ID: 228

**TITLE:** CHANGING DUTCH APPROACH TOWARDS PERIVIABILITY: EVALUATING A PERINATAL GUIDELINE IMPLEMENTATION

**AUTHORS:** Pauline van Beek 1; Lisa Broeders 2; Floris Groenendaal 3; Monique Rijken 4; Wes Onland 5; Guid Oei 6; Hendrik ter Horst 7; Frank Schuurman 8; Koen Dijkman 1; Arno van Heijst 9; Frank van den Dungen 5; Ruben Witlox 4; René Kornelisse 10; Marc van der Hoeven 11; Peter Andriessen 1

**AFFILIATIONS:**
1. Department of Neonatology, Máxima Medical Centre, Veldhoven, The Netherlands
3. Department of Neonatology, Wilhelmina Children’s Hospital, University Medical Centre Utrecht, Utrecht, The Netherlands.
4. Department of Neonatology, Willem-Alexander Children’s Hospital, Leiden University Medical Center, Leiden, The Netherlands.
5. Department of Neonatology, Emma Children’s Hospital, Amsterdam University Medical Center, Amsterdam, The Netherlands.
7. Department of Neonatology, Beatrix Children’s Hospital, University Medical Center Groningen, Groningen, The Netherlands.
9. Department of Neonatology, Amalia Children’s Hospital, Radboud University Medical Center, Nijmegen, The Netherlands.
10. Department of Neonatology, Sophia Children’s Hospital, Erasmus Medical Center, Rotterdam, The Netherlands.
11. Department of Neonatology, Maastricht University Medical Center, Maastricht, The Netherlands.

**CONTENT:**

In 2010, the Dutch guideline for active treatment of extremely preterm infants was adjusted: the gestational age (GA) threshold for active treatment for spontaneous birth was lowered from 250/7 to 240/7 weeks’ gestation. Our knowledge of the impact of this change on survival is limited. Availability of up-to-date longitudinal, GA-stratified Dutch data on survival is important, as this may influence antenatal counselling, resuscitation policies and evaluation of the guideline. Therefore, the aim of this study was to assess GA-adjusted survival in Dutch extremely preterm infants in the past decade.

In a national cohort study, data from the Dutch Perinatal Registry were used. The study population included 4,990 infants born between 230/7 and 266/7 weeks of gestation in the period between January 1, 2011 and December 31, 2017. As a reference group, 2,162 infants born at the same GA in the period between 1 January 2007 and 31 December 2009 were used. Because of implementation of the guideline in 2010, this year was excluded from the analysis as it was considered as a year of transition.

After guideline implementation, there were significantly more live born infants between 240/7 and 246/7 weeks’ gestation after 2010 (69% vs 63%, as a percentage of total born infants, p = 0.04). Also, there was a significant increase in neonatal intensive care unit (NICU) admission rate (% of live born infants) for 24 weeks’ infants (69% vs 27%, p<0.001). Survival in 24 weeks’ live born infants increased significantly from 13% to 34% (p<0.01), while survival in admitted infants remained comparable (46% before vs 50% after). Figure 1 shows GA-stratified in-hospital survival rates in the years following the implementation of the guideline. Survival in admitted infants in the period 2011-2017 was 50% at 24 weeks’ gestation, 71% at 25 weeks’ gestation and 81% at 26 weeks’ gestation. No trend in survival rate was seen between 2011 and 2017.

Implementation of the 2010 guideline resulted in more live births, more NICU admissions, and increased survival. There were small fluctuations in survival between 2011 and 2017, but no trend in survival rate was seen. Survival rates were comparable to the results of the EXPRESS, EPICure 2 and EPIPAGE-2 studies. Further evaluation of the effect of extremely preterm birth on neonatal complications and long-term outcome is in progress.
Figure 1. In-hospital survival rate (A. % of live born infants, B. % of admitted infants) for subgroups of gestational age in the years following implementation of the guideline, with the years 2007-2009 as a reference period, 2010 as the year of guideline implementation and the years 2011-2017 as the study period.

COI: None declared
ID: 450
TITLE: ELECTROLYTES AND JAUNDICE IN CORRELATION WITH BODY WEIGHT LOSS IN NEONATES
AUTHORS: George Katsaras 1; EvlampiaTsentemidou 1; Anastasia Batsiou 1; Ilektra Toulia 2; Kalliopi Kappou 3; Evangelos Oikonomou 1
AFFILIATIONS: 1 Paediatric Department, General Hospital of Edessa, Edessa, Greece
2 Paediatric Department, General Hospital of Thessaloniki Hippokrateion, Thessaloniki, Greece
3 Paediatric Department, General Hospital of Nikaia Agios Panteleimon, Nikaia, Greece

CONTENT:

A weight loss of 5–10% in term infants and 10–20% in preterm infants is common during the first week of life. Fluid and electrolyte assessment during the first week of life generally focuses on body water, serum sodium, potassium, glucose and calcium concentrations as well as renal function. Even values that are within normal range for gestational/postnatal age may have pathophysiologic consequences that require intervention.

We conducted a retrospective observational study of all neonates born during 2017-2018 in our Maternity Ward and were gone under laboratory tests, especially due to weight loss and/or feeding difficulty. Use of NEWT curves of body weight loss customized for each neonate, postnatal age and nutrition. A multivariable analysis (ANOVA test) took place in order to examine the impact of body weight loss to blood test results of the newborns.

