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Titel des Beitrags: Extravasation of albumin after cardiopulmonary bypass in newborns.

Abstract:

OBJECTIVE: The systemic inflammatory response to cardiopulmonary bypass (CPB) possibly increases microvascular permeability to plasma proteins, leading to capillary leak syndrome. The study was conducted to elucidate any protein leakage in newborns using Evans blue dye as tracer. DESIGN: Prospective controlled study. SETTING: University-affiliated heart center. PARTICIPANTS: Eleven neonates with transposition of the great arteries. INTERVENTIONS: Plasma interleukin-6 (IL-6), IL-10, fractional escape rate (FER) of an intravenous bolus of Evans blue, and colloid osmotic pressure (COP) were assessed before and after surgery (statistics: median and 25th-75th percentile, Friedman's 2-way analysis of variance, and Wilcoxon matched-pairs signed-rank test [before and after surgery]). MEASUREMENTS AND MAIN RESULTS: All patients had an uneventful intraoperative course. The demographic and operative data were age 11 (10-13) days, body weight 3.2 (3.0-3.3) kg, CPB time 132 (123-144) minutes, and aortic cross-clamp time 66 (64-78) minutes. The proinflammatory IL-6 increased 60-fold and the anti-inflammatory IL-10 only 3-fold after CPB. FER, however, was not changed, whereas COP was significantly reduced after CPB. CONCLUSIONS: In contrast to the expectation, the escape rate of Evans blue, reflecting the extravasation of
albumin, was not increased after CPB. However, reduced COP, hypothermia, and also a reduced lymphatic drainage may contribute to edema formation. The present data do not support the hypothesis of a capillary leak after CPB in newborns.

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