in developmental vascular patterning in humans. NFATc4 expression decreased significantly and NFATc2 expression remained unchanged, requiring further research. These results suggest that NFAT is involved in fetal vascular development.

1701 DOPPLER ECHOCARDIOGRAPHIC EVALUATION OF PULMONARY ARTERY PRESSURE IN LOW BIRTH NEWBORN WITH ABDOMINAL COMPARTMENT SYNDROME AFTER ABDOMINAL SURGICAL

D Dmitryev, K Dmitryeva. Anesthesiology and Intensive Care, Vinnytsia National Medical University, Vinnytsia, Ukraine

In this prospective study 16 newborns (ranging 1 day - 28 days) with severe compartment abdominal syndrome were evaluated by Doppler echocardiography for the presence of pulmonary hypertension (PH). The goal of this study was to determine the frequency of PH in newborns with severe compartment abdominal syndrome because the diagnosis of PH influenced the treatment of pneumonia in these newborns.

The patients who had more than 25.4±1.2 mmHg (mean ± SD) of systolic pulmonary arterial pressure were considered to have PH. In our study PH was found in 13 (81.25 %) of 16 newborn. We did not find any significant difference for the parameters including the age, weight, height, clinical symptoms, signs (tachycardia and tachypnea), and laboratory findings such as hemoglobin, PCO2, HCO3 and PO2 between the patients with and without PH (p=0.01). However, there was a significant difference in cyanosis, cardiac failure, blood pH level, intra-abdominal pressure and O2 saturation measured by pulse oximetry between the patients with and without PH (p<0.01).

1702 INCREASE PLASMA ENDOThELIN-1 LEVELS ARE ASSOCIATED WITH LUNG HYPERTENSION IN LOW BIRTH NEWBORN WITH OMPHALOCELE

D Dmitryev, O Katlov, O Mazulov, K Dmitryeva. Anesthesiology and Intensive Care, Vinnytsia National Medical University, Vinnytsia, Ukraine

Objective Increased pulmonary vascular resistance in low birth newborn with omphalocele is suggested, and endothelin-1 plays an important role in pulmonary vascular reactivity in newborns.

Methods We determined plasma (second sample) levels of endothelin-1 in 12 low birth newborns with omphalocele and 14 without omphalocele (gestational ages: 26±1.4 and 25.4±1.6 weeks, respectively). Blood and a second blood sample taken 18 to 40 h after birth were used for endothelin-1 determination by enzyme immunoassay.

Result Plasma levels ET-1 concentrations were higher than second sample ET-1 levels in both groups (p<0.001). There was a significant positive correlation between second sample ET-1 and SNAPPE II (r=0.32, p=0.01). There were no correlations between plasma ET-1 levels first sample and second sample ET-1 concentrations and 5-min Apgar score < 6. Duration of mechanical ventilation had a significant positive correlation with second sample ET-1 (r=0.46, p=0.02). Plasma level ET-1 levels did not differ between control and omphalocele (13.0 and 14.6 pg/mL, respectively; p=0.80). Second sample ET-1 levels had significantly higher ET-1 levels than controls (1.32 and 6.04 pg/mL, respectively; p=0.001).

Conclusion Our low birth newborn with and without omphalocele had similar plasma ET-1 levels, whereas ET-1 levels were higher in omphalocele than in control newborns 18 to 40 h after birth. The increased vascular resistance in omphalocele may be related to high ET-1 levels.
Clinical factors were not associated with rSO2 and FTOE, but rSO2 was nearly significantly positively associated with midazolam at day 2 (p=0.05), and negatively with pCO2 at day 3 (p=0.051).

Conclusions Highest R SO2-values and lowest FTOE-values were seen on day two, suggesting decreased oxygen consumption, possibly as a consequence of midazolam treatment. Even so, treatment with high fiO2 did not lead to high levels of oxygen in brain tissue in most infants.

Introduction PPHN is treated with inhaled nitric oxide (iNO). A novel ventilator circuit connector (NVCC, AFECTAIR®, Discovery Laboratories, Inc., Warrington, PA, PA) has been developed to simplify the delivery of aerosols to patients receiving ventilatory support. We hypothesized that use of the NVCC for iNO delivery would substantially reduce NO consumption.

Aim To compare the NVCC with the SoC in the delivery of iNO under simulated neonatal ventilator conditions.

Material and Methods A pediatric/neonatal test system with Babylog® VN-500 with various inspiratory pressures, test lung, and ASL-5000 lung simulator were used. For SoC measurements, using a standard wye connector, the iNO was delivered per the manufacturer’s instructions. With the NVCC, iNO was delivered by introducing the NO via a tube attached directly to the NVCC. NO concentrations were measured with a NOxBOX® analyzer and NO flow was recorded by Electronic Nitric Oxide flow controller and titrated to 20 ppm at the patient interface.

Results Compared with SoC, there was a 2 to 3 fold decrease in NO flow requirements to achieve desired iNO concentrations with the NVCC. The delivery of NO was not different between the study conditions. NO levels were slightly higher for the NVCC group, but never higher than 1.13 ppm.

Conclusion The NVCC significantly decreased the NO flow required for targeted delivery of 20 ppm. The NVCC allows for simplified therapeutic gas delivery with reduced NO utilization. These results warrant further study of NVCC on compatibility assessment with various modes of ventilation and delivery of other medical gases.

Results Physical exam, cyanosis in the first 12 hours, tachypnea and/or a severe respiratory distress, systolic murmur on the left border of sternum. ECG: diastolic dysfunction of left ventricular (LV). Chest X ray: cardiomegaly (all cases). PaO2: low values—all patients. ECHO aspects: enlargement of the right chambers; severe tricuspid regurgitation with the peak velocity 3–4 m/sec; mitral regurgitation (12/41 of cases), left-to-right shunt across foramen ovale and/or ductus arteriosus (30/41 of cases), enlargement of the pulmonary artery and severe pulmonary regurgitation, septal hypertrophy (11/41 of cases); impaired LV relaxation with normal systolic function; congenital heart diseases (7). Repeated ECHO revealed in most of the cases diminished or no right-to left shunt across ductus arteriosus or foramen ovale correlate with clinical improvement and disappearance of cyanosis.

Conclusions Echocardiographic exam, beside clinical exam and history of the disease, is an important element for the diagnosis and follow up of evolution by the specific treatment applied for PPHN in the newborn with cyanosis and this investigation must be performed early after birth.

Purpose To evaluate the value of the echocardiographic exam for the diagnosis of the persistent pulmonary hypertension (PPHN) in the newborn infant.

Methods Patients, 41 newborns (aged 0–8 days) with PPHN induced by severe perinatal hypoxia, meconium aspiration syndrome, hyaline membrane disease, hypotermia, neonatal sepsis, infant of diabetic mothers, congenital cardiac malformations. Investigations of patients: clinical exam PaO2, ECG, chest X ray, Doppler echocardiography (ECHO). ECHO was repeated after 5–7 days in all patients.

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1704 Cerebral Oxygen Saturation and Extraction in Neonates with Persistent Pulmonary Hypertension During the First 72 Hours of Life
MJ Mebius, EA Verhagen, ME van der Laan and AF Bos

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