A total of 34 neonates were examined, boys:girls ratio 3:2. Of Greek origin was 85% of the population. The majority of neonates were full terms and 73% of deliveries were cesarean section. Mean birth weight was 3200gr and 68% were under breastfeeding and formula. The remaining neonates were equally divided in only breastfed or formula fed. For each 1% of body weight loss there was an increase of 0.825mg/dL in TBil, 0.572g/dL in Hb, 0.577% in Hct, 1.331mmol/L in Na, 1.363mmol/L in Potassium, 0.351mg/dL in Creatinine and 1.95mg/dL in Urea, but with no statistical significance. A statistically significant correlation was found with the duration of phototherapy, which was increased by 7hrs for every 1% increase in body weight loss (P<0,05). Finally, electrolyte disorders, like hypernatremia and hypocalcemia, were found only in neonates that were above the 90th NEWT curve of body weight loss.

The results of this study are in agreement with the current literature according to the electrolyte or other disorders in the blood test results of the neonates with body weight loss. What is more, the percentage of body weight loss could be a prognostic marker as far as the presence and the severity of jaundice and the duration of its therapy are concerned.

COI: None declared
ID: 546

TITLE: IMPACT OF PREECLAMPSIA ON CIRCULATING BIOMARKER LEVELS IN PRETERM INFANTS

AUTHORS: Ulrika Sjöbom 1, 2; William Hellström 1, 2; Gunnel Hellgren 2, 3; Anders K. Nilsson 2; Karin, Sävman 1, 2; Ann Hellström 2; Chatarina Löfqvist 2, 4

AFFILIATIONS: 1 Department of Pediatrics, Institute of Clinical Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
2 Section for Ophthalmology, Department of Clinical Neuroscience, Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
3 Institute of Biomedicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden
4 Institute of Health and Care Sciences, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden

CONTENT:

Biomarkers have become essential to clinical studies of extremely preterm morbidities. Yet there are no biomarkers which reliably or uniquely predict the subsequent clinical course. Development of morbidities depends on both pre- and postnatal factors. One known factor closely related to both frequencies of morbidities as well as variability in biomarker levels is gestational age (GA) at birth and birth weight (BW). Our hypothesis was that maternal factors would impact biomarker concentration measured in infants serum after birth. The specific aim of this project was to evaluate how preeclampsia (PE) influence the postnatal pattern of growth factors in extremely preterm infants.

Longitudinal data was collected from birth to postnatal day (PND) 28 in 90 extremely preterm infants (gestational age < 28 weeks at birth). Serum was analysed at PND 1, 7, 14 and 28 for Brain-Derived Neurotrophic factor (BDNF), Adiponectin (APN), Platelet Derived Neurotrophic factor-BB (PDGF-BB), Insulin-like Growth factor-1 (IGF-I) and Vascular Endothelial Growth factor (VEGF) with antibody based methods, (IGF-I- RIA and APN- ELISA (Mediagnost, Germany) and remaining analyses with ELLA (bio-techne, USA)). Biomarker levels as dependent variables were analyzed with linear mixed models (SPSS 24.0) using GA or BW, timepoint and PE as fixed variables. The purpose was to explore if PE significantly contributed to the variance in biomarker concentration adjusted for GA or BW and timepoint.

PE was defined as sustained elevation in blood pressure of >140 systolic and/or >90 diastolic, accompanied by proteinuria, after 20 weeks gestation in a previously normotensive woman. Thirteen infants were born from mothers with PE. Median age of infants born from mothers with PE was 26+0 weeks (range 23+4-27+9) and median birth weight was 689 grams (range 415-1240) and in control group median GA was 25+5 weeks (range 22+5-27+6) and median birth weight was 760 grams (range 420-1260). GA and BW contributed significantly to the development of all biomarkers except for VEGF. PE was found to significantly contribute (p<0.05) to variance in concentration of PDGF-BB and APN adjusted for GA and timepoint, significantly to variance adjusted for BW and timepoint for APN but not significant for PDGF-BB (p=0.067). PE was associated with lower concentration of APN and PDGF-BB (Figure 1).

Our results suggest the importance of including maternal factors when using early biomarker levels in prediction of preterm morbidities. Using biomarkers to create cut-off for individuals at risk for morbidities is challenging since results have a large variability, possibly influenced by both pre- and postnatal factors.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=35e2e15d6dd92f09b3deb6b3e497d81-MjAxOS0wNSM1Y2UyNjY2YzhiODgz

Picture 1: Solid lines represent infants with preeclampsia, dotted lines represent controls. Blue colour represents logarithmic (base 2) concentration of Adiponectin(APN) [mg/L] and red colour represents Platelet Derived Neurotrophic factor-BB (PDGF) [ng/mL].
COI: None declared
ID: S65

TITLE: NATIONAL SURVEY IDENTIFIES NEED FOR TRAINING AMONG PERINATAL POST MORTEM CONSENT TAKERS

AUTHORS: Hannah Wood; Jo Cookson; Asha Shenvi.

