September 16th, 2021 11:00 - 13:00

PARALLEL SESSION 16 – UENPS

ID 400. CENTRALIZATION OF CARE DOES NOT EXCLUSIVELY EXPLAIN THE IMPROVED OUTCOME IN EXTREMELY PRETERM INFANTS IN SWEDEN

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BACKGROUND

A comparison of two Swedish population-based cohorts of live-born infants delivered at 22-26 weeks of gestation during two three-year periods, ten years apart, showed that an increased survival to 1 year of age in the later cohort was paralleled by an increasing proportion of extremely preterm births taking place at hospitals with level III neonatal intensive care units (1). We hypothesized that the increased centralization of births in the later period was the major explanation for the overall increase in infant survival.

METHODS

Data was retrieved from two population-based study databases, covering all Swedish births at 22+0 to 26+6 weeks of gestation during 2004-2007 and 2014-2016. Data from 1602 live-born infants was analyzed by birth at (inborn) or outside (outborn) hospitals with level III neonatal intensive care, and by birth cohort. The primary outcome was 1-year survival among live-born infants.

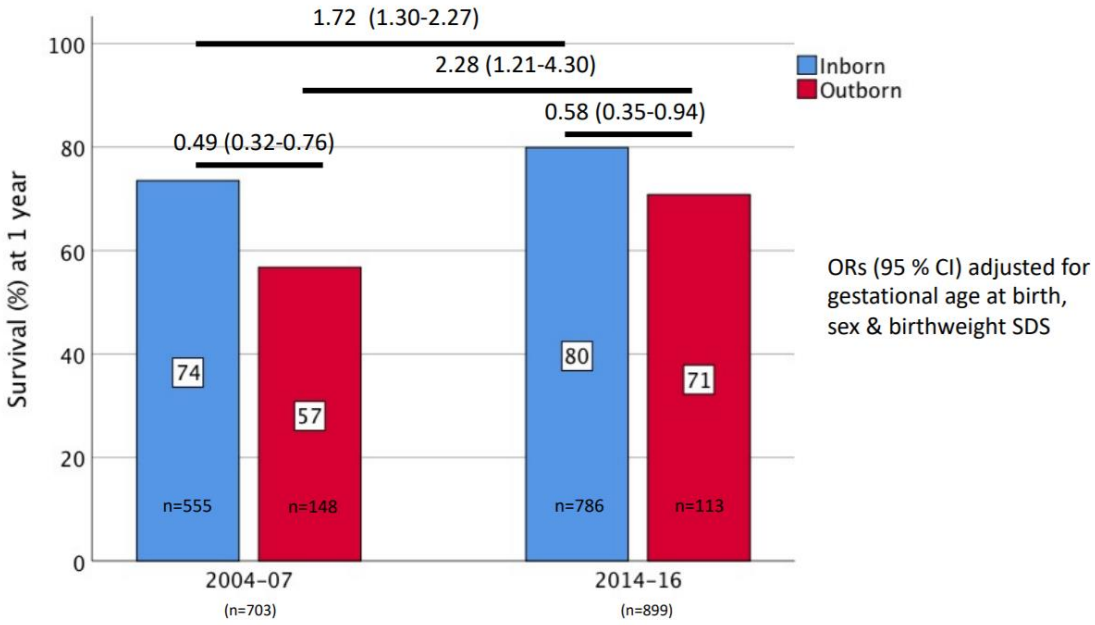
RESULTS

Survival at 1 year (%) among live-born according to birth cohort and inborn/outborn status is shown in Figure 1. Comparisons of infant survival rates are expressed by odds ratios (OR) with 95 % confidence intervals (CI) adjusted for gestational age at birth, sex and birthweight standard deviation score. Outborn status was associated with a lower adjusted 1-year survival within both time periods. Further, adjusted 1-year survival was significantly higher in 2014-2016 than in 2004-2007, irrespective of inborn/outborn status. The 2014-2016 birth cohort remained significantly associated with a higher 1-year survival also after adjustment for inborn/outborn status, OR=2.0 (95% CI: 1.1-3.6). The association between inborn/outborn status and 1-year survival was no longer statistically significant after adjustment for antenatal steroid treatment.

CONCLUSION

The higher 1-year survival rate observed in 2014-2016 as compared to 2004-2007 was not exclusively explained by an increased centralization of births. Of note, infant mortality decreased over time in both inborn as well as in outborn infants suggesting an increasingly active attitude towards management of extremely preterm births even outside hospitals with level III neonatal intensive care units.

