

## 1277 NEONATAL MORBIDITY AND MORTALITY IN EXTREMELY PRETERM SMALL FOR GESTATIONAL AGE INFANTS

doi:10.1136/archdischild-2012-302724.1277

<sup>1</sup>K Itabashi, <sup>1</sup>T Yamakawa, <sup>2</sup>S Kusuda, <sup>3</sup>M Fujimura. <sup>1</sup>*Pediatrics, Showa University School of Medicine; <sup>2</sup>Tokyo Women's Medical University; Tokyo; <sup>3</sup>Osaka Medical Center and Research Institute for Maternal and Child Health, Osaka, Japan*

**Background** Neonatal mortality and morbidity in extremely preterm infants (< 28 weeks of gestation) have been extensively studied, but the risk added by intrauterine growth restriction remains controversial.

**Aim** To assess whether intrauterine growth restricted (small for gestational age, SGA) extremely preterm infants show a further increase in neonatal mortality and morbidity.

**Methods** The study included 9,888 singleton extremely preterm infants whose live birth was recorded at the Neonatal Research Network in Japan during 2003–2010. SGA was defined as birth weight at least 2SD below the mean for gestational age. The Risk of mortality and morbidity in the SGA group was evaluated by comparing outcomes for SGA against a non-SGA reference group.

**Results** Of the study subjects, 1,215 (12.3%) were SGA. Controlling for gestational age, sex, parity and multiple gestation, SGA infants showed a higher mortality rate during NICU stay compared with reference group infants (odds ratio [OR]: 4.23,  $p < 0.0001$ ). Severe neonatal asphyxia (OR: 1.89,  $p < 0.0001$ ), RDS (OR: 1.33,  $p < 0.0001$ ), chronic lung disease at 36 weeks' postmenstrual age (OR: 2.23,  $p < 0.0001$ ), sepsis (OR: 1.95,  $p < 0.0001$ ), necrotizing enterocolitis (OR: 1.93,  $p < 0.0001$ ), focal intestinal perforation (OR: 1.46,  $p = 0.011$ ) and congenital anomalies (OR: 2.66,  $p < 0.0001$ ) were significantly associated with SGA status.

**Conclusion** Extremely preterm SGA infants are associated with increased the risk of neonatal mortality and major morbidity. These results are important for obstetric counseling and decision making and treatment of extremely preterm infants.

## 1278 OUTCOME FOLLOWING FETAL PLEUROAMNIOTIC SHUNTING IN 114 LARGE HYDROTHORACES

doi:10.1136/archdischild-2012-302724.1278

<sup>1</sup>E Kelly, <sup>2</sup>G Seaward, <sup>2</sup>R Windrim, <sup>2</sup>G Ryan. <sup>1</sup>*Paediatrics; <sup>2</sup>Obstetrics & Gynecology, Mt Sinai Hospital, Toronto, ON, Canada*

**Introduction** Untreated, fetal hydrothorax is associated with significant morbidity and a mortality rate of approximately 80–90%.

**Population** 114 fetuses with isolated large pleural effusions underwent pleuroamniotic shunting at our perinatal centre. All had an extensive antenatal work-up including: detailed anatomy, echocardiogram, karyotype, infectious testing for CMV, Toxoplasmosis and Parvovirus. 84 were bilateral, 72 (63%) were hydropic and 41 (36%) had associated polyhydramnios. Mean maternal age was 30.2 years, the mean gestation at diagnosis was 25 weeks and at shunting 27.6 weeks. 64 required bilateral shunts and, of unilateral, 27 were left-sided and 23 right-sided. 25 underwent simultaneous amnioreduction. The mean interval to delivery was 7 wks.