AFFILIATIONS: Neonatal Intensive Care Unit, Royal Stoke University Hospital, University Hospitals of North Midlands, Stoke-on-Trent, UK.
Staffordshire, Shropshire and Black Country Neonatal Operational Delivery Network (SSBC ODN), UK.

CONTENT:

All parents should be offered a post mortem examination of their baby. In 2016, MBRRACE-UK reported that post mortem was offered in 81.3% of neonatal deaths but consent was obtained in only 28.6%. Our network’s experience is similar with offer and uptake rates as low as 67% and 18% respectively in some units. Published evidence identifies multiple barriers to consent including issues related to training. In our region, pathology training days are too infrequent to meet demand. Lack of knowledge among consent takers impacts the uptake of post mortem.

A national online survey was designed to gather information on health professionals’ current experiences of consent taking. The survey was hosted on the SurveyMonkey website between May and October 2018. Health professionals who were expected to obtain consent from paediatric, neonatal, obstetric, midwifery and bereavement communities were invited to participate. The survey was shared with health professionals by the Operational Delivery Networks, specialty training representatives and a link was available on the British Association of Perinatal Medicine (BAPM) website.

The results of the survey were used to inform the development of a new perinatal post mortem consent e-learning training package.

Survey responses were analysed from 122 health professionals. This included 80 (66%) paediatric and neonatal staff from across the UK neonatal networks, and 42 (34%) obstetric, midwifery and bereavement staff largely from the West Midlands region. Most agreed parents should be offered post mortem (94%). 43% have not been trained to take consent but 58% of this group already take consent. Those who have been trained listed 18 different types of training. A perinatal post mortem has not been observed by 51%. There was lack of consistency about what should be discussed with parents while obtaining consent. Confidence levels were variable with 28% feeling “not so confident” or “not at all confident”. Of this group, 11% are already consent takers. 82% felt more extensive and accessible training is needed.

The uptake of perinatal post mortem remains low. Our national survey identified that the Sands prerequisites for consent takers are not being met and highlights the need for standardised training. We have developed a multi-model e-learning training package that will be freely available to consent takers. We anticipate this will improve health professionals’ ability to offer post mortem and subsequently impact uptake rates positively.

COI: None declared
ID: S91

TITLE: THE EFFECT OF ANTENATAL BETAMETHASONE ON NEONATAL RESPIRATORY MORBIDITIES IN LATE PRETERM INFANTS

AUTHORS: Nuran Üstün 1, Meryem Hocaoğlu 2, Abdulkadir Turgut 2, Sertaç Arslanoğlu 1, Fahri Ovalı 1

AFFILIATIONS: 1 Istanbul Medeniyet University, Medical Faculty, Department of Pediatrics
2 Istanbul Medeniyet University, Medical Faculty, Department of Obstetrics and Gynecology

CONTENT:

Late preterm infants (LPIs) account for approximately 75% of all preterm births and 8-9% of all births, with high respiratory morbidity. Antenatal corticosteroid (ACS) therapy in preterm infants born before the 34th week of gestation currently represents standard of care. However, a small number of studies have been conducted on the effect of glucocorticoids in late preterm infants, with contradictory results. The objective of our study was to evaluate the effect of betamethasone on respiratory morbidities in late preterm infants.

Late preterm neonates were prospectively enrolled in this study. Infants with major congenital anomalies, maternal diabetes or gestational diabetes, congenital infections, previous exposure to corticosteroids and multiple births, were excluded. Infants were classified into two groups: (1) study group: infants had received at least one dose of betamethasone (n=218) and (2) control group: infants did not receive betamethasone (n=288). The primary outcome measure was a composite respiratory morbidity outcome (RDS, TTN, mechanical ventilation or oxygen requirement). Other neonatal outcomes included admission to NICU, hypoglycemia, hyperbilirubinemia and length of hospitalization. Univariable and multivariable logistic regression analyses were performed.

Of 498 patients, 218 received at least one dose of betamethasone. The composite respiratory outcome was not significantly different between those who received versus those who did not receive betamethasone (1.33 95%CI [0.8-2.2] p=0.25). Additionally, there was no statistically significant difference in the rates of neonatal intensive care unit admission, hypoglycaemia and need for phototherapy (Table 1).

In late preterm infants, ANC exposure was not associated with lower incidence of respiratory morbidities.

IMAGES:

Table: Results of the study. Data presented as numbers (percent) or means±standard deviation. CPAP continuous positive airway pressure; RDS respiratory distress syndrome; TTN transient tachypnea of the newborn; NICU, neonatal intensive care unit.

| Data adjusted for gestational age, gender, mode of delivery |

COI: None declared.
ID: 684

TITLE: FRESH HUMAN MILK PROTECTS EXTREME PREMATURE INFANTS AGAINST BRONCHOPULMONARY DYSPLASIA

AUTHORS: N Alejandro Dinerstein1; Raul Cimbaro Canella2; Vanesa Valls3; Claudio Solana4; Ricardo Nieto5; Daniela Cassani6; Federico General7

AFFILIATIONS: 1 Division of Neonatology, Hospital Ramon Sarda, Buenos Aires, Argentina 
2 Division of Neonatology, Hospital Ramon Sarda, Buenos Aires, Argentina 
3 Nutrition Service, Hospital Ramon Sarda, Buenos Aires, Argentina 
4 Division of Neonatology, Hospital Ramon Sarda, Buenos Aires, Argentina 
5 Division of Neonatology, Hospital Ramon Sarda, Buenos Aires, Argentina 
6 Nutrition Service, Hospital Ramon Sarda, Buenos Aires, Argentina 
7 Nutricia, Early Life Nutrition, Buenos Aires, Argentina

CONTENT:

Improved survival rates in very premature infants were associated with a high prevalence of bronchopulmonary dysplasia (BPD), which may be due to lung immaturity, infection and other risk factors. Human milk contains a variety of nutrients and biologically active substances, these components can help preterm infants to enhance their innate immunity and antibacterial functions, provide antioxidants and anti-inflammatory molecules which could be very useful in preventing BPD. Our objective was to evaluate the protective effect of fresh human milk on the prevalence of BPD.