(1) Norman M, Hallberg B, Abrahamsson T et al. Association between year of birth and 1-year survival among extremely preterm infants in Sweden during 2004-2007 and 2014-2016. JAMA 2019;321(12):1188-1199.



Survival (%) at 1 year of age in live-born infants according to birth cohort and inborn/outborn status

None of the authors have any conflicts of interest to declare.

ID 234. MALE DISADVANTAGE IN SHORT-TERM COMPLICATIONS OF PREMATURITY: A SYSTEMATIC REVIEW AND META-ANALYSIS

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Background

A widely accepted concept in perinatal medicine is that boys are more susceptible than girls to adverse outcomes of prematurity, including bronchopulmonary dysplasia (BPD), retinopathy of prematurity (ROP), necrotizing enterocolitis (NEC), intraventricular hemorrhage (IVH), and periventricular leukomalacia (PVL). However, this male disadvantage of prematurity has not been systematically analyzed. We conducted a systematic review and meta-analysis of clinical studies exploring the association between sex and short-term complications of prematurity.

Methods

Prospero registration number: CRD42018095509. PubMed and Embase were searched. We selected cohort studies examining preterm infants and reporting primary data on the association between infant sex (independent variable) and the development of BPD, ROP, NEC, IVH and PVL. Differences in obstetric and perinatal characteristics were also analyzed. A random-effects model was used to calculate risk ratios (RR) and 95% confidence interval (CI).

Results

Of 2654 potentially relevant studies, 41 met the inclusion criteria (579872 infants). Male sex was associated with a decreased risk of hypertensive disorders of pregnancy (RR 0.83, CI 0.80-0.86), fetal distress (RR 0.78, CI 0.68-0.9), and c-section (RR 0.98, CI 0.97-0.99), but an increased risk of birth in a non-tertiary hospital (RR 1.08, CI 1.03-1.13), intubation at birth (RR 1.04, CI 1.01-1.08), respiratory distress syndrome (RR 1.09, CI 1.04-1.14), surfactant use (RR1.06, CI 1.03-1.08), pneumothorax (RR 1.24, CI 1.11-1.40), postnatal steroids (RR 1.21, CI 1.19-1.24), late onset sepsis (RR 1.05, CI 1.03-1.08), any NEC (RR 1.15, CI 1.03-1.27), NEC>stage 1 (RR 1.12, CI 1.06-1.18), any IVH (RR 1.17, CI 1.14-1.19), severe IVH (RR 1.28, CI 1.22-1.34), severe IVH or PVL (RR 1.17, CI 1.04-1.31), any BPD (RR 1.20, CI 1.05-1.37), moderate/severe BPD (RR 1.23, CI 1.18-1.27), severe ROP (RR 1.14, CI 1.07-1.22), and mortality (RR 1.23, CI 1.16-1.30).

Conclusion

This meta-analysis confirms the presence of male disadvantage in mortality and short-term complications of prematurity including IVH, BPD, ROP, and NEC. Our data also suggest that preterm boys have higher clinical instability and greater need for aggressive interventions than preterm girls. These differences in clinical course may have a major influence on the development of the pulmonary, neurological, ocular, and gastrointestinal complications of prematurity.

None declared

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UENPS Union of European Neonatal & Perinatal Societies
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PRE-CONGRESS COURSES
11-12 September 2021

ID 329. What gestational age and birthweight inclusion criteria should be used in selecting studies for meta-analyses of very preterm birth and cognition?

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Background

Meta-analyses synthesizing the results of studies on very preterm (VPT) birth and childhood cognition have increased in recent years. Some reviews restrict primary studies to those using gestational age (GA) inclusion criteria, while others include birthweight (BW) criteria. This creates a lack of overlap in studies included in reviews which could lead to conflicting results and represent a missed opportunity to analyze all available information. We described the GA and BW criteria in studies on VPT birth and cognition and whether results differed based on these criteria.

Methods

All primary studies used in five systematic reviews investigating the consequences of VPT birth on childhood IQ were included. Country, birth years, and BW/ GA selection criteria for VPT were extracted from each study. When several studies were from the same cohort, we selected the study with the longest follow-up (103 unique cohorts out of a total of 156 studies). Pooled standardized mean difference (SMD) in IQ between VPT and full-term were estimated with sub-groups defined by GA/BW criteria to investigate variation in effect sizes. We distinguished between three risk groups: extremely(E)PT (<28 weeks(w)) and ELBW(<1000 grams (g))(k=25); very (V)PT(<32w) and VLBW(<1500g)(k=58); moderately (M)PT(<34w) and MLBW(<1800g)(k=20).

