

Clinical factors were not associated with $r_c\text{SO}_2$ and FTOE, but $r_c\text{SO}_2$ was nearly significantly positively associated with midazolam at day 2 ($p=0.05$), and negatively with $p\text{CO}_2$ at day 3 ($p=0.051$).

Conclusions Highest $R_c\text{SO}_2$ -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.

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

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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_2 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.

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

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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, hypothermia, 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 ovalae 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.

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

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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.

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

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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.