**Results** There were 15 (12.3%) intrauterine deaths. 26 (23%) neonatal deaths and 73 (64.7%) survivors. Additional abnormalities including genetic, metabolic and neurological syndromes were identified antenatally in 8 cases and postnatally in 9. Of 99 liveborn babies, 76 (77%) delivered at our perinatal centre. Postnatally, 46 required ventilation, 38 (50%) required chest tubes, of whom 19 (26%) died. Of 73 survivors, 2 (3%) were lost to follow-up, 4 (5.5%) are < 4 months of age, 10 (14%) showed evidence of significant developmental delay, including 3 with Trisomy 21, and 1 had mild developmental delay. Fifty five (75%) are developing normally.

**Conclusion** Fetal hydrothorax can be associated with a wide range of conditions, some of which may not be detectable antenatally.

Fetal therapy significantly improves perinatal outcome, although mortality remains high. On long term follow up, approximately 75% of survivors are developmentally normal.

## 1279 EARLY OUTCOMES FOLLOWING REFERRALS FOR THERAPEUTIC HYPOTHERMIA - A REGIONAL NEONATAL TRANSFER SERVICE PERSPECTIVE

doi:10.1136/archdischild-2012-302724.1279

<sup>1,2</sup>PK Yajamanyam, <sup>2</sup>S Mohinuddin. <sup>1</sup>*Neonatal Unit, Birmingham Women's Hospital NHS Foundation Trust, Birmingham; <sup>2</sup>Neonatal Transfer Service, Barts Health NHS Trust, London, UK*

**Background and Aims** Therapeutic hypothermia (TH) is now a standard of care for neonatal encephalopathy (NE). We have previously shown that referrals for TH in the London region have steadily increased since the publication of TOBY study but documentation of cooling criteria was poor (43%) before transfer to cooling centres. In this study we audit referrals for TH following introduction of a structured proforma and the early outcomes of these babies.

**Methodology** Prospective audit of referrals for TH to a regional neonatal transfer service over a six-month period (May–October 2011). Audit registered with the Clinical Effectiveness unit of the NHS Trust. Following transfer, cooling centres was contacted to find out early outcomes: if infants received TH for 72 hours and outcome at 7 days.

**Results** 43 referrals for TH were received. The median Gestation was 40(35–42) weeks, Birth-weight 3.42(2.04–4.84) Kg. Of these 38 transfers were performed. Completed proforma was available in 21 cases. TOBY criteria A were recorded in 100% of cases and TOBY criteria B in 88%. 8(21%) infants did not receive TH for 72 hours as assessed to not benefit from TH of which 3 died within 72hours. At 7 days of age 5 were discharged home and remaining 30 were inpatients.

**Conclusions** Our audit shows that introduction of a structured proforma can improve documentation of cooling criteria and neurological examination. We recommend that any referral for TH is carefully selected to avoid unnecessary transfer of neonates who may not benefit from TH.

## 1280 EFFECTS OF AMBIENT NOISE ON COCHLEAR FUNCTIONS IN NEWBORNS GRADUATED FROM NICU

doi:10.1136/archdischild-2012-302724.1280

S Beken, E Önal, B Gündüz, Y Kemalöglü, U Çakır, M Özden, İ Karagöz, F Kulalı, İ Hırfanoğlu, C Türkyılmaz, E Ergenekon, E Koç, Y Atalay. *Gazi University Hospital, Ankara, Turkey*

**Background and Aim** Neonatal Intensive Care Unit (NICU) is a noisy environment in which infants can be exposed to high noise levels. The aim of the study is to evaluate the adverse effects of noise on hearing and, neurological outcomes of NICU graduates at six months of age.

**Methods** Thirty two infants that had been admitted to Gazi University Hospital NICU and 25 healthy controls, were included in the study. Noise levels were recorded continuously during hospitalization period. TEOAE, DPOAE and ABR tests were used to assess hearing. Neurological outcome was assessed with Bayley II Infant Development Scale.

