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Objective To identify perinatal factors associated with multiple large cysts on chest computed tomography (CT) in extremely premature infants with chronic lung disease (CLD).
Methods A case-control study of 87 infants with CLD who were ≤28 weeks' gestation, admitted between 2005 and 2010, and underwent chest CT. CLD was defined as the need for supplemental oxygen at 36 weeks' postmenstrual age (PMA). A chest CT was performed at between 36 and 44 weeks' PMA. Nine infants had multiple large cysts (≥5mm) throughout the lung fields on chest CT (MLC group), and 78 had no or a few localized large cysts on chest CT (controls). Perinatal factors including placental histology was were compared between the groups.
Results The incidence of premature rupture of the membranes (PROM) and histological chorioamnionitis (HC) was significantly higher in the MLC group than in controls. Significantly more infants in the MLC group had an elevated level of serum IgM (≥30 mg/dl) at birth than in controls. The severity of respiratory distress syndrome (RDS) was significantly reduced in the MLC group compared with controls.
Conclusions The presence of multiple large cysts on chest CT is associated with an increased incidence of PROM and HC, elevated levels of serum IgM and reduced severity of RDS in extremely premature infants with CLD. These findings suggest that the presence of chronic intrauterine inflammation and the acceleration of fetal lung maturation may play important role in the formation of large cysts in the developing lung.

589 RISK FACTORS FOR THE DEVELOPMENT OF BRONCHOPULMONARY DYSPLASIA IN BABIES LESS THAN 1500 GRAMS AND 32 GESTATIONAL WEEKS

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Background and Aims Bronchopulmonary dysplasia is one of the most important diseases affecting prematüre babies. We aimed to identify the risk factors associated with bronchopulmonary dysplasia and compare the costs of disease.
Material and Methods A retrospective chart review was performed for the patients with a gestational age of less than 32 weeks and a birthweight of less than 1500 grams, who had been admitted to our unit between 2006 and 2008. Babies who had been referred to another hospital or who died before 28 days were not included in the study. Demographic features, prenatal and natal risk factors, complications and billing amounts were recorded and compared.
Results There were 652 patients in the specific time frame. Bronchopulmonary dysplasia developed in 150 of them, of which 86 (13.2%) were mild, 31 (4.8%) were moderate and 33 (5.1%) were severe. Prenatal hypoxia, resuscitation at birth, vaginal delivery, 5th minute Apgar score, lower gestational age, lower birthweight and male gender were significantly associated with the development of BPD. On the other hand, postnatal factors such as RDS, pulmonary hemorrhage, sepsis, TTN, hypotension, necrotising enteroclitis, intraventricular hemorrhage grade III-IV, anemia, neutropenia and thrombocytopenia were significantly associated with BPD. Hospital costs were significantly higher in patients with BPD.
Comment The development of BPD is affected by natal and postnatal factors rather than antenatal factors and birthweight. Prevention of BPD is also effective in reducing hospital costs.

590 CHARACTERISTICS OF CHRONIC LUNG DISEASE AMONG PREMATURE INFANTS ON HOME OXYGEN

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Aim Main goal of this study was to examine the clinical characteristics of chronic lung disease (CLD) among premature infants on home oxygen.
Methods Medical records of 28 premature infants on home oxygen (mean = 6.8±4.6 months) were examined retrospectively. All infants were diagnosed with CLD. Data including demographic information, duration of ventilation, home oxygen and medication were collected.
Results All eligible infants (17/28 (60%) are males and 15/28 (53%) are white Caucasians) were born under 30 weeks of gestation (Range from 23 weeks to 29+6 weeks). Of these, 22/28 (79%) infants had a birth weight of < 900grams (range from 500 grams to 899 grams). 13/28 (46%) and 14/28 (50% %) infants had one and two dose of surfactant respectively at birth. All infants were ventilated for a mean period of 22.9 days (range from1 to 91 days) and they received home oxygen for a mean period of 6.8 months (range 1 to 18 months). 1/28 (3.5%) infant had persistent PDA on discharge. Mothers of 22/28 (78%) infants had received two doses of steroid prior to delivery.
Conclusion Our findings showed that duration of home oxygen was not significantly related to gestational age or birth weight. We found no significant association between the length of mechanical ventilation and the period of home oxygen. Conversely, length of mechanical ventilation was related to both gestational age and birth weight.

