

**Conclusions:** Early-life tobacco exposure attenuates sympathetic drive to the blood vessels and augments baroreflex gain but leaves cardiac sympatho-vagal drive unchanged.

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**EARLY VERSUS SYMPTOMATIC TREATMENT FOR PATENT DUCTUS ARTERIOSUS (PDA) WITH IBUPROFEN IN PRETERM INFANTS**

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**Background:** Timing to indicate pharmacological PDA closure is controversial and varies widely among NICUs.

**Aims:** To assess whether early versus symptomatic treatment of PDA could affect failure rate and need for surgery.

**Methods:** Between May 2009 and March 2010, infants < 29 wks or < 1000 g, and those with 29-33 wks and respiratory distress syndrome, underwent echocardiography within the first 72 hours of postnatal life, and received ibuprofen if PDA  $\geq$  1.5 mm (study group). A historic cohort (May 2008 to March 2009) consisting on infants with symptomatic PDA that received ibuprofen was used as control group. The primary outcomes were PDA closure failure rate and need for surgery. Non-parametric tests were used for comparisons.

**Results:** 88 infants were included, the study group [n= 38; gestational age 28.7 (2.4) wk; birth weight 1121 (338)g] and the control group [n=50; gestational age 28.3 (2.1) wk; birth weight 1032 (336) g] being comparable with respect to main perinatal data. Trends towards lower failure rate (26.3% vs 40%) and need for surgery (21.1 vs 32%) were found in the study and control group, respectively, although not significant. Onset of ibuprofen treatment (p< 0.000), number of administered doses (p=0.001) and days to reach total enteral nutrition (p< .05) were significantly lower in the study group. Other clinical outcomes did not differ.

**Conclusions:** Early treatment with ibuprofen seems to report benefits without additional side effects.

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**CARDIAC OUTPUT MONITORING: EXPERIMENTAL STUDY IN AN INFANT SHOCK ANIMAL MODEL COMPARING PULMONARY ARTERIAL THERMODILUTION, FEMORAL ARTERIAL THERMODILUTION AND BIOREACTANCE**

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**Introduction:** Bioreactance, is a new non-invasive for cardiac output measurement (NICOM). We compared NICOM bioreactance to pulmonary and femoral thermodilution (PATD and FATD) in an infant shock animal model.

**Methods:** A prospective study was made in 9 Maryland pigs weighing 9 to 12 kg. Swan-Ganz and arterial PiCCO were introduced for PATD and FATD measurements respectively. 4 dual surface electrodes were placed at the thoracic body surface for NICOM measurement. In each animal, 7 cardiac index (CI) measurements were made simultaneously by PATD, FATD and NICOM before, during, and after hypovolemia and during and after volume infusion.

**Results:** The mean CI was  $4.32 \pm 1.52$  L/min/1.77 m<sup>2</sup> with PATD,  $3.49 \pm 0.79$  L/min/1.77 m<sup>2</sup> with FATD and  $2.61 \pm 1.18$  L/min/1.77 m<sup>2</sup> with NICOM (p < 0.001). Mean differences between PATD and FATD were 0.84 (1.87 to 3.51) L/min/1.77 m<sup>2</sup>, between PATD and NICOM 1.95 (-1.79 to 5.69) L/min/1.77 m<sup>2</sup>, and between FATD and NICOM 1.06 (-1.40 to 3.52) L/min/1.77 m<sup>2</sup>. Moderate correlation was found between PATD and FATD r = 0.43 (p= 0.01) and no correlations between bioreactance and PATD and FATD. CI measured by three methods decreased with hypovolemia and increased during volume infusion but only CI values measured with PATD and FATD were significant (p= 0.001). Changes recorded with bioreactance were small without significant differences between hypovolemia and infusion (p = 0.181).

**Conclusion:** PATD and FATD have a similar answer during hypovolemic shock and volume infusion. Bioreactance underestimates CI values during hypovolemia and volume expansion.