A retrospective cohort of preterm infants with gestational age between 24 and 28 weeks gestational age (GA) and exclusively fed with human milk, born from January 2014 to June 2018 was carried out. Placenta histology, antenatal and post-natal events were recorded and daily amounts of human milk (HM), fresh (FHM) or banked (BHM) intakes were prospectively calculated from birth up to 28 days after birth. BPD diagnosis and severity was diagnosed at 36 weeks postmenstrual age (PMA) as the need of supplemental O2 or ventilatory support. For statistical analysis Student t test and Chi square were run as appropriate. Logistic regression was performed with the variables that were significant in the univariate analysis. A p value lower than .05 was considered significant.

Clinical records were obtained from 161 of 210 (77%) infants who had histologic placental evaluation for chorioamnionitis. Patients who died before 36 weeks PMA were excluded, remaining a population of 110 preterm babies for this analysis. As expected, lower GA, body birthweight and mechanical ventilation were significant risk factors for BPD. Antenatal steroids, intrauterine growth restriction, gender or multiple birth were not different between groups. Risk factors and human milk intake are shown in the table. Persistence of patent ductus arteriosus, late onset sepsis and lower volumes of HM intake at 28 days were risk factors for BPD. In a multivariate analysis a lower volume of HM intake at 28 days was the only predictive variable for BPD (OR 6.99 CI 1.85-26.3, p=0.004). BPD patients who received more than 50 Pc (3430 ml/kg) of HM at 28 days had a lower proportion of FHM intake.

Persistence of PDA, late onset sepsis and a lower cumulative volume of HM at 28 days were risk factors for BPD development. Higher volumes of HM during first 28 days had a protective effect on BPD independently of other risk factors. In patients who had greater intake of HM at 28 days those who received a higher proportion of FHM did not developed BPD without difference in body weight or GA at birth.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=095fc78016ae71bea2b3e9cb2b2e30fa-MjAxOS0wNSM1Y2UyNyY2Y2jODE4
ID: 685

TITLE: ANTENATAL CORTICOSTEROIDS, GESTATIONAL DIABETES, AND THE SHORT-TERM NEONATAL OUTCOMES IN INFANTS BORN BEYOND 34 WEEKS GESTATION. ANALYSIS OF DATA FROM THE PEARL-PERISTAT PERINATAL REGISTRY

AUTHORS: Haytham Ali2; Husam Salama1; Nicola Robertson2;Tawa Olukade; Sawsan Al-Obaidly1; Mai Al Qubasi1; Hilal Al Rifai1

AFFILIATIONS: 1. Women Wellness and Research Center, Hamad Medical Corporation, Doha, Qatar
2. Division of Neonatology, Sidra Medicine, Doha, Qatar

CONTENT:

Antenatal corticosteroid (ACS) use beyond 34 weeks of gestation is currently under debate. The biological plausibility of ACS use in women with Diabetic Mellitus (DM), particularly when undergoing elective cesarean section requires testing in representative cohorts. Recent randomized controlled trials of ACS use in late pregnancy excluded DM due to concerns about maternal dysglycemia. Similarly, evidence from observational studies is lacking. The aim of this study was to investigate the impact of exposure to ACS on the short-term neonatal outcomes in a population with a high prevalence of diabetes in pregnancy.

This was a population-based, retrospective analysis of data from the PEARL-Peristat perinatal registry- NPRP 6-238-3-059, funded by the Qatar National Research Fund (QNRF). Singleton live births, with no major congenital anomalies, were included. Maternal perinatal variables included the following: DM, hypertension, gestational age, mode of delivery, ACS, ACS ≤14 days before delivery, maternal age, and parity. Neonatal short-term outcomes included the following: Combined respiratory distress syndrome and transient tachypnea of the newborn (RDS/TTN), NICU admission, NICU admission for hypoglycemia, and low 5-minute Apgar score (<6). We tested the association of exposure to ACS and neonatal outcomes in a univariate and multivariate regression model, using IBM SPSS version 22.

Out of 13976 eligible mothers, a total of 3895 (28%) had DM, of whom 93% had gestational diabetes (GDM). Birth between 34-37 weeks of gestation, cesarean section, and exposure to ACS occurred in 864 (6.2%) and 4094 (29.3%), and 247 (1.8%), respectively. Exposure to ACS ≤14 days of delivery occurred in 52 (0.4%). Neonatal outcomes of RDS/TTN, NICU admission, NICU admission for hypoglycemia, and low 5-minute Apgar score occurred in 3.5%, 8.8%, 1.3%, and 0.1% of this cohort, respectively.

