47 ROLE OF INHERITED FACTORS IN NON-HEMOLYTIC HYPERBILIRUBINEMIA OF FULL-TERM NEWBORN INFANTS. Corchia C, Sanna MC, Serra C, Forteleoni G, Argiolas L, Balata A, Orzalesi M. Departments of Child Health & Neonatology and Pediatrics. University of Sassari. Italy.

The relation between jaundice (serum bilirubin ⩾8 mg/dl) during the first 4 days of life and a number of perinatal variables was studied in 194 healthy full-term (gest. age ⩾37 weeks) newborn infants delivered consecutively at our institution between Jan. 7 and March 13,1987. All infants were free from malformations and/or any other disease requiring treatment, they were ABO and Rh compatible with their mothers and were not G6PD deficient. The following variables were significantly ($P < 0.05$) associated with a serum bilirubin level ⩾8 mg/dl (136.8 µmol/l): male sex, high maternal age, low or too high gestational age, operative delivery, poor feeding, neonatal weight loss and high levels of alpha-fetoprotein in cord blood; an association was also found with a history of neonatal jaundice in a previous sibling born at term. Type of delivery, poor feeding and weight loss were related to each other, so their association with jaundice is not independent. It was impossible to assess the role of breast- vs formula-feeding since nearly all babies (92%) were exclusively breast-fed. Alpha-fetoprotein was higher in males; it was also higher in infants with a previous jaundiced sibling, though this association disappeared after stratification for serum bilirubin levels <8 or ⩾8 mg/dl.

These results suggest that in our population inherited factors may play a major role in the genesis of non-hemolytic neonatal jaundice in healthy full-term newborn infants. (Partially supported by a grant of the Sardinia Health Dept.).

48 THE MALE DISADVANTAGE IN VERY LOW BIRTHWEIGHT (VLBW) INFANTS: DOES IT REALLY EXIST?

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Previous VLBW reports pointed at a higher mortality risk for boys as compared to girls. We investigated this difference between the sexes in a cohort of 1338 infants, liveborn in the Netherlands in 1983, with a gestational age of less than 32 weeks and(or) a birthweight of less than 1500 g (Project On Preterm and Small for gestational age, POPS). Comparison of boys and girls by gestational age and birthweight showed that, from 27-31 gestational weeks, the mean birthweight for boys is 50-145 g more than for girls in equal gestational age categories. Because gestational age is a stronger determinant of mortality risk than birthweight, birthweight-defined studies self-evidently must result in an excess mortality risk for boys. In the POPS-cohort, the crude mortality rate in VLBW boys was 29.6% and in girls 25.9%. Multivariate (logistic regression) analysis, including 22 perinatal risk factors as potential confounders among which gestational age and birthweight, showed that the odds for neonatal mortality were similar for boys and girls: adjusted odds ratio 1.05 (95% confidence-interval 0.74-1.50). We conclude that the mortality risk for the sexes is equal.

49 THERMAL INSTABILITY DURING CARE PROCEDURES IN INFANTS LESS THAN 1500 GRAMS BIRTHWEIGHT. C.A.BASS*, D.A. DUCKER*, Q MOK**, N McINTOSH**. *All Saints Hospital, Chatham,Kent. **St George's Hospital, London, UK.

The thermal stability of infants <1500g during routine care procedures was investigated during the first week of life. The infants were managed in incubators controlled in air mode at environmental temperatures appropriate for their size and age. Core temperatures and peripheral temperatures were monitored continuously and data were averaged each minute and plotted graphically by a Nimbus microcomputer. The change in temperatures during the routine "all care" nursing procedure (changing nappy,cleaning eyes and mouth,changing the babies position if sedated or paralysed and sucking out the endotracheal tubes if intubated),carried out within the incubator,was examined. 9 infants were studied, birthweight 1086±241g (mean±SD) and gestation 28±3 weeks (M±SD). A total of 77 "all care" procedures were analysed. The fall in core temperature was 0.6±0.4°C(M±SD) and the fall in peripheral temperature was 1.1±0.7°C(M±SD). The temperature differential increased by 0.5±0.5°C(M±SD). Routine care procedures may thus cause significant thermal stresses to small infants in incubators. The necessity of the individual components of "the routine" should be carefully assessed.

