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 iO$_2$ did not lead to high levels of oxygen in brain tissue in most infants.

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**1705** NITRIC OXIDE DELIVERY WITH A NOVEL VENTILATOR CIRCUIT CONNECTOR - AN IVITRO STUDY UNDER NEONATAL VENTILATORY CONDITIONS

doi:10.1136/archdischild-2012-302724.1705


1Neonatology, Poznan University of Medical Sciences, Poznan, Poland; 2Research and Development, Discovery Laboratories, Inc.; 3Brown University, Women and Infants Hospital, Warrington, PA, USA

**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 NVCC 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 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.

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**1706** VALUE OF ECHOCARDIOGRAPHY FOR THE DIAGNOSIS AND MONITORING OF EVOLUTION OF PERSISTENT PULMONARY HYPTENSION IN NEWBORN

doi:10.1136/archdischild-2012-302724.1706

L Dimitriu, AG Dimitriu, M Stamatin. Pediatric Cardiology, Medex Medical Center; Pediatric Cardiology; 1Neonatology, University of Medicine and Pharmacy, Iasi, Romania

**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.

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**1707** RATE AND MANAGEMENT PATTERN OF CONGENITAL DIAPHRAGMATIC HERNIA AT MATERNITY HOSPITAL, KUWAIT

doi:10.1136/archdischild-2012-302724.1707

MM Al Essa. Pediatrics, Faculty of Medicine, Kuwait University, Kuwait, Kuwait

**Introduction & Objectives:** Congenital diaphragmatic hernia (CDH) occurs in around 1 in 2000 live births and associated with high mortality rate reaching up to 50%, even with prenatal diagnosis and recently advanced and extensive neonatal intensive care management. The objectives of this study are to document the incidence, clinical experience and outcomes of congenital diaphragmatic hernia (CDH) in newborn infants admitted to the neonatal unit at Maternity Hospital, Kuwait.

**Methods and Materials**

A retrospective chart review of all newborn infants admitted to the neonatal unit at Maternity Hospital in Kuwait from January 2007 till December 2010. Demographic data of the babies were collected along with variables involving the levels of sickness and therapeutic interventions.

**Results**

A total of 21 cases of CDH were admitted to the unit over the four years period. The gestational age ranged from 33 to 40 weeks. 13 cases died giving a mortality rate of 61.9%. All the cases received mechanical ventilation, and 16 of them was high frequency ventilation (HFO), while almost half of the cases received nitric oxide gas treatment. Almost all the cases were on 100% oxygen.

**Conclusions**

Our results showed a little higher mortality than other centers worldwide, in spite our management pattern was not different. More cases need to be collected from the neonatal units in the other hospitals in Kuwait to compare the mortality rates and patterns of management.

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**1708** ROLE OF COMPUTED TOMOGRAPHY (CT) IN PEDIATRIC RESPIRATORY DISEASES

doi:10.1136/archdischild-2012-302724.1708

HAA Bin-Nakhi, S Sadeq, N Alsayed, M Abdul Nabi. Pediatrics, Adan Hospital, Kuwait, Kuwait

Respiratory illness is one of the major causes of morbidity and mortality in children. CT lung has some advantages over plain chest radiography but exposes the child to more radiation. This study was carried to determine the value of performing lung CT in the management of children with respiratory diseases and to summarize the main indications for ordering pulmonary CT in Pediatrics.