Clinical factors were not associated with $r_{SO_2}$ and FTOE, but $r_{SO_2}$ was nearly significantly positively associated with midazolam at day 2 ($p=0.05$), and negatively with $PCO_2$ at day 3 ($p=0.051$).

**Conclusions** Highest $R_{SO_2}$ 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 $FiO_2$ 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) 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 administered 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 abd 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 concentration with the NVCC. The delivery of $O_2$ 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.

**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 $PaO_2$, ECG, chest X ray, Doppler echocardiography (ECHO). ECHO was repeated after 5–7 days in all patients.

**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). $PaO_2$: 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.