Objective To determine the nature of cognitive function, frequency and severity of cognitive deficit, in 10 to 15-year-old extremely preterm (EPT) children born at 2 tertiary care centers in Sweden adhering to a policy of universal resuscitation of all infants born alive.
Methods The outcomes of 121 surviving EPT children, born 1992–1998, were compared to a control group of 100 term children. Children were assessed with WISC- III at 9–16 years of age. Relationship of perinatal risk factors (PNRF) with the outcomes was examined with multivariate regression analyses (MRA).
Results The EPT group had a mean IQ of 80 (controls 103). 29% of the EPT children had an IQ below 70 (controls 3.4%), of which 9 % were under IQ 55 (controls 0). Another 30% of EPT children had IQ within the mildly delayed range, 70–84 (controls 12.6%). The preterm group has a greater variance between cognitive domains, with the language skills as relative strength and spatial thinking as pronounced weakness. MRA revealed that only gestaional age was inversely related to FSIQ (B 7.1, P 022) and Performance IQ (B 9.8, P<001).
Conclusion Cognitive dysfunctions remain high in EPT children. These numbers are similar to those from centres with less active perinatal care policies. Very few have severe cognitive impairment that curtail their activities in daily life.

1228 EXECUTIVE FUNCTIONS AT 10–15 YEARS IN CHILDREN BORN AT < 26 WEEKS' GESTATION AFTER ACTIVE PERINATAL CARE: UPPSALA-UMEÅ STUDY

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Aim To determine the nature, frequency and severity of executive dysfunction (EDF) in 10 to 15-year-old extremely preterm (EPT) children born at 2 tertiary care centers in Sweden adhering to a policy of universal resuscitation of all infants born alive.
Design/methods The outcomes of 121 surviving EPT (86% of all EPT survivors) children born 1992 through 1998 were compared to a matched control of children born at term. Cognitive function was assessed by WISC-III. Executive functions were assessed by D-KEFS Tower of London and ADHD-symptoms by Conners 10-item rating scale. Relationship of perinatal risk factors (PNRF) with the outcomes was examined with appropriate statistical analyses.
Results The EPT children exhibited significant EDF compared with their controls in many EFs such as impulsivity, inattention and planning ability even after controlling for intelligence (IQ). Mean scores in EPT and controls were, respectively, 79 vs 101 in full scale IQ, P<0.001; 2.5 vs 0.5, P<0.001 in Impulsivity; 9.1 vs 11.8, P<0.001 in planning ability; and 4.4 vs 1.62 in ADHD symptoms. Severe impairments were exhibited in only a small minority of EPT children. No statistical conclusions were altered when children with substantial neurosensory impairment were excluded. Relation of PNRF will also be discussed.
Conclusions School-aged children who were born EPT in the 1990s are at greater risk for developing EDF and these contribute excess morbidity over cognitive impairment in EPT children. Thus these children require ongoing neuropsychological review throughout their childhood and adolescence.

1229 COMPUTERIZED WORKING MEMORY TRAINING IS EFFECTIVE IN PRETERM BORN CHILDREN AT PRESCHOOL AGE

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Background and Aims Working memory (WM) is defined as the skill to retain and manipulate information "on-line" over short periods of time. Deficits in WM are frequently reported in preterm children and are associated with cognitive, behavioural and academic problems. We wanted to evaluate if a software-based computer program would improve WM, attention and behaviour in VLBW children at preschool age.
Methods This prospective study included 20 preterm children. Mean birth weight 1099g(SD 311), mean gestational age 29 weeks(SD 2.8). At age 5–6, the children trained with the Cogmed JM computer program for 10–15 minutes each day, 5 days a week for 5 weeks. The children were assessed before and 4 weeks after training. Effect on trained WM tasks were assessed by improvement measures included in the computer program. Non-trained WM and generalization effects were assessed by neuropsychological (NEPSY) tests. Parental questionnaires regarding ADHD symptoms were performed before and after completed training.
Results The children improved on trained WM tasks (Start-Index: mean 42.1; SD 6.3, Max-Index 60.6; SD 5.7. p≤0.001.). The group also improved on non-trained WM tasks and showed a generalization effect on auditory attention, phonological awareness and visual and verbal memory. A Stepped-Wedge-Design showed that improvements in test results after training were not due to test-retest effects. There was a trend towards significantly reduced ADHD scores after training.
Conclusion Computerized WM training in VLBW pre-schoolers have positive effects on trained and non-trained WM tasks as well as generalizing effect on verbal and visual learning and memory functions.

1230 THE PREDICTIVE VALUE OF EARLY AEEG PATTERNS FOR FUNCTIONAL OUTCOME AT SCHOOL AGE IN PRETERM INFANTS

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Introduction Brain activity of preterm infants can be assessed by amplitude integrated electroencephalography (aEEG).
Objective To determine whether early aEEGs of preterm infants are associated with functional outcome at 7 years.
Methods Eighteen infants participating in a prospective observational study in 2004 were seen for follow-up at median age of 7 years, 5 months. Median GA was 28.9wks (26.7–32.9). aEEGs of 2h duration were recorded within 48h and one and two weeks after birth. aEEGs were assessed by pattern recognition and by calculating the mean of aEEG amplitude centiles. Functional outcome was determined by assessing intelligence, attention, verbal memory, visuospatial processing, executive functioning and motor skills.
Results In case of burst suppression < 48h Total IQ was 13 points lower (P=0.018), Performance IQ was 18 points lower (P=0.016) and visuospatial processing scores were 0.68 SD lower (P=0.027). Mean p5 and p50 centiles recorded < 48h after birth correlated positively with Total IQ (r=0.507, r=0.495, repectively; P<0.05), Performance IQ (r=0.578, r=0.514, respectively; P<0.05), selective attention (r=0.586, r=0.577, respectively; P<0.05), visuospatial processing (r=0.488, r=0.534, respectively; P<0.05) and fine motor skills (r=0.558, r=0.556, respectively; P<0.05). All correlations remained significant at one week and after adjustment for GA, except for visuospatial processing and fine motor skills.
Conclusion Burst suppression and lower aEEG amplitude centiles within 48hrs and at one week after birth were associated with

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