In univariate analysis, ACS was associated with RDS/TTN [OR (95% CI)]; [4.6 (3.18 - 6.72)], NICU admission; [4.0 (3.0 - 5.33)], NICU admission for hypoglycemia; [3.3 (1.70 - 6.22)], but not with low 5-minutes Apgar score; [3.0 (95% CI 0.41 – 23.29)]. In multivariate regression model adjusting for other perinatal factors, DM and ACS predicted risk for NICU admission but not for RDS/TTN. Table-1

Our data suggest an association between ACS use beyond 34 weeks in diabetic mothers and early neonatal morbidity, although the exposure rate of ACS was low. However, in a multivariate analysis neither ACS nor DM independently predicted RDS/TTN. It is unclear whether ACS in diabetic mothers has either maternal or neonatal benefits after 34 weeks. The safety and efficacy of ACS in diabetic mothers after 34 weeks needs to be determined in RCTs.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=8684415b6f149dee1ca b7b01dd6c80a9-MjJxOS0wN5M1Y2UyNjY2Y2JkNGMw

Table 1 Association between ACS, DM, and short-term neonatal outcomes

COI: None declared
ID: 724

TITLE: ANTENATAL CORTICOSTEROIDS AND OUTCOMES OF PRETERMS ACCORDING TO DIFFERENT GESTATIONAL AGES

AUTHORS: Mehmet Buyuktiryaki1, Tugba Alarcon-Martinez1, Handan Bezirganoglu1, Gulsum Kadioglu Simsek1, Fuat Emre Canpolat1, Cuneyt Tayman1, H. Gozde Kanmaz Kutman1

AFFILIATIONS: 1Division of Neonatology, Health Sciences University, Zekai Tahir Burak Women’s Health Education and Research Hospital, Ankara, Turkey.

CONTENT:

Antenatal corticosteroid therapy is known to reduce risks of respiratory distress syndrome (RDS), intraventricular hemorrhage (IVH), necrotizing enterocolitis (NEC), early sepsis and mortality in preterms. For this reasons current guidelines recommend the administration of antenatal corticosteroids to women at risk of preterm delivery from 24 0/7 to 34 6/7 weeks’ gestation and agree on considering administration from 230/7 to 236/7. In this study we aimed to see whether there was any difference in the effect of antenatal steroids on outcomes of preterms according to different gestational ages at birth.

We conducted a retrospective cohort study of infants cared for at a single tertiary care neonatal intensive care unit during a 5-year period between 2013 and 2017. All infants of 240/7 to 296/7 weeks’ gestation age, admitted for neonatal care were included. The demographic and clinical characteristics of the study infants were reviewed. The patients divided into two groups; exposed to no antenatal steroids (ANS) or partial course of ANS and exposed to complete course of ANS. The study groups were further divided into two subgroups according to gestational ages; <28 and ≥28 weeks’ gestation. The association of neonatal morbidities and mortality of preterm infants at each gestation week in two groups were compared.

A total of 820 premature babies were analysed. There was no difference in the incidence of RDS, among babies born between 24 and 25 weeks’ gestation in two groups. But there was a statistically significant reduction in RDS incidence among babies born between 260/7 and 296/7 weeks’ gestation age whose mothers had received complete course of steroids compared to those who had not, and this difference was evident at each week of gestation. Severe intraventricular hemorrhage, bronchopulmonary dysplasia, early sepsis, air leaks and mortality did not significantly differ among groups at each gestational weeks. There was a reduction in the incidence of IVH (13.9% and 22.3%, p=0.04) and mortality (23.6% and 39.6%, p=0.001) among babies born <28 weeks’ gestation who were exposed to antenatal steroids than those not.

Antenatal corticosteroid treatment is associated with improved survival and reduction of IVH in babies born <28 weeks’ gestation.

COI: None declared.
ID: 730

TITLE: THE EFFECTS OF PREECLAMPSIA ON PRETERM MORBILITIES IN VERY LOW BIRTH WEIGHT INFANTS

AUTHORS: Tuğba Alarcon-Martinez1, Mehmet Buyuktiryaki1, Bengu Karacaglar1, Gulsum Kadioglu Simsek1, Fuat Emre Canpolat, H. Gözde Kanmaz Kutman1

AFFILIATIONS: 1Division of Neonatology, Health Sciences University, Zekai Tahir Burak Women’s Health Education and Research Hospital, Ankara, Turkey.

CONTENT:

Preeclampsia is a common pregnancy complication that causes high morbidity and mortality in newborns. The aim of this study was to compare very low birth weight infants (VLBW) born to mothers with preeclampsia with VLBW infants born to normotensive mothers in terms of preterm morbidities.

We assessed retrospectively the medical records of all preterm infants who were born at 250/7 to 296/7 weeks between 2013 and 2017. Preeclampsia is characterized with high blood pressure (systolic BP ≥140mmHG, diastolic BP ≥90mmHG) and proteinuria. Each infant born to mother with preeclampsia was matched randomly with three infants born to normotensive mothers by gestational age and by same gender. Newborns with incomplete medical data, perinatal asphyxia and major congenital anomaly were excluded from the study.