591 CAN 670NM RED LIGHT PROTECT AGAINST RETINOPATHY OF PREMATURITY AND REDUCE LUNG INJURY IN A NEONATAL ANIMAL MODEL?

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Background Retinopathy of prematurity is a vasoproliferative disorder that can cause blindness and adverse visual outcomes in extremely premature neonates. Red light at 670nm wavelength promotes cellular differentiation, proliferation and wound repair.
Aims To determine whether 670nm light promotes normal retinal vessel development in a mouse model of Oxygen Induced Retinopathy of Prematurity (OIR) and whether it would affect organ development and growth.
Methods Four groups of C57BL/6J mice were used: 1) Control; 2) OIR - 75% oxygen p7–12 days and normoxia p12–17 days; 3) OIR and 670nm light - 9 J/cm^2 daily from p7–17; 4) 670nm light - 9 J/cm^2 daily from p7–17. At p17 animals were sacrificed and retinal vasculature labelled with Lectin. Neovascularisation and vaso-obliteration were analysed using established protocols. Weight and length measurements were taken daily until the animals were sacrificed and all organs were harvested, weighed and examined macro- and microscopically.
Results Neovascularisation was significantly reduced in the 670nm treated OIR group ($P<0.05$). The 670nm treated mice had increased body weight from p13 but no change in length. The OIR+670nm mice had reduced alveolar haemorrhage in comparison to the OIR only mice ($p<0.05$).
Conclusions Exposure to 670nm red light appears to promote normal retinal vessel development and may protect against ROP. 670nm treatment may also reduce oxygen induced lung injury.

592 RESPIRATORY DISBIOSES IN THE CHILDREN WITH FIRST DIAGNOSED TUBERCULOSIS

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Background and Aims Second disbioses of the respiratory play the presentative role and had negatively influence on the result of duration of infectious diseases and assists development of immune disbalance of mucous membranes of respiratory tract.
Methods We investigated 24 children with the Frst Dagnosed Pulmonary Tuberculosis (FDPT) in the age from 1–16 years. Research of microflora of respiratory tracts was conducted by a bacteriologic examination of native material (expectoration).
Results The inspected contingent had Pulmonary form of the first diagnosed tuberculosis. The patients concluded: childs to 3 years - 50.00%. other 50.00% children contained the group of pubertat period. Distributing on the forms of tubercular process: primary tubercular complex - 25.00%, pulmonary focus tuberculose 12.50%, disseminated tuberculosis - 25.00%, infiltrative tuberculosis - 37.50%. 58.30% children had assotiatin pathology with the FDPT: anaemia in 25.00% cases, pneumonia - 8.30%, HIV - 8.30%. In microbiological culture was confirmed presence of M. tuberculosis in 33.30% cases. The destructive chang in lung 16.70% cases was identificated. N.sicca was presented in 40.00% children with the normal microflora and S.epidermidis - in 60.00%. In 50.00% cases of children with the FDPT disbioses violations was identificated after the beginning of using of antiphthisic treatment. Disbioses as a monoculture found in 83.3% cases, in 16.70% cases - as associations of cultures. In 33.30% cases found out Escherichia coli, in the 16.70% - K.pneumonia, in the 50.00% cases - Candida A.
Conclusions On the basis of the conducted researches are set presence of respiratory dysbiosis in children with the FDPT.

