

Background and aims Preterm birth with very low birth weight. **Methods** We studied the association of preterm birth with 24-hour ambulatory BP and variability of BP in 42 young adults (mean age 23.2y) born early preterm (=37 weeks) in Northern Finland population. Wake and sleep period were distinguished with accelerometry in 72.4% of subjects, and for others by time (awake 9 am-11 pm, sleep 01 am-07 am).

Results Adults born early preterm had 5.6 mmHg (95% CI 1.9–9.3) higher 24-hour SBP, 2.9 mmHg (0.4–5.4) higher 24-hour DBP, 6.4 mmHg (2.8–10.1) higher awake SBP and 4.0 mmHg (0.4–7.5) higher sleep DBP when adjusted for age, sex and use of an accelerometer. Adults born early preterm had also higher within-subject standard deviation (SD) of 24-hour SBP and DBP, awake SBP and DBP and sleep DBP (Figure). Also adults born late preterm had higher SD of 24-hour DBP and sleep SBP and DBP when adjusted for age, sex and use of an accelerometer. When adjusted for maternal BMI, smoking during pregnancy and hypertensive pregnancy disorder, parental education, subject's height and BMI, physical activity and smoking, the results were somewhat attenuated.

Conclusions Higher 24-hour ambulatory blood pressure and variability of BP may indicate that adults born early preterm are in greater risk for later cardiovascular outcomes.

PS-163 ADULT SURVIVORS OF INTRAUTERINE TRANSFUSION FOR RHESUS DISEASE HAVE HEALTH AND SOCIOECONOMIC STATUS SIMILAR TO UNAFFECTED SIBLINGS

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Background and aims Intrauterine transfusion for rhesus disease is not uncommon, but long-term health and socioeconomic status in adulthood have not previously been reported. This study aimed to compare these outcomes in adult survivors of intrauterine transfusion to that of unaffected siblings.

Methods Participants were adults who received intrauterine transfusion for rhesus disease, and their unaffected sibling (s). Data regarding socioeconomic status, lifestyle and medical history were collected and compared using Chi-squared and T-tests. **Results** Affected participants (n = 95) were younger than unaffected (n = 92) (mean ± SD 33.7 ± 9.3 vs 40.1 ± 10.9 years, p < 0.001) and born at lower gestation (34.5 ± 1.6 vs 39.5 ± 2.1 weeks, p < 0.001) but similar in sex distribution (%male: 54%

Abstract PS-163 Table 1

| | Affected n (%) | Unaffected n (%) | p-value |
|---------------------------------|----------------|------------------|---------|
| Professional occupation | 33(35%) | 37(40%) | 0.44 |
| Income >NZ\$70,000* | 37(54%) | 38(55%) | 0.94 |
| Tertiary education | 53(56%) | 59(64%) | 0.24 |
| Married/de facto relationship | 58(61%) | 55(60%) | 0.86 |
| Non-smokers | 55(58%) | 51(55%) | 0.73 |
| Non-drinkers or social drinkers | 37(39%) | 44(48%) | 0.22 |
| ≥2.5 h/week exercise | 63(66%) | 68(74%) | 0.26 |

*n = 68 (affected); 69 (unaffected); NZ\$70,000 = median household income in 2013

Abstract PS-163 Table 2

| | Affected n (%) | Unaffected n (%) | p-value |
|------------------------|----------------|------------------|---------|
| Hypertension | 15(16%) | 20(22%) | 0.30 |
| Hyperlipidemia | 11(12%) | 11(12%) | 0.94 |
| Diabetes | 2(2%) | 0(0%) | 0.10 |
| Asthma/atopy | 61(64%) | 50(54%) | 0.17 |
| Other medical problems | 29(31%) | 27(29%) | 0.86 |
| Medication use | 23(24%) | 26(28%) | 0.53 |

affected vs 45% unaffected, p = 0.21). There were no differences between groups in socioeconomic status and lifestyle variables (Table 1), or health outcomes (Table 2).

Conclusions This study provides the first evidence that survivors of intrauterine transfusion for rhesus disease show no evidence of adverse effects on general health or socioeconomic status in early to middle adulthood.

PS-164 RESTING STATE FUNCTIONAL CONNECTIVITY IN AMYGDALA-PREFRONTAL NETWORKS AND EMOTION PROCESSING IN ADULTS WHO WERE BORN VERY PRETERM

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Background and aim Preterm birth has been associated with psychiatric disorders involving emotion regulation, social competence and communicative skills throughout the first three decades of life. However, the exact neuro-anatomical mechanisms underlying socio-emotional impairments in individuals who were born very preterm (VPT) are still unknown. Therefore, the aim of this study was to investigate the functional integrity of an emotion-processing brain network comprising the amygdala and prefrontal cortex and to test whether it correlated with participants' capacity to recognise specific emotions.

Method 28 VPT born adults and 28 age-matched controls (mean age for both groups 29 years) were scanned at rest in a 3T scanner. Nuisance effects of head motion, whole-brain, CSF and white matter were removed from the preprocessed data and a seed-based analysis focusing on three amygdalar subregions (centro-medial/latero-basal/superficial) was performed using SPM8 (University College London). Participants' ability to recognise specific emotions was assessed using dynamic stimuli of human faces expressing six basic emotions at different intensities (Emotion Recognition Task - ERT).

Results Preliminary analysis of resting state functional connectivity MRI (fcMRI) data revealed that the centro-medial subdivision of the right amygdala showed less functional connectivity with the bilateral prefrontal cortex in preterm-born young adults compared to controls. Regarding performance on the ERT, the groups significantly differed in recognising anger in faces moving from a neutral expression to the lowest intensity of that emotion.

