ID: 557

TITLE: CLINICAL OUTCOMES FOR CHILDREN WITH PRE/PERINATALLY AQUIRED CEREBRAL PALSY DIFFER BY PRESENCE OF CONGENITAL ANOMALIES

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CONTENT:

The reported prevalence of congenital anomalies (birth defects) in children with cerebral palsy (CP) ranges from 11-40%. The variation in range is likely accounted for by the different methods and definitions of included anomalies used in studies. Children with CP and congenital anomalies are described as having more severe clinical outcomes than their peers with CP without anomalies, however studies have been further limited by small samples. The aim of this study was to describe clinical outcomes for children with CP with and without congenital anomalies, stratified by type of congenital anomaly present.

This international study (The Comprehensive CA-CP Study) pooled linked data from CP and congenital anomaly registers in 6 regions of Europe and 3 regions of Australia. Data on children with pre/perinatally acquired CP, born 1991-2009 was included. EUROCAT definitions of major anomalies were applied to all registries. Cases with anomalies were coded with a CP adaptation of the EUROCAT aetiological classification system and allocated to: chromosomal or genetic syndromes (regardless of anatomy of anomalies), anomalies associated with a teratogenic syndrome, cerebral anomalies (with or without other non-cerebral anomalies) or non-cerebral anomalies only. Descriptive analyses of clinical outcomes for children with and without congenital anomalies, stratified by case classification, were conducted.

23% of 8201 children with CP had a congenital anomaly with14% syndromes, 3% teratogenic syndromes, 54% cerebral anomalies and 30% non-cerebral anomalies. Term births were more common in the syndrome, teratogenic syndrome and cerebral anomaly groups (73, 79, 69%), than the no anomalies and non-cerebral groups (56, 50%). Children with anomalies had more severe outcomes (non-ambulation and severe associated impairments) than those without anomalies (all p<0.01). Severe outcomes were common in children with cerebral anomalies: GMFCS IV-V 46%, severe impairments of intellect 52%, vision 17%, hearing 6%, speech 44% and epilepsy 56%, as well as in the genetic syndrome and teratogenic syndrome groups. While severe impairments were less common in children with non-cerebral anomalies, the proportion of intellectual impairment was higher than in children without anomalies (32 v 25%)(p<0.01).
Nearly one in four children with pre/perinatally acquired CP had a major congenital anomaly in this study, the largest international data linkage study of its kind. Severe clinical outcomes are common in these children, particularly in those with cerebral anomalies and/or underlying syndromes. Future research from the Comprehensive CA-CP Study dataset will include investigation of pathways to CP via specific anomalies.

COI: None declared
ID: 611
TITLE: ISSUES IN QUALITY OF LIFE OF ADULTS BORN VERY PRETERM OR VERY LOW BIRTH WEIGHT COMPARED TO ADULTS BORN FULL-TERM: A SYSTEMATIC REVIEW
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CONTENT:

Several longitudinal cohort studies that follow participants who were born very preterm (VPT) or with a very low birth weight (VLBW) have now gathered outcome data at adult age. The current systematic review aimed to explore whether Health-related Quality of Life (HRQoL) of adults born VPT or VLBW differs from HRQoL of adults born full-term.

A systematic review was preregistered under PROSPERO-ID CRD42018084005. Studies were eligible for inclusion when: authors claimed that they had measured HRQoL of adults born preterm (<32 weeks of gestational age) or very low birth weight (<1500 grams birth weight), who were 18 years of age or older; the article was written in English; and a comparison to a control group or valid control norms was reported. We searched Pubmed, Scopus, Psycinfo, Web of Science, Embase, and publication lists from experts in this field. Bias was assessed of how clear hypotheses were stated, if attrition happened at random and if other bias-related problems occurred.

A total of 18 studies of 15 unique cohorts from 11 different countries were included in this review. Most of these studies showed that a VPT or VLBW birth does not affect adult HRQoL, especially when handicapped participants were excluded. Differences were mainly found on objective HRQoL, subscales such as physical functioning, for those most handicapped (born small for gestational age or with neurosensory impairments) and for males or females separately.

There is no clear-cut evidence that HRQoL differs between adults born VPT or VLBW and controls born full-term, although some groups, especially subjects with one or more handicaps, seem at risk for lower HRQoL. A future meta-analysis should focus on the determinants of HRQoL and the associations between preterm birth, handicaps and HRQoL. Heterogeneity in HRQoL measurements and the definition of handicaps impairs the comparability of studies.

