

49 SAFETY AND EFFECTIVENESS OF SKIN-TO-SKIN CONTACT FOR VERY LOW BIRTH WEIGHT INFANTS  
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Separation between mothers and very low birth weight (VLBW) infants is often prolonged with subsequent psychological distress, behaviour problems and lactation failure. Babies as small as 700g with stable breathing can be enjoyably held naked, except for a nappy, between the mother's breasts for up to four hours a day.

We have carried out a randomised trial among babies less than 1500g. Seventy one infants were randomised. In 35, the mother was helped to hold her baby in skin-to-skin contact and encouraged to do so whenever she visited the baby. In 36, the mother was encouraged to handle her baby but without skin-to-skin contact. Mothers using skin-to-skin contact lactated for 4 weeks longer on average. At 6 months of age, the infants who had skin-to-skin contact cried significantly less than the control group.

Five infants with chronic lung disease, including two with nasal catheter oxygen, showed a mean 7 mm Hg rise in  $\text{tcpO}_2$  comparing skin-to-skin contact at 60 degrees and horizontal in a crib. If the baby wears a hat and has a blanket over the back, skin temperature was well maintained.

50 THE MALE DISADVANTAGE IN VERY LOW BIRTHWEIGHT (VLBW) INFANTS: SEQUELA AT 2 YEARS  
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POPS is a collaborative survey of very preterm (<32 weeks) and/or VLBW (<1500g) infants, born alive in the Netherlands in 1983. Out of 1338 study infants, 340 died during the initial hospital stay and 29 between discharge and the corrected age of 2 years. At that age, 942 infants were seen by their paediatricians to assess the presence of handicaps. Of 478 boys, 44 (9.2%) presented with a major handicap and 61 (12.8%) with a minor handicap. In 464 girls however, this was 15 (3.2%) and 50 (10.8%) respectively.

After correction for 11 potential confounders such as gestational age and birthweight (by using logistic regression analysis), male gender was significantly associated with an increased risk of handicap (odds ratio 1.7, 95% confidence interval 1.2-2.4;  $p < 0.01$ ). In contrast to the mortality risk during hospital stay, that did not show any difference<sup>1</sup> between the sexes, male gender is shown to be an important risk factor for sequelae of very preterm birth and VLBW.

<sup>1</sup> Verwey RA, Verloove-Vanhorick SP, Brand R, Ruys JH. The male disadvantage in very low birthweight (VLBW) infants: does it really exist? *Pediatr Res* 1987; 22: 225.

51 THE PREDICTIVE VALUE OF ABNORMAL NEUROLOGICAL DEVELOPMENT AT 6 WEEKS OF CORRECTED AGE (CA) FOR ABNORMAL VISUAL FUNCTIONS AT 1 YEAR IN VERY LOW BIRTH WEIGHT (VLBW) INFANTS. W.P.F. Fetterl, D.J. Heerema<sup>2</sup>, W. Baerts<sup>1</sup>, F. Groenendaal<sup>1</sup>, J. van Hof-van Duin<sup>2</sup>, Dept. of Paediatrics<sup>1</sup> and Physiology<sup>2</sup>, Erasmus Univ. Rotterdam, Sophia Children's Hospital, The Netherlands.

Early neurological examination has generally been considered of limited value in predicting developmental outcome. A high incidence of abnormal visual functions has been reported in VLBW infants. We studied the predictive value of early neurological examination for the development of visual functions in 56 VLBW infants, gest. age 24.8-35.0 w (median 30.6), bwt 690-1490 g (median 1115). Neurological assessment (Precht<sup>1</sup>) was performed at 6 weeks CA. Visual acuity (acuity cards), visual field (kinetic perimetry) and optokinetic nystagmus were assessed binocularly at 1 year CA. Visual functions were normal in 40 out of 47 neurologically optimal and suboptimal infants, while 6 out of the 9 neurologically abnormal infants showed abnormal visual functions ( $p < 0.005$  Fisher exact). Conclusion: 1. VLBW infants are at risk for abnormal development of visual functions. 2. The incidence of abnormal visual functions is high in infants with abnormal neurology at 6 weeks. However, normal neurology at 6 weeks does not exclude abnormal visual functions at 1 year of age.

52 RELIABILITY IN DETECTION OF HYPEROXAEMIA IN NEONATES BY TWO PULSE OXIMETERS (NELCOR N-100 AND OHMEDA BIOX 3700)  
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Pulse oximeters are used increasingly for monitoring oxygen treatment in neonatal intensive care. However, it is as yet not clear whether they can detect hyperoxaemia reliably. The AIM of this study was to evaluate sensitivity and specificity of two pulse oximeters in detecting hyperoxaemia (arterial  $\text{PO}_2$  ( $\text{PaO}_2$ )  $\geq 12$  kPa) using alarm limits at 95% saturation.

METHODS: The probes were applied to the foot of neonates who required mechanical ventilation. The pulse oximeter saturation values were compared with  $\text{PaO}_2$  in blood samples drawn from an umbilical artery catheter and measured by IL 613 or AVL 945.

RESULTS: The Nellcor pulse oximeter with an alarm level set at 95% detects hyperoxaemia with a sensitivity of 100% (22/22) and a specificity of 47% (24/51). The Ohmeda pulse oximeter has a sensitivity of 44% (15/34) and a specificity of 85% (45/53) for the same limits; with an alarm level set at 90% sensitivity rises to 97% but specificity drops to 36%.

CONCLUSION: Using Nellcor or Ohmeda pulse oximeters to detect hyperoxaemia with a sensitivity >95% the alarm level has to be chosen separately for each type and a specificity <50% must be accepted.

53 FACIAL MOTOR BEHAVIOUR OF VERY IMMATURE PRETERMS.  
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There are only few data on facial motor behaviour in very immature preterms. We performed continuous observations for resp. 1 hour in 15 preterms (gestational age 25-28 wk) 3 times a week up to a conceptional age of 31 wk. Total time of observation was 189 h. We established 27 different items representing 99 % of all movements. Median frequency of movements was 244/h (range 39-958). It did not correlate with gestational age and showed marked intra- and interindividual differences. Ocular (32 %) and oral movements (29 %) were the most frequent. However, each patient showed clear individual preference to certain items. Blood levels of phenobarbital (0-130 ug/ml) surprisingly did not significantly correlate with frequency of facial movements. Prognostic value of frequency of facial movements was poor, but in 3 of 7 preterms with bad outcome striking monotony of facial movements with predominant oral movements (> 50 %) could be observed.

54 SCHOOL PERFORMANCE OF LOW BIRTHWEIGHT CHILDREN  
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Standardised tests of mental and psychomotor development were administered to 175 low birthweight (LBW) children (bw<2000g) at a mean age of 7.1 years. WISC IQ scores were within the average range ( $\bar{x}$  101) as were Neale reading profiles ( $\bar{x}$  7.4 years). Errors on the Bender-Gestalt were average (5) but drawing was relatively immature (38%). Multiple regression statistics indicated that social class was the main predictor for intellectual performance. However, drawing was significantly poorer in small for gestational age children ( $p < 0.002$ ) and visuo-motor errors were more likely in those with a BW less than 1500 grams ( $p < 0.003$ ). Severity of neonatal illness was a significant predictor for poor drawing skills ( $p < 0.03$ ), perceptual-motor errors ( $p < 0.002$ ), and limited concentration ( $p < 0.04$ ) and persistence ( $p < 0.01$ ). These results support the findings of others that the major determinant of academic achievement is parental background. However, neonatal factors do have a significant impact on abilities which are fundamental to essential basic skill (e.g. handwriting) and the processing on new information (e.g. attention).