50 HIGH CONCENTRATIONS OF HYPOXANTHINE (HX) IN VITREOUS HUMOUR OF BABIES WITH RDS. A PATHOGENIC FACTOR IN DEVELOPING ROP?

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Oxygen radicals created by the hypoxanthine-xanthine oxidase system might play a role in development of Retinopathy of Prematurity (ROP). To test whether or not babies at risk for developing ROP have elevated hypoxanthine levels in their eyes, vitreous humour was analyzed post mortem for hypoxanthine in 13 premature babies who died of RDS. As controls serve seven newborn babies dying acutely from cardiac or pulmonary failure.HX was measured both with a pO_2 and a HPLC method and high correlation between the methods was found. RDS babies required treatment with 100 % O_2 33 ± 30.9 hours compared with 4.75 ± 12.0 hours in controls ($p < 0.001$). RDS babies experienced $paO_2 < 5.3$ kPa 15.2 ± 10.5 hours versus 0.96 ± 1.2 hours in controls ($p < 0.001$).There was a significant correlation between HX concentration in vitreous humour and duration of $paO_2 < 5.3$ kPa ($r = +0.59$, $p < .012$, $n = 19$). RDS babies had more than eight times higher HX concentrations than controls , 459 ± 171 micromoles/l versus 54 ± 71 micromoles/l ($p < 0.001$). Since the combination of O_2 and HX is necessary for the production of oxygen radicals by the hypoxanthine - xanthine oxidase system these data demonstrate that babies with RDS who are treated with high concentrations of O_2 and have high concentrations of HX in their eyes, might produce large quantities of oxygen radicals in their eyes.This might play a role for development of ROP.

51 Incidence and prediction of patent ductus arteriosus (PDA) in a cohort of 1307 preterm infants.

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The aim of this study was to determine the incidence and predictive factors of PDA in a cohort of 1307 infants of less than 32 weeks gestation and/or birth weight below 1500 gms, representing 96% of these infants born within 1 year in the Netherlands.

Symptomatic PDA was diagnosed (by clinical, radiological and ultrasound criteria) in 251 infants (19.2%).

Using stepwise logistic regression analysis, it appeared that, among 9 perinatal factors tested, gestational age was the most predictive factor for both the occurrence and severity of PDA, followed by idiopathic respiratory distress syndrome.

Furthermore, we found that infants with PDA had significantly more apnea and developed more bronchopulmonary dysplasia than infants without PDA.

We conclude that onset and severity of PDA are especially determined by gestational age.

52 Haemostatic factors in infants of preeclamtic mothers

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To investigate a possible influence of maternal pre-eclampsia on haemostasis in the neonate, blood coagulation and fibrinolysis were tested in 21 preterm infants (27-36 weeks gestation) born after maternal pre-eclampsia and in 16 healthy neonates, 10 preterm (32-36 weeks gestation), of uncomplicated pregnancies. A peripheral venous blood sample (1.5-2 ml) was taken within 8 hours after birth and analysed for activated partial thromboplastin time and plasma levels of fibrinogen, antithrombin III, prekallikrein, C1 esterase inhibitor, alpha-2-antiplasmin, plasminogen, protein C and D dimer.

The levels of the various factors well agreed with normal reference values for the age and did not differ significantly between the two groups of preterm infants. Thus an influence of maternal pre-eclampsia on neonatal haemostasis could not be demonstrated. Significantly ($P < 0.01$) lower levels of prekallikrein (29.2/37.7%), plasminogen (53.4/84.2%) and protein C (21/38%) in the preterm than in the term controls confirms a gestational age dependency of haemostatic factors.