Data analysis of 128 infants whose mothers had preeclampsia and 384 matched controls revealed a median gestational age of 28.5 (27.5–29.4) and 28.4 (27.5–29.4) weeks and a median birth weight of 935 (790–1170) and 1090 (916–1260) g, respectively (p=0.09 and p<0.001). The incidence feeding intolerance (55.9% vs 34.4%, p<0.001), small for gestational age (33.6% vs 10.7%, p<0.001) and postnatal growth retardation (60.9% vs 54.9%, p=0.02) were higher in preeclampsia group. Moreover, surfactant requirement (70.3% vs 57.3%, p=0.009) and need laser photocoagulation retinopathy of prematurity (ROP) (13.3% vs 7.3%, p=0.02) was more significant in preeclampsia group. Preeclampsia were an independent risk factor for ROP requiring laser photoagulation and surfactant requirement (Table).

The incidence of surfactant requirement, retinopathy of prematurity, small for gestational age and postnatal growth retardation increases in VLBW infants born to a mother with preeclampsia in comparison with VLBW infants.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=17cf660de0f2aa1a449ecbb3fc1c7519-MjAxOS0wNSM1Y2UyNjY2Y2QxMzUy

Independent risk factors for RDS and ROP in infants of preeclamptic mothers

COI: None declared.
ID: 735

TITLE: EFFECT OF ANTENATAL CORTICOSTEROIDS ON INFANTS WHOSE MOTHERS HAVE HYPERTENSION

AUTHORS: Qi Zhou 1, Melissa Ong 2, Prakesh Shah 1, Shoo K Lee 1.

AFFILIATIONS: 1 Department of Pediatrics, Mount Sinai Hospital, Toronto, Canada; 2 Kings College London, UK

CONTENT:

Hypertension affects up to 20% of pregnancies worldwide and is associated with increased rates of intra-uterine growth restriction, placental abruption, preterm birth and fetal death. Some authors report lower rates of respiratory distress syndrome (RDS), bronchopulmonary dysplasia (BPD) and intraventricular hemorrhage (IVH) among infants from hypertensive mothers and attributed this to stress response, while others report increased BPD and IVH when the infants were SGA. Our objective was to examine whether antenatal corticosteroids impact infants with and without maternal hypertension differently.

We conducted a retrospective study of all infants (n=34,416) born between 22-32 weeks and admitted to Canadian Neonatal Network NICUs between 2010-2017. We excluded infants who were moribund (n=257), with major congenital anomalies (n=1212), or missing data on date of birth (n=8), antenatal corticosteroid use (n=933) or maternal hypertension (n=650). We examined antenatal corticosteroid use among mothers with and without hypertension, and the characteristics (birth weight, gestational age, sex, small for gestational age (SGA), singleton, cesarean section) of their infants. We compared mortality and major morbidity (IVH, retinopathy of prematurity, necrotizing enterocolitis, infection, RDS, BPD) using bivariate and multivariate analysis, and conducted a sub-analysis for SGA infants.

18.9% of the cohort (n=31,356) had maternal hypertension. Antenatal corticosteroid use among mothers with (H) and without hypertension (N) was 92.7% and 86.8% respectively (p<0.01). Infants from hypertensive mothers were more likely to be singleton, born by caesarean section, SGA and of higher gestational age. Table 1 shows outcomes of infants with and without maternal hypertension. On multivariate analysis, antenatal corticosteroids reduced the incidence of mortality (H-OR 0.44 (0.38, 0.50), N-0.44 (0.28, 0.69)) and severe IVH (H-OR 0.53 (0.47, 0.61), N-0.56 (0.35, 0.89)) for all infants, but reduced composite outcomes (mortality or major morbidity) (OR 0.73 (0.67, 0.80)), RDS (OR 0.69 (0.63, 0.75)) and BPD (0.85 (0.76, 0.94)) only for infants from non-hypertensive mothers. Antenatal corticosteroids did not reduce mortality or morbidity among SGA infants with maternal hypertension.

Antenatal corticosteroids reduced the incidence of mortality and IVH for all infants, but only reduced RDS and BPD for infants when mothers did not have hypertension, and did not reduce mortality or morbidity among SGA infants whose mothers had hypertension.

IMAGES:
https://www.eiseverywhere.com/eselectv3/v3/events/351149/submission/files/download?fileID=8816aaa1073e14696173b33c87ba816f-MjAxOS0wNSM1Y2UyNyY2Y2QzYmE1

Table 1: Outcomes of Infants with and without maternal hypertension

COI: None declared.
ID: 795

TITLE: A RANDOMIZED TRIAL ON MATERNAL PREFERENCES IN DECISION-MAKING FOR INFANTS BORN NEAR THE LIMIT OF VIABILITY

AUTHORS: André Kidszun 1; Daniel Matheisl 1,2; Susanne Tippmann 1; Julia Winter 1; Catharina Whybra-Truempler 1; Anja Fruth 3; Julia Inthorn 4,6; Seyed H. Mahmoudpour 5,7; Norbert W. Paul 6; and Eva Mildenberger 1

AFFILIATIONS: 1 Department of Neonatology, Medical Center of the Johannes Gutenberg University, Mainz, Germany
2 Center for Pediatrics, Department of Neonatology, Medical Center - University of Freiburg, Germany
3 Department of Obstetrics and Gynecology, Medical Center of the Johannes Gutenberg University, Mainz, Germany
4 Center for Health Care Ethics, Hannover, Germany
5 Institute of Medical Biostatistics, Epidemiology, and Informatics (IMBEI), University Medical Center of the Johannes Gutenberg University, Mainz, Germany
6 Institute for the History, Philosophy, and Ethics of Medicine, Medical Center of the Johannes Gutenberg University, Mainz, Germany
7 Center for Thrombosis and Hemostasis (CTH), University Medical Center of the Johannes Gutenberg University, Mainz, Germany.