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**ID:** 959  
**TITLE:** UNPLANNED OUT-OF-HOSPITAL DELIVERIES IN FINLAND 1996-2013  
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**CONTENT:**

Finland has a total area of 338,145 km² and a population of 5.5 million. Annual amount of births has decreased to less than 50,000 during the last years. During the years 1996-2013 14 delivery units were closed in Finland, equaling one third of the units. There has been a concern whether these closures may raise the amount of unplanned out-of-hospital deliveries (UOHD). The aim of the study was to evaluate incidence, characteristics, risk factors and outcome of UOHDs in Finland.

We conducted a national register study using data on births, causes-of-death and congenital anomalies including all live and stillbirths in 1996-2013. The study group included a total of 1420 infants. The collected data included maternal and delivery characteristics and obstetric procedures, characteristics of infants and admissions to neonatal care unit, diagnoses, congenital anomalies and causes of death.

The annual rate of UOHDs increased from 46 to 260 per 100,000 births (Figure 1). Risk factors of UOHD were low socioeconomic status (OR: 1.39, 95% CI 1.19-1.62), duration of labor <7 hours (OR: 12.0, 95% CI 9.8–14.7), ≥ 3 previous births (OR: 2.73, 95% CI 2.41–3.09), prematurity (OR 1.50, 95% CI 1.24–1.81), distance to the delivery unit ≥ 35 km (OR: 2.77, 95% CI 2.50–3.08) and less prenatal visits (OR 2.37, 95% CI 2.11–2.66). UOHD infants had seven times higher perinatal mortality compared to in hospital births. 24 of these infants died before the age of seven days and 25 infants before the birth. Very preterm birth (OR: 32.2, 95% CI 3.34–310), fewer prenatal visits (OR: 1.88, 95% CI 1.15-3.07), SGA (OR: 4.25, 95% CI 1.28–14.1) and maternal smoking (OR: 1.86, 95% CI 1.12-3.10) were risk factors of perinatal morbidity and mortality.

Increase in incidence of UOHDs may be due to several factors, such as closure of smaller delivery units and poorer antenatal care due to social problems. UOHDs are potentially high-risk events for infants. Perinatal mortality rate is significantly higher especially among preterm infants and if no antenatal care was recorded.

**IMAGES:**

Unplanned home births 1996-2013 in Finland

**COI:** None declared
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**TITLE:** INDIVIDUALIZED GROWTH TRAJECTORIES FOR PRETERM INFANTS – ASSOCIATIONS WITH SHORT-TERM OUTCOMES  
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**CONTENT:**

Individualized postnatal growth trajectories (GTC) for preterm infants incorporate postnatal weight loss, and adjusted median intrauterine growth rate merged with WHO growth standards at term age (www.growthcalculator.org). The GTC trajectory was calculated based on gestational age (GA), birth weight (BW), and sex for each infant and they provide daily reference weights from birth to 42 weeks of postmenstrual age (PMA).

The study aims to: 1) compare observed deviations of weight (ΔW) from the GTC trajectory between cohorts and 2) analyze relationships between ΔW and short-term outcomes.

International multicohort study, including infants with gestational age (GA) from 22 to 33 weeks with weight data from nine cohorts (Austria, Germany, Sweden, Australia, Canada, USA) and the German Neonatal Network (BW, 35 weeks PMA, discharge).

The difference between the GTC trajectory and 1) individual weights at various single time points (ΔW), and 2) deviations integrated over the NICU stay (ΔW-AUC) were determined.

The relationship of ΔW with head circumference (HC), length (L), lean mass, fat mass, and blood pressure (BP) at discharge, adjusting for major NICU morbidities were analyzed. The relationship of ΔW-AUC with outcomes was assessed for 2-week periods from birth to discharge using a sequential multinomial logistic regression. Level of significance was p<0.05.

In this study, 2,027 infants from 8 cohorts (998 <28 weeks) and 15,971 infants from the German Neonatal Network (6,558 <28 weeks) were included. At 36 weeks, preterm infants showed a significantly different ΔW for GA and cohort. For infants <28 weeks at birth, median ΔW was up to -360g and cohort-specific variations significant, with some cohorts having minimal ΔW even in the extremely low GA infants (Figure). At discharge, HC, L, fat mass, and lean mass were significantly related. BP before discharge tended to be higher with high deviation from ΔW. ΔW-AUC before discharge was the strongest predictor of outcomes. Converging towards the GTC trajectory until discharge seemed to improve outcomes while diverging was related to unfavorable outcomes.

This is the first study to analyze growth of preterm infants by comparing them to individual GTC. The results show that outcomes were independently related to growth pattern.
Deviation from target weight and variation between cohorts according to gestational age. (Full black line – median deviation of all infants)

COI: None declared