**Results** The median period of noise exposure above 45 dB, was 50.1% of the entire hospitalization period. Levels exceeding 45 dB were mostly below 124 Hz. Major source of noise was traced back to the incubators. All patients passed the hearing screening tests before discharge. On the sixth month follow up; hospitalized infants had lower DPOAE SNR amplitudes (dB) at five frequencies including 1001, 1501, 3003, 4004, 6006 Hz in both ears. DPOAE fail rates at 1001 Hz and 1501 Hz were higher in hospitalized infants

( $p=0.001$ ). Positive correlation between noise exposure and duration of hospitalization was determined. Infants who failed at 1001 and 1501 Hz had similar Bayley II Infant Development Scale scores and there were no difference between groups.

**Conclusion** Major noise source in NICU was found to be the incubators. Although hearing loss was not detected in any infants, hearing tests at sixth months of life were adversely affected.

### 1281 A COMMON PROBLEM FOR NEONATAL INTENSIVE CARE UNIT'S: LATE PRETERM INFANTS

doi:10.1136/archdischild-2012-302724.1281

İ Çelik, İG Demirel, İFE Canpolat, İU Dilmel. <sup>1</sup>Neonatology, Zekai Tahir Burak Maternity Teaching Hospital; <sup>2</sup>Pediatrics, Yildirim Beyazit University, Faculty of Medicine, Ankara, Turkey

**Background** Late preterm infants are physiologically and metabolically immature than term infants, and the incidence of late preterm birth is increasing. These infants have higher risks of medical complications such as respiratory distress, hypoglycemia, hyperbilirubinemia, sepsis, feeding difficulty and poor neurodevelopmental outcome than term infants.

**Objective** We aimed to evaluate the clinical and demographic characteristics, and short-term outcomes and clinical course of late preterm infants who were admitted to our neonatal intensive care unit (NICU).

**Materials and method** Data from NICU admissions of 605 late preterm and 1477 term infants in 1 year period between June 2010 and May 2011 were analyzed.

**Results** Late preterm and total delivery numbers were 2004 and 18854. NICU admission rate of late preterm infants was 30%, respectively. Mean gestational week and birth weight were 35<sup>1/7</sup> w and 2352 g. Admission diagnosis were respiratory distress (46.5%), low birth weight (17.5%), jaundice (13.7%), polycythemia (8.1%), hypoglycemia(4%) and feeding difficulty (13.1%), and these morbidities' rates were higher than term infants ( $p<0.001$ ). During hospital stay; jaundice, polycythemia, hypoglycemia, feeding difficulty, sepsis, apnea and pneumonia rates were 300 (49.6%), 98 (16.2%), 88 (14.5%), 218 (36%), 85 (14%), 7 (1.2%) and 27 (4.5%), respectively. Overall mean hospitalization length was 7.5±9.1 days. Mortality and rehospitalization rate was 2.1% and 4.4%, and higher than term infants ( $<0.001$ ).

**Conclusion** We concluded that late preterm infants should be followed closely for these complications just after birth and preventive strategies should be put in practice.

### 1282 AN ANALYSIS OF RETINOPATHY OF PREMATURITY REQUIRING TREATMENT OVER 5YEARS PERIOD IN OUR NEONATAL UNIT

doi:10.1136/archdischild-2012-302724.1282

A Kahilil, AM Murphy, O O'Leary, T Stack, C Sreenan, R Philip. *Neonatal Intensive Care Unit, Regional Maternity Hospital, Limerick, Ireland*

**Background** Proliferative retinopathy occurs primarily in premature LBW infants as a result of incomplete vasculogenesis of the retina at the time of birth. It can be mild, self limiting with no visual defects or progressive leading to blindness.

#### Screening guidelines

1. Birth weight < 1.5Kg.
2. Gestational age < 32 weeks.
3. Birth weight 1.5kgs– 1.8kgs and/or Gestational age 32–34 weeks (if received supplementary oxygen for ≥ 12hours.
4. If one twin is in the screening criteria and has eye changes.