CONTENT:

Best available numerical outcome estimates are traditionally considered to be of paramount importance for making shared decisions for infants born near the limit of viability. Nevertheless, it is unknown how probabilistic data affect parental choices. The primary objective of this study was to determine whether better or worse neonatal outcome estimates affect expectant mothers’ decision-making preferences. The a-priori formulated primary study outcome was the preference for life-sustaining treatments. Secondary questions explored individual characteristics and values associated with maternal preferences and the desired degree of participation in the decision-making process.

A single-center, randomized trial was performed from December 2017 to January 2019. In-patients with gestational ages (GA) between 28 0/7 to 36 6/7 weeks and impending premature birth were eligible for the study. Patients were randomly allocated to respond to either a case vignette of 60% or 30% survival rate. Case vignettes described an impending preterm birth at 23 6/7 or 22 6/7 weeks GA and were similar except from numerical data. For secondary research questions, a multivariate multinomial logistic regression was performed including six variables in addition to the case vignettes (education, religion, marital status, previous children, fertility treatment, and age). Investigators were blinded to group allocations. Significance was determined at an alpha level of 0.05.

64 participants completed the study and were included in the analysis. No difference was seen in the primary outcome as 15 of 32 participants in the 60% survival group versus 16 of 32 participants in the 30% survival group opted for life-sustaining treatments. Increasing age and having no previous child were independently associated with a preference for palliative care. Preference for palliative care was also associated with attributing greater value on quality of life than on survival. Irrespective of group allocation, the majority of participants preferred to be empowered by their physicians to be able to make the decision on their own.

For infants born near the limit of viability, numerical outcome estimates appear to have little effect on expectant mothers’ preferences for life-sustaining treatments. In contrast, individual characteristics and values appear to be of importance.

COI: None declared
ID: 876

TITLE: IMPACT OF INTRAAMNIOTIC INFECTION ON SHORT-TERM NEONATAL OUTCOMES IN PRETERM INFANTS

AUTHORS: Mar Velilla Aparicio1, Raquel Amoedo Blanco1, Ana Herranz Barbero1, Carolina Moreno1, Montserrat Izquierdo Renau2, Julia Ponce3, Clara Murillo-Bravo3, Teresa Cobo Cobo3, Victoria Aldecoa-Bilbao1.

AFFILIATIONS: 1 Neonatology Department. Hospital Clínic. BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine. Hospital Clínic and Hospital Sant Joan de Déu, Universitat de Barcelona. Spain.
2 Neonatology Department. Hospital Sant Joan de Déu. BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine. Hospital Sant Joan de Déu and Hospital Clínic, Universitat de Barcelona. Spain.
3 Servei de Medicina Materno Fetal. Hospital Clínic Barcelona. Fetal i+D Fetal Medicine Research Center. BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine. Hospital Clínic and Hospital Sant Joan de Déu, Universitat de Barcelona. Spain.

CONTENT:

Intraamniotic infection (IAI) is a common cause of spontaneous preterm delivery, perinatal mortality and long-term morbidity. Some guidelines for the management of women with preterm labour (PTL) and/or premature rupture of membranes (PROM) include amniocentesis to rule out IAI in amniotic fluid (AF).

The aim of this study was to evaluate the influence of IAI in short-term neonatal outcomes in preterm infants less than 35 weeks of gestational age (GA).

Prospective cohort study (2009-2018) including women without clinical chorioamnionitis, with an amniocentesis at admission to rule out intraamniotic infection (IAI) and delivered a preterm infant<35 weeks of GA. IAI was defined as a positive aerobic/anaerobic amniotic fluid (AF) culture for bacteria or yeast, or Ureaplasma spp. and Mycoplasma hominis in mycoplasmas culture or by sequencing of the small-subunit ribosomal RNA gene. Three subgroups were identified according to the results of the AF: (1) negative, (2) isolated Mycoplasma/Ureaplasma and (3) Others (gram-positive or gram-negative bacteria or Candida). Short-term neonatal outcomes were compared among the groups. A multivariate analysis was carried out to predict morbidity and mortality of the newborn regardless of GA.

345 women were studied, mean birth GA 29±3.3. Groups: 1) Negative (n=235; 68.1%), 2) Ureaplasma/Mycoplasma (n=60; 17.4%) and 3) Other microorganisms (n=50; 14.5%). No differences were found in antenatal management and maternal outcomes. Worse neonatal outcomes were more frequent in case of IAI, p<0.001. Group 3 showed shorter latency to delivery (5±9 vs 16±18, p<0.001) and lower GA at birth (28.3±3.8 vs 31.4±3.1, p<0.001). Multivariate analysis showed no differences in mortality or bronchopulmonary dysplasia. Group 3 was associated to higher intubation in delivery room (OR=3.1 (CI95% 1.25–7.55), p=0.015) and early onset sepsis (OR=8.47 (CI95% 3.67–19.5), p<0.001). Group 2 was related to less respiratory distress syndrome (OR=0.28 (CI95% 0.10–0.75), p=0.012), patent ductus arteriosus (OR=0.28 (CI95% 0.08–0.95), p=0.041) and retinopathy of prematurity (OR=0.23 (CI95% 0.55–0.95), p=0.042).

