

**TUMOR NECROSIS FACTOR- α AND TROPONIN I RELEASE IN
PORCINE CARDIAC LYMPH AND CORONARY SINUS BLOOD
BEFORE AND AFTER CARDIOPULMONARY BYPASS**

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ABSTRACT

To assess the concentrations of cardiac troponin I (cTnI) and tumor necrosis factor- α (TNF α) in cardiac lymph compared with coronary sinus (CS) blood and to measure cardiac lymph flow before and after cardiopulmonary bypass (CPB). In 21 pigs, the main cardiac lymph trunk was cannulated before institution of standardized CPB. Lymph flow, cTnI and TNF α in cardiac lymph and CS blood were measured before and after CPB for 6 hours. Before CPB, cTnI concentration was 215 ± 36 ng/ml in cardiac lymph and 0.5 ± 0.1 ng/ml in CS blood, respectively. After aortic declamping a significant elevation of cTnI values was measured in cardiac lymph and CS blood. cTnI concentration in cardiac lymph and CS blood peaked 6 hrs after CPB ($10,556 \pm 4,735$ vs. 22.2 ± 3.7 ng/ml, $p < 0.01$). TNF α concentration at baseline was 23.2 ± 5.6 pg/ml in lymph and 18.7 ± 9.5 pg/ml in CS blood, and there was no significant release of TNF α up to the end of the experiment. Baseline cardiac lymph flow was 3.07 ± 0.35 ml/h and declined after aortic clamping (0.72 ± 0.16 ml/h; $p < 0.01$) and peaked one hour after CPB (5.66 ± 0.97 ml/h; $p < 0.01$).

In conclusion, very high cTnI concentrations in cardiac lymph suggest serious perioperative myocardial damage after CPB with cardiologia, which is underestimated by cTnI release into the bloodstream. In our study, the myocardium was not a major source of TNF α release.