Non-selective cyclooxygenase inhibition before periodic acceleration (pGz) 
cardiopulmonary resuscitation (CPR) in a porcine model of ventricular fibrillation. 
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Whole body periodic acceleration (pGz) along the spinal axis is a novel method of 
cardiopulmonary resuscitation (CPR). Oscillatory motion of the supine body in a 
horizontal fashion provides ventilation and blood flow to vital organs during cardiac 
arrest and pulsatile shear stress to the vascular endothelium. We previously showed in 
pigs that pGz-CPR affords better overall survival, post resuscitation myocardial function, 
and neurological outcomes compared to conventional chest compression CPR. pGz 
through pulsatile shear stress on the vascular endothelium elicits acute production of 
prostaglandins and endothelial-derived nitric oxide (eNO) in whole animal models and in 
vitro preparations. The salutary effects associated with pGz-CPR compared to chest 
compression CPR are in part related to endothelial-derived nitric oxide. Both eNO and 
prostaglandins are cardioprotective in ischemia reperfusion models. To differentiate 
between the roles of these mediators, indomethacin a non-selective cyclooxygenase 
inhibitor (COX) was used as a tool to investigate prostaglandin effects during pGz-CPR 
by acute outcomes of survival, cardioprotection and regional blood flows (RBF). Two 
groups of anesthetized, intubated pigs weighing 25-36kg were studied. Prior to electrical 
induction of ventricular fibrillation (VF) animals received equal volumes of either saline 
placebo Control (CONT) (n=9) or indomethacin (INDO), (n=8), (2mg/kg). After 3min of 
unsupported VF, both groups received 15min of pGz-CPR followed by pharmacologic 
and electrical attempts for resuscitation. Return of circulation (ROSC) to 3h occurred in 
(78%) in CONT and (63%) in INDO pretreated animals. There was no statistically 
significant difference in hemodynamics between groups at baseline or during the 
protocol. At baseline, INDO caused a decrease in brain RBF. Two hours after ROSC, 
INDO blunted the hyperemia response to brain and heart. Echocardiographic evidence 
of myocardial dysfunction was most notable for the INDO group in the wall motion score 
index (WMSI). After 3h of ROSC there was a 4-fold difference in both creatine 
phosphokinase (CPK) and Troponin I concentration between INDO and CONT. 
Therefore, non-specific acute inhibition of COX in part blunts the salutary effects of pGz- 
CPR. These data suggest that prostaglandins in part are involved in the cardio 
protection induced by pGz during CPR.