Preterm infants born after IAI exhibit worse short-term neonatal outcomes but, except for early onset sepsis, GA was the main predictor of neonatal mortality and morbidity. Ureaplasma infection was related to less neonatal complications than other microbes infection. The amniocentesis in women with PTL or PROM may give a valuable information to neonatologists in order to adequate family’s information and optimize future neonatal care.

COI: None declared
ID: 896

**TITLE:** IMPACT OF INTRAAMNIOTIC INFLAMMATION AND INFECTION ON SHORT-TERM NEONATAL OUTCOMES AFTER PREMATURITY RUPTURE OF MEMBRANES

**AUTHORS:** Raquel Amoedo Blanco 1; Victoria Aldecoa-Bilbao 1; Carolina Moreno 1; Montserrat Izquierdo Renau 2; Julia Ponce 3; Teresa Cobo Cobo 3; Ana Herranz Barbero 1

**AFFILIATIONS:**
1 Neonatology Department. Hospital Clínic. BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine. Hospital Clinic and Hospital Sant Joan de Déu, Universitat de Barcelona. Spain.
2 Neonatology Department. Hospital Sant Joan de Déu. BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine. Hospital Sant Joan de Déu and Hospital Clínic, Universitat de Barcelona. Spain.
3 Servei de Medicina Materno Fetal. Hospital Clínic Barcelona. Fetal i+D Fetal Medicine Research Center. BCNatal | Barcelona Center for Maternal Fetal and Neonatal Medicine. Hospital Clinic and Hospital Sant Joan de Déu, Universitat de Barcelona. Spain.

**CONTENT:**

One of the main risks associated with premature rupture of membranes (PROM) is intraamniotic inflammation and/or infection, increasing the probability of preterm birth and early onset sepsis (EOS). Some guidelines for the management of women with PROM include performing an amniocentesis to rule out inflammation and infection in amniotic fluid (AF). The aim of this study was to evaluate the influence of intra-amniotic inflammation and/or infection in short-term gestational and neonatal outcomes, in pregnant women with PROM before 34 weeks of gestational age (GA) and their offspring.

Prospective cohort study (2009-2018) including women with PROM until 34 weeks of GA, with an amniocentesis at admission to rule out infection. Clinical chorioamnionitis (Gibbs criteria) and multiple gestations were excluded. Three subgroups were identified according to the presence of infection or inflammation. Infection (MIAC) was defined based on AF cultures results. Inflammation (IAI) was based on interleukin (IL)-6 levels. Culture results and glucose in AF were available and used for clinical making decision, while IL-6 wasn’t (just for research purpose). Pregnancy and short-term neonatal outcomes were compared according to the characteristics of AF. Multivariate analysis was carried out to predict the morbidity and mortality of the newborn regardless of GA and prenatal management.

213 women studied, mean GA at PROM 30±3.7. Groups: 1) No IAI nor MIAC (29.1%); 2) sterile IAI (40.7%); 3) MIAC (30.2%). Ureaplasma sp. (58%) was the microbe more frequently isolated, anaerobes (22%), Streptococcus (16%), gram-negative bacteria (9%), Candida (7%). There were 6.1% stillbirths. No differences were found in antenatal management, spontaneous onset of labour, mode of delivery or maternal outcomes between groups. Group MIAC: shorter latency to delivery (median 6 vs 11w, p=0.044), lower GA (29.0±3.8w vs 32.3±2.4, p<0.001), higher mortality (14.5% vs 1.9%, p=0.005), EOS (21.3% vs 5.8%, p=0.04) and BPD (27.7% vs 9.4%, p<0.01). Multivariate analysis adjusted by GA showed no differences in mortality (OR=1.51 (CI95% 0.47–4.84) p=0.485) or EOS (OR=2.85 (CI95% 0.68–11.9) p=0.151). 45 women (22.5%) were induced at 34 w. None of these newborns developed infection or needed antibiotic.

Gestational age was the main predictor of neonatal mortality and morbidity in gestations with PPROM before 34 weeks, but latency to delivery is highly influenced by the presence of infection in AF. The performance of amniocentesis in women with PROM allows us to give a more reliable information to the family. Termination of pregnancy at 34 weeks gestation in women with PROM and without intraamniotic infection could be avoided.

**COI:** None declared.
ID: 922
TITLE: MANAGEMENT OF NEONATAL ABSTINENCE SYNDROME IN NEONATAL INTENSIVE CARE UNIT WITH PHENOBARBITAL TREATMENT: A SINGLE CENTER EXPERIENCE
AUTHORS: Beyza Ozcan; Nihal Demirel; Dilek Ulubas-Isik; Sezin Ünal; Sumru Kavurt; Ahmet Yağmur Baş
AFFILIATIONS: 1- Neonatology Dept., University of Health