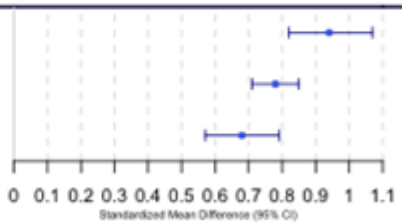
Results

There was a high heterogeneity in GA/BW study criteria in studies included in the meta-analyses. Most common criteria were BW<1000g (12), BW<1500g (24), GA<32w (12) and GA<33w (12); other combinations of BW/GA represented 23 studies. Studies using BW only criteria were more often from North America than Europe (56% vs 24%), and included children born before 1990 compared to more recent cohorts (67% vs 26%). Estimates of the magnitude of the impact of VPT on cognition within risk groups did not differ significantly by BW or GA criteria, although pooled-SMD using BW criteria were larger. Significant differences in the IQ deficit associated with prematurity were noted across risk groups (Figure).

Conclusion

Meta-analyses on the consequences of VPT birth should include studies using GA as well as BW criteria to avoid selection biases associated with country of origin and year of birth and to increase the potential for investigating trends across time and risk group.

Risk groups	Number of studies	SMD (95% CI)	Difference in IQ pts	Tau2
EPT/ELBW	25	0.94 [0.82; 1.07]	14.1	0.0685
VPT/VLBW	58	0.78 [0.71; 0.85]	11.7	0.0333
MPT/MLBW	20	0.68 [0.57; 0.79]	10.2	0.0263



Forest plot of standardized mean differences (SMD) in IQ between very preterm children and full-term children, by degree of prematurity

Forest plot of standardized mean differences (SMD) in IQ between very preterm children and full-term children, by degree of prematurity

None declared

ID 336. SOCIO-DEMOGRAPHIC PATTERNS OF REFUGEE NEONATES ADMITTED TO A NEONATAL INTENSIVE CARE UNIT AND HIGH DEPENDENCY UNIT DURING A 4-YEAR REFUGEE CRISIS PERIOD IN GREECE

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BACKGROUND: During Greece migration crisis, adverse effects on neonatal health status have been reported. The aim of our study was to examine the socio-demographic characteristics of refugee neonates admitted to advanced neonatal care units.
METHODS: All refugee neonates admitted to B' Neonatal Intensive Care Unit (NICU) and Neonatal High Dependency Unit (NHDU) during a 4-year period were retrospectively analyzed. Socio-demographic characteristics, living and housing conditions, along with neonatal characteristics and mortality were analyzed.
RESULTS: A total of 77 refugee neonates were admitted to B' Neonatal Intensive Care Unit (NICU) (n=58; 75.3%) and Neonatal High Dependency Unit (NHDU) (n=19; 24.7%) from January 2017 to December 2020. Among them, 46 (60%) were males, with a mean gestational age of 35±4.3 weeks, mean birth weight of 2,467±911.3 grams and mean age of 7±11.2 days at hospital admission, while 61% of the neonates were admitted during the first day of life. Premature infants were 41 (53.2%), while almost three out of four neonates (74%) were admitted due to respiratory distress or infection. Among the refugee neonates, 49 (63.6%) were born in Athens and 17 (22.1%) were transferred from the islands of Chios, Kos, Mytilene and Samos. Low or unknown parental educational level, without health insurance was recorded in almost 90%, while unemployment or unknown working status was detected in 78% of our sample. Living in refugee camps was reported in 44%, while tenancy sponsored by non-governmental organizations was detected in 18%. More than one out of four neonates, were born in families with more than four children. No access to antenatal care was detected in 57 (78%) of our neonates, while among premature neonates 19 (50%) did not receive antenatal steroids. During hospitalization, 8 (10.4%) of the refugee neonates died. A total 46 (83%) missed the follow-up during the first 3 months, while this figure increased to 52 (94%), 53 (96%) and 54 (98%) during the next 6 months, 1 year and 3 years, respectively.
CONCLUSION: Poor socio-economic conditions have been found among refugees who sought advanced neonatal care. This may be related to the low antenatal follow-up rates among refugee mothers.
No conflict of interest