

(150–160bpm), mean blood pressure (43–46mmHg) and RI during infusion. Plasma lactate concentrations decreased and urine output improved over 48h. One patient developed stroke pre-treatment; another had persistent hypotension after milrinone. Sixteen (94%) neonates survived to hospital discharge.

**Conclusions** Milrinone improves CO and cerebral blood Vm without significant effects on blood pressure and RI. (Funded by Stollery Children's Hospital Foundation).

### 320 THE REGIONAL HEMODYNAMIC EFFECTS OF DOXYCYCLINE IN NEWBORN PIGLETS WITH ASPHYXIA-REOXYGENATION

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**Background** Neonatal asphyxia has significant morbidities including hypoxic-ischemic encephalopathy, necrotizing enterocolitis and acute renal failure. These complications are associated with regional perfusion deficits. During reoxygenation, oxygen free radicals are produced and can activate matrix metalloproteinase-2, leading to cardiovascular dysfunction. There is little information regarding the effect of doxycycline, a known inhibitor of matrix metalloproteinase -2, on regional perfusion. We hypothesized that doxycycline would improve regional hemodynamics during recovery in asphyxiated newborn piglets.

**Methods** Piglets (1–5 days old) were acutely instrumented for continuous monitoring of blood flow at the left common carotid, superior mesenteric and renal arteries (CAFI, SMAFI and RAFI, respectively). After stabilization, 2hrs of normocapnic alveolar hypoxia (10–15% oxygen) was induced followed by 4hrs of reoxygenation (21% oxygen). Piglets were blindly randomized to receive either normal saline or doxycycline (3, 10, or 30mg/kg) intravenously 5 minutes into reoxygenation (n=7/group). Sham-operated piglets (n=5) received no hypoxia-reoxygenation.

**Results** All piglets had regional perfusion deficits at 2hrs of hypoxia (CAFI: 76±[SD]16%; SMAFI: 57±21%; RAFI: 11±10% of respective normoxic baseline). During 4hrs of reoxygenation, doxycycline at 30 mg/kg increased RAFI (p<0.001) and CAFI (p=0.06) at 240min reoxygenation: 66±33% vs. 36±21% [p=0.04] and 92±52% vs. 66±22% [p=0.09] for controls, respectively). Despite attenuating mesenteric hyperemia at 10min of reoxygenation (p=0.03), there was no difference in SMAFI at the end of reoxygenation.

**Conclusions** In newborn piglets with hypoxia-reoxygenation, post-resuscitation administration of high-dose intravenous doxycycline improves carotid and renal hemodynamics and may attenuate transient mesenteric hyperemia during recovery.

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### 321 EARLY TARGETED CLOSURE OF PATENT DUCTUS ARTERIOSUS IN EXTREME PRETERM BABIES REDUCES BRONCHOPULMONARY DYSPLASIA

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**Background** PDA is common among very low birth weight babies. There is however growing controversy regarding treatment and clinicians are uncertain to treat or not to treat a PDA.

**Objective** To compare mortality and complications of prematurity in the following groups

1. Effect of gestation; babies ≤ 28 weeks & 29–31 weeks
2. Early (< 72 hrs) treatment vs. later symptomatic treatment of a PDA
3. Treatment vs. no treatment of a significant PDA

**Methods** All babies born < 32 weeks gestation were included in this study. A total of 223 babies met the inclusion criteria from January 2009 to September 2011. Of these 22 were excluded from analysis due to incomplete data. SPSS version 17© was used for data analysis.

#### Results

1. Babies ≤ 28weeks compared to 29–31weeks gestation had significantly higher PDA (61%vs.23%; p<0.05), Bronchopulmonary dysplasia (BPD) (40%vs.12%; p<0.05), duration of respiratory support (27days vs. 9days; p<0.05) and mortality (16%vs.0%; p<0.05)
2. Among babies with significant PDA, BPD was significantly reduced with early treatment of a PDA as compared to later symptomatic treatment (66.7%vs.82.3%; p<0.05)
3. There was significantly higher incidence of death among babies not treated for PDA as compared to those who received treatment (29% vs. 0%; p<0.001).

#### Conclusion

1. Babies born ≤ 28 weeks have higher burden of PDA, mortality and complications of prematurity.
2. Treatment of PDA significantly reduces mortality.
3. Early treatment of PDA significantly reduces BPD compared to later treatment.

### 322 COULD CARDIAC ENZYMES AND THE CARINAL ANGLE MEASUREMENT BE USED AS INDICATORS OF HEMODYNAMICALLY SIGNIFICANT PATENT DUCTUS ARTERIOSUS?

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**Aim** In this blind prospective study, we aimed to examine the utility of cardiac enzymes and the carinal angle measurement in detecting hemodynamically significant patent ductus arteriosus (PDA), evaluating response to treatment and follow-up in preterm infants.

**Patients and Methods** We evaluated 39 preterm infants < 32 gestational weeks. Every patient had an echocardiogram (ECHO) taken on postnatal day 3 by a cardiologist blinded to clinical findings and laboratory results. ECHO was repeated when necessary. N-terminal pro-brain natriuretic peptide (NT-proBNP), cardiac troponin T (cTnT), creatine kinase MB isoenzyme (CK-MB) levels were measured on postnatal days 0, 3 and 7. The carinal angle on chest radiographs taken on the same days was measured. Those with PDA deemed hemodynamically significant based on ECHO were referred to as ehsPDA group. Those in this group who also had clinical signs were referred as sPDA subgroup.

**Results** The mean gestational age was 28.7 weeks; mean birth weight was 1120 g. Initial ECHO showed PDA in 27 patients (69.2%), 11 of which (40.7%) had ehsPDA. Eight patients had sPDA. When the ehsPDA and sPDA groups were compared to the rest, no statistically significant difference was found in terms of the carinal angle, NT-proBNP and cTnT. CK-MB levels were significantly low in ehsPDA and sPDA groups on postnatal days 3 and 7 (p=0.017, p=0.026, respectively).

**Conclusion** NT-proBNP, cTnT, CK-MB and the carinal angle were not found useful in detection and follow-up of hemodynamically significant PDA.

### 323 ROLE OF AMINO TERMINAL PRO-BNP IN DIFFERENTIATING CARDIAC FROM RESPIRATORY PROBLEMS IN EGYPTIAN NEONATES PRESENTING WITH RESPIRATORY DISTRESS

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