602 INCREASED INCIDENCE OF BRONCHOPULMONARY DYSPLASIA IN PRETERM INFANTS EXPOSED TO MATERNAL PREECLAMPSIA

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Objective The aims of the study were to determine the effect of preeclampsia on bronchopulmonary dysplasia (BPD) development in preterm infants and to investigate the possible association between BPD severity and preeclampsia.
Methods The study group involved preterm infants (≤32 gestational week) born to a preeclamptic mother with no co-existing medical condition, whereas the comparison group involved preterm infants born to a normotensive mother. BPD was defined as requirement for supplemental oxygen for the first 28 day of life. It was classified as mild, moderate and severe BPD. The demographics and clinical data of the infants were recorded.
Results There were 117 and 215 premature infants in the study and control groups, respectively. The incidence of BPD in preterm infants in the study group (38.5%) was significantly higher than the control group (19.5%). The frequency of moderate and severe BPD were significantly higher in the study group. In logistic regression model, preeclampsia was found to be predictive of BPD.
Conclusions Preeclampsia was found to be an important risk factor for BPD development in preterm infants. The incidence of both moderate and severe BPD was significantly higher in preeclamptic mother infants. These findings might be associated with altered angiogenesis in the preeclamptic mother which might be shared with the fetus.

603 OXYGEN DEPENDENCE IS ASSOCIATED WITH SUPPLY PROTEIN OFFERS AT FIRST 35 DAYS OF LIFE FOR PRETERM INFANTS WITH BRONCHOPULMONARY DYSPLASIA

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Background and Aims The aims of this study was to determine if the time of introduction and diary quantity of amino acid offered at first 35 days of life for newborns with BPD, weight < 1500g at birth, may influence the oxygen dependence at final period.
Methods Newborns with BPD, consecutively observed in the NICU (UFF - RJ - Brazil), from April 2006 to March 2008, were divided in Early Start (ES) and Late Start (LE) Groups when they began to received amino acids (AA) up (n=56) or after (n=48) 72 hours of life. It was also divided according to the quantity of AA administered in the first week of life (1.11± 0.04g/kg/day): Larger Supply (LAS) (n=42) and Lower Supply (LOS) (n=58) received a quantity of AA 2 SD above or below this mean.
Results A total of 104 newborns were evaluated. At 35th of life the babies of ES and LE were weighing 34.1% and 21.9% more than his weight at birth, respectively, and from LOS and LAS, 39% and 23.7% regarding his birth (p>0.05). At the end of the studied period, 8.9% of the babies of the ES and 16.7% of the LE still stayed receiving some oxygen. In LAS 4.7% and 21% in LOS were receiving some oxygen support (p = 0.004).
Conclusion Nutritional state is decisive in the oxygen necessity at neonatal final period, and the major offers of protein is a priority way.

604 URINARY NGAL (UNGAL) AT BIRTH IS RELATED TO BRONCHOPULMONARY DYSPLASIA IN PRETERM INFANTS

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Background and Aims Bronchopulmonary dysplasia (BPD) is a chronic lung disease associated with premature birth and early lung injury. The pathogenesis is multifactorial, including fluid and electrolytes balance that is dependent to renal development during the first weeks of life.

We previously found a correlation between renal development during the first weeks of life and urinary neutrophil gelatinase-associated lipocalin (UNGAL) at birth in very low birth weight infants (VLBW). The aim of this study was to examine the relationship between urinary (UNGAL) and serum NGAL (SNGAL) at birth and BPD.
Methods UNGAL and SNGAL were determined at birth in VLBW. BPD was defined as oxygen need at 36 week gestational age (GA). Statistical analysis was performed with chi square.
Results 44 VLBW admitted at birth in our NICU were included in the study; 2 of them died during stay in NICU. 20/42 infants developed BPD: all were born at ≤ 29 week (GA) and 14 of them needed diuretics. High values of UNGAL (> 100 ng/ml) were observed more frequently among BPD treated with diuretics infants than in the other subjects (57% vs 28%, p=0.04).

High levels of SNGAL (>150 ng/ml) were not significantly more frequent in VLBW with BPD.
Conclusions These preliminary data show that high UNGAL at birth is a marker of impaired renal development and fluid balance in preterm newborns, that determine increased lung water and consequently contribute to BPD development.

605 "LOW DOSE" POSTNATAL CORTICOSTEROIDS FOR INFANTS AT RISK OF SEVERE BRONCHOPULMONARY DYSPLASIA

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Background Postnatal corticosteroids (PCS) improve short term lung function but may increase the risk of disability in later life. The Dexamethasone: A Randomised Trial (DART) study was designed to address this risk using a 10 day tapering regimen with a total dose of 890 micrograms/kg. The Royal Women's Hospital, Melbourne selects patients at high risk of bronchopulmonary dysplasia (BPD) to receive steroids as per the DART protocol. The primary aim of this study was to audit the prescribing practices of the DART protocol with a secondary aims of reporting patient outcomes.
Method Patients were identified from an electronic database between January 2006 and December 2009 and medical records reviewed. Infants prescribed PCS other than as per the DART protocol and for preventing BPD were excluded.
Results Forty six infants with mean (SD) gestational age of 25.0 (1.3) weeks and birth weight of 685 (192) g were prescribed dexamethasone. Median (range) duration of therapy was 20 (3–86) days with a median total dexamethasone dose of 1437 (375–9100) micrograms/kg. There were significant changes on day 3 of treatment in mean airway pressure (MAP) or positive end expiratory pressure (PEEP), p<0.001 and percentage inspired oxygen (FiO_2), p<0.001. There were seven deaths, with the combined outcome of either death or BPD occurring in 41 (89%) infants.
Conclusions In our audit prescribing practices deviating outside of hospital protocol, resulting in doses exceeding those recommended. Clinical practice review of PCS therapy in preterm infants is encouraged.