593 PERSISTENTLY ELEVATED RIGHT VENTRICULAR INDEX OF MYOCARDIAL PERFORMANCE IN PRETERM INFANTS WITH INCIPIENT BRONCHOPULMONARY DYSPLASIA

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Objectives Elevated pulmonary vascular resistance occurs during the first days after birth in all newborn infants and persists in infants at risk for bronchopulmonary dysplasia (BPD). Pulmonary vascular resistance is higher during the first days after birth and in preterm infants with incipient bronchopulmonary dysplasia (BDP). It is difficult to measure in a non-invasive fashion. We assessed the usefulness of the right ventricular index of myocardial performance (RIMP) to estimate pulmonary vascular resistance in very low birth weight infants.
Study Design Prospective echocardiography on day of life (DOL) 2, 7, 14, and 28 in 121 preterm infants (median [quartiles] gestational age 28 [26–29] weeks, birth weight 998 [743–1225] g) of whom 36 developed BPD (oxygen supplementation at 36 postmenstrual weeks).
Results RIMP derived by conventional pulsed Doppler technique was unrelated to heart rate or mean blood pressure. RIMP on DOL 2 was similar in infants who subsequently did (0.39 [0.33–0.55]) and did not develop BPD (0.39 [0.28–0.51], p= 0.467). RIMP declined steadily in non-BPD infants but not in BPD infants (DOL 7: 0.31[0.22–0.39] vs. 0.35[0.29–0.48], p=0.014; DOL 14: 0.23[0.17–0.30] vs. 0.35[0.25–0.43], p<0.001; DOL 28: 0.21[0.15–0.28] vs. 0.31 [0.21–0.35], p= 0.015).
Conclusions In preterm infants, a decline in RIMP after birth was not observed in those with incipient BPD. The pattern of RIMP measured in preterm infants is commensurate with that of pulmonary vascular resistance.

594 A NEONATAL RAT MODEL OF BRONCHOPULMONARY DYSPLASIA INDUCED BY PRE- AND POSTNATAL INFLAMMATION WITHOUT EXPOSURE TO HYPEROXIA

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Purpose We tested if pre- or postnatal inflammation can develop BPD per se and if there are any interaction between prenatal and postnatal inflammation.
Methods Two days before delivery (E20), 1 μg of lipopolysaccharide (LPS) or vehicle (V) was injected into each amniotic sac, and after birth 0.25 mg/kg of LPS or vehicle was injected into peritoneum on P1, P3, and P5. This led to four experimental groups. On P7 and P14, their lungs and hearts were harvested, and alveolarization and lung vascular density were evaluated.
Results Morphometric analysis of P7 lungs revealed that both preLPS+postLPS group and V+postLPS group had significantly larger and less complex airspaces and small alveolar surface area than V+V group. On P14, only V+postLPS group had significantly larger and less complex airspaces than V+V group. Howevere, alveolar surface areas were significantly smaller both in preLPS+postLPS group and V+postLPS group than in V+V group. Lung vascular density of both preLPS+postLPS group and V+postLPS group was significantly lesser than V+V group.
Conclusions At these intra-amniotic and postnatal systemic LPS doses, prenatal intra-amniotic LPS injection per se did not affect postnatal alveolar and pulmonary vascular development, while postnatal systemic LPS injection significantly inhibited alveolar and pulmonary vascular development regardless of whether prenatal intra-amniotic LPS was injected or not. There was no definite interaction between intra-amniotic LPS and postnatal systemic LPS on the lung development. This rat model of BPD could be used as a valuable tool for testing the effect of anti-inflammatory agents on the prevention of BPD.

595 RISK FACTORS FOR BRONCHO-PULMONARY DYSPLASIA IN VERY-LOW-GESTATIONAL-AGE INFANTS

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Background BPD is a severe condition that has decreased in severity but remains a major long-term adverse outcome of surviving Very Low Gestational Age (VLGA) infants.
Aim To determine the BPD rate and evaluate its predictive and associated factors.
Methods BPP (need for supplemental O_2 at 36 wks CGA) rate and associated risk factors were analysed in a cohort of 24,087 VLGA infants admitted from 2006 to 2010 to 174 EuroNeoNet NICUs. Non-parametric independent tests and logistic regression models were performed to predict BPD, using crude and adjusted odd ratios (OR) to determine perinatal and early neonatal associations. Predictive capacity was assessed by Hosmer-Lemeshow test and discrimination by area under ROC curve (AUC).
Results BPD was diagnosed in 16% (95%CI: (15.4%–16.1%)) of infants, who had significantly lower GA, BW and Apgar scores. They were more frequently male, from single pregnancies, more often had