**Aim** To review the number of babies < 1500g, and or Gestational age of < 32/40 who developed ROP required treatment, focusing on infants < 1Kg.

**Methods** Retrospective chart review of babies born in the Regional Maternity Hospital Limerick between 1<sup>st</sup>Jan 2007 and 31st Dec 2011 with ROP requiring treatment.

**Results** During the study period a total of 225 infants with B.wt < 1500g and/or G.A < 32/40 were admitted to the neonatal unit. All these infants were screened for ROP as per unit guidelines. 93.3% (N=210) infants were < 32/40, and 83%(N=187)< 1500g, of these 28%(N=64) infants weighed less than 1Kg.

There were 10 infants (4.4%) who developed ROP requiring treatment, 9 of these infants were in the ELBW category, the tenth baby was only 40gs over the criteria for VLBW(B.wt 1040gs).

All 10 babies have disease in zone 2.7 stage2. 2stage1 and one had stage 4.

**Conclusion** In our unit 10 infants(4.4%)received treatment for ROP over the 5 years period 2007–2011. Our figures are comparable to those reported by Vermont Oxford Network database 2010.

### 1283 MONITORING THE EFFECT OF NEUROMUSCULAR BLOCKADE IN NEONATES: CURRENT PRACTICE IN THE UNITED KINGDOM

doi:10.1136/archdischild-2012-302724.1283

M Honsel, C Giugni, J Brierley. *Paediatric & Neonatal Intensive Care Unit, Great Ormond Street Hospital for Children, London, UK*

**Background and Aims** Neuromuscular blocking agents (NMBAs), either intermittent boluses or continuous infusions, are used in infants to facilitate difficult ventilation and lower pulmonary pressures by preventing infant-ventilator asynchrony in e.g. severe meconium aspiration syndrome, persistent pulmonary hypertension or air leak.

Whilst consensus statements and accepted standards regarding NMBA use and assessment exist in adult and paediatric ICU, there exists limited information in NICU, specifically whether clinical assessment, NMBA-monitoring (train-of-4) or formal acceleromyography is optimal. We wanted to ascertain current NMBA monitoring in UK NICU.

**Methods** Literature search for NMBA assessment in infants and telephone survey of all tertiary NICUs in England, and major units in Wales, Scotland and Northern Ireland, in which we asked the nurse in charge (to ascertain actual rather than perceived optimal practice) about existing protocols, methods used for NMBA monitoring (clinical observation, TOF/acceleromyography) and the use of 'drug holidays'.

**Results** No standards, or peer-reviewed NMBA guidelines were found. Of 56 units contacted, 2 did not share information and 3 use intermittent boluses of NMBAs rather than continuous infusion. Of the remaining units all (100%) clinically assess the patient, 1 (1.96%) has a protocol in place, 11 (21.57%) perform regular NMBA-holidays to assess effect and 1 (1.96%) uses train-of-4 if a patient on NMBA-holiday does not move after 6 hours.

**Conclusions** We found no peer reviewed NICU-NMBA standards or guidelines in the literature, Only 1 UK unit has any protocol for NMBA assessment. Guidelines/standards for NMBA use in infants need to be urgently introduced.

### 1284 A NETWORK PERSPECTIVE OF THE MAJOR OUTCOMES OF PREMATURE BABIES LESS THAN 31<sup>+0</sup> WEEKS GESTATION USING A UNIFIED ELECTRONIC SYSTEM

doi:10.1136/archdischild-2012-302724.1284

<sup>1</sup>SI Aslam, <sup>2,3</sup>SV Rasiah, <sup>3</sup>M Passant. <sup>1</sup>Neonates, New Cross Hospital, Wolverhampton; <sup>2</sup>Neonates; Birmingham Women's Hospital NHS Foundation Trust; <sup>3</sup>Neonates, South West Midlands Newborn Network, Birmingham, UK

**Background** The Badger electronic system collects data in a standardized manner and allows us to audit the major outcomes of the babies managed within the network.