 and IL-10 at 12, 15, and 18 h, TH at 6 and 9 h, TNF at 6 h, and IFN-γ at 9 h.
Applying ECCs provoked a window of cytokines and free radicals elevation, which could be hazardous in critically ill newborns, especially after abdominal surgeries complicated with sepsis.