Discussion These findings suggest that reductions in the intrinsic connectivity between the amygdala and prefrontal cortex potentially underlie emotional deficits in preterm born individuals.

PS-165 **DOES GENERAL ANAESTHESIA EXPOSURE EFFECT ADVERSE NEURODEVELOPMENTAL OUTCOMES IN VERY PRETERM INFANTS?**

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Background and aims General anaesthetics may produce neurotoxicity and enduring cognitive impairment in animal models, but the issue has not been adequately studied in humans. We want to demonstrate the association of poor neurodevelopmental outcome in preterm neonates who underwent anaesthesia during their neonatal period.

Methods Total of 120 infants in infants born very preterm (≤ 32 weeks) with very low birthweight (< 1500 g) were enrolled in a retrospective randomised controlled trial classed into two groups. Group 1 ($n = 60$) underwent general anaesthesia for any surgical state on follow-up and group 2 ($n = 60$) was not given anaesthesia. Both of groups were compared in terms of clinical demographic data. Cognitive and neuromotor development were assessed by using the Bayley Scales of Infant Development II.

Results No statistical difference between demographic data. The mental developmental index (MDI) and physical developmental index scores were 76.73 ± 23.88 ; 76.26 ± 20.22 in group 1 and 96.6 ± 12.87 ; 89.1 ± 16.75 in group 2, respectively. There was significant difference in growth and neurodevelopmental outcomes between the two groups (MDI: $p = 0.001$; PDI: $p = 0.01$). There was no independent risk factor, which can affect none of the MDI and PDI scores in the multinomial logistic regression analysis.

Conclusion One of the most important problems of prematurity is poor neurodevelopmental outcome. Sedatives and anaesthetics which widely used in animal studies, showed widespread structural damage after exposure to the newborn period and lasting neuro-cognitive abnormalities in brain development. Anaesthetics exposure in preterm infants among surgery is an independent increased risk factor for poor neurodevelopment.

PS-166 **NEURODEVELOPMENT OUTCOME DURING TODDLERHOOD IN VERY LOW BIRTH WEIGHT INFANTS WITH ABSENT OR REVERSE END DIASTOLIC FLOW IN THE UMBILICAL ARTERY DURING PREGNANCY**

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Background and aim Antenatal absent or reverse end-diastolic flow (AREDF) in the umbilical artery (UA) is associated with high perinatal morbidity and mortality. We aimed to assess the neurodevelopment outcome during toddlerhood of very low birth weight preterm infants with AREDF in the UA during pregnancy.

Methods We compared longitudinally collected neurodevelopment outcome data of surviving preterm infants born in our institution in 1996–2010 with birth weight < 1500 g and with AREDF in the UA with those of sex-, gestational age-, birth

weight-, and birth year-matched infants with prenatal normal UA-Doppler parameters. Neurodevelopment outcome was evaluated at a mean (SD) corrected age of 20.6(8.1) months by the BSID-II and neurological examination.

Results Forty-one infants for both groups were recruited. Neonatal and socio-demographic characteristics of both groups were similar except for the confounders caesarean section, antenatal corticosteroids (higher in AREDF group, $p = 0.01$ and 0.02 , respectively), and mother's age (lower in AREDF group, $p = 0.01$). Mean (SD) mental development index of children with AREDF in the UA (81.8, 16.3) was significantly lower ($p = 0.02$) compared to controls (92.4, 16.3). This result remains significant after adjustment for confounders. No significant differences in the psychomotor development index or in the distribution of cerebral palsy were observed between the two groups.

Conclusion Preterm infants with abnormal antenatal Doppler in the UA have a higher risk for adverse neurodevelopment outcome during toddlerhood compared to sex-, gestational age-, birth weight-, and birth year-matched controls. AREDF in the UA might be considered a prenatal predictor of adverse neurodevelopment outcome in this population.

PS-167 **WITHDRAWN**

PS-168 **LONG-TERM RENAL COMPLICATIONS IN THE REGIONAL COHORT OF ELBW CHILDREN: CORRELATION BETWEEN RESULTS ACQUIRED AT THE AGE OF 7 AND AGE OF 11 YEARS**

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Aim Assessment of renal long-term complications in the regional cohort of ELBW children born in 2002–2003.

Methods 40 children (17 born as ELBW infants and 23 full-term control children randomly selected from one GP office) were assessed at the age of 7 years and next prospectively observed up to 11 years. Serum creatinine, Cystatin C, renal ultrasound and 24-hours ambulatory blood pressure measurements (ABPM) were performed.

Results Mean birthweight of the ELBW group equaled 825g, and mean gestational age equaled 26.5 weeks. Mean renal volume at the age of 7 years was: ELBW group - left kidney (LK) 37ml; right kidney (RK) 40ml, control group - LK 59ml; RK 60ml ($p < 0.01$ for both kidneys). The increase of renal volume between the age of 7 and 11 was similar in both groups. The volume of kidneys at the age of 11 years was: ELBW group - LK 51ml; RK 56ml, control group - LK 67ml; RK 70ml ($p < 0.01$ for both kidneys). Calculated eGFR values at the age of 7 and 11 years were similar in both groups (ELBW group at the age of 7 and 11 respectively: 124 vs. 123; control group 127 vs. 114 ml/min*1.72m²). The mean arterial blood pressure (ABPM) increased significantly between both time points (ELBW group: 79 vs. 83, control group: 77 vs. 81 mmHg).

Conclusions The smaller renal volume observed in the assessed ELBW children at the age of 7 years persisted up to the age of 11 years, however the renal function seems to be intact.