606 DIURETIC USE IN NEONATAL CHRONIC LUNG DISEASE IN ENGLAND

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Abstract 606 Table 1

	Dose (mg/kg)		Frequency (Hours)		Total daily dose (mg/kg/24h)	
	Median	Min - Max	Median	Min - Max	Median	Min - Max
Furosemide	1	0.5–3	12	6–24	2	1–4
Spironolactone	1	0.5–10	12	12–24	2	1–20
Chlorthiazide	10	1–25	12	12–24	20	2–50
Hydrochlorthiazide	15	10–20	12	12	30	20–40

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Background Diuretics are used in premature babies with chronic lung disease despite minimal evidence. The aim of this study was to assess the use of diuretics in neonatal units in England.
Method An electronic survey using Survey Monkey was sent to 108 units in the Medicines for Children Research Network Neonatal Network.
Results There were 66 responses with useable data from 55 unique units. 20% had a protocol for use. 49% would consider starting diuretics after 5 weeks of age and half would start diuretics in situations such as being unable to wean ventilation, unable to extubate, unable to wean off CPAP, chronic lung disease and chronic lung disease in the presence of a PDA. 70% had no rule when to stop diuretics, 22% stopped off supplemental oxygen and 8% off CPAP.

48% use chlorthiazide plus spironolactone in babies who are fully fed and 84% prefer furosemide in babies requiring intravenous treatment.

Table 1 shows the variation in the doses within diuretics.
Conclusions There is wide heterogeneity in the use of diuretics in England. The majority use chlorthiazide plus spironolactone in babies who are fed and furosemide intravenously.

607 RISK FACTORS FOR INTRAVENTRICULAR HEMORRHAGE IN LESS THAN 32 WEEKS GESTATION PRETERM INFANTS - PROSPECTIVE STUDY

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Chronic lung disease (CLD) of prematurity may complicate the postnatal development of the severe respiratory distress syndrome (RDS) and negatively affect the long term neurodevelopmental outcome of the premature infant.
Aim To evaluate the risk factors for CLD in ≤32 weeks gestation preterm infants.
Methods The study was developed in the Neonatology Dpt. of the Clinical County Emergency Hospital Sibiu between 01.01.2010–31.12.2011. The study group comprised 139 preterm infants with a mean GA of 30.26±1.93 weeks (24–32 weeks) and a mean BW of 1412.99±367.389g (600–2270g). The prospectively collected data were analysed using IBM SPSS 19.0 and were considered significant at a $p<0.05$.
Results CLD occurred with an incidence of 7.91% in the study group. The preterm infants that developed CLD had significantly lower GA (p 0.000), BW (p 0.000), and Apgar score at 1 minute (p 0.014). Significantly longer duration of the oxygen therapy (0.000), CPAP support (0.000), mechanical ventilation (p 0.003) and hospitalization (p 0.003) were found in those preterm infants that developed CLD compared with those without CLD. A significant association was found between CLD and apnea of prematurity, neonatal sepsis, nosocomial infection and ROP even after excluding deaths and outborn infants.
Conclusions Low GA, BW, the severity of RDS but also the presence of perinatal infection were the main risk factors identified in preterm infants with CLD.

608 REDUCED LIPOXIN A_4/LEUKOTRIENE B_4 RATIO IN EARLY CF BAL - IMPAIRED AIRWAY EPITHELIAL LIPOXIN A_4 SYNTHESIS CAPACITY

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Cystic Fibrosis (CF) is characterised by impaired muco-ciliary clearance, persistent neutrophilic inflammation and bacterial infection. Normal resolution of inflammation involves an active switch in mediators that predominate in exudates. Early in inflammation, Leukotriene B_4 (LTB_4) plays a role in neutrophil activation. Resolution and return to tissue homeostasis are signalled by the transcellular synthesis of Lipoxin A_4 (LXA_4) by the action of Lipoxygenase enzymes (LO) expressed in cells such as neutrophils and airway epithelial cells.

The aims of this study were to quantify LXA_4 production in the airways of children with CF and characterise LXA_4 synthesis by airway epithelial cells in CF.

LXA_4 and LTB_4 were measured in paediatric BAL samples by ELISA. We quantified the capacity of Non CF (NuLi-1) and CF (CuFi-1 Homozygous ΔF508) cells cultured as differentiated bronchial epithelia to synthesize LXA_4 by the action of 15-LO on 5(S),6(R)-DiHETE, (a precursor of LXA_4). Expression of 15-LO was measured by Western Blot.

Relative production of LXA_4 is significantly depressed in paediatric CF patients versus controls when compared to LTB_4. The ability of CuFi-1 cells to convert 5(S), 6(R)-DiHETE to LXA_4 was reduced as compared with NuLi-1 cells. The expression of 15-LO2 was reduced in CuFi-1 compared with Nuli-1 cells.

The ratio of LXA_4 to LTB_4 in the airway of young children with CF is depressed. Our results indicate that the contribution of airway epithelial cells to Lipoxin A_4 synthesis is reduced in CF. This may contribute to the persistence of acute inflammation and consequent lung damage in CF.

609 SPECIFITY OF TUBERCULOSIS AND RESISTENCE OF THERAPY BETWEEN IMMIGRANTS AND BOSNIA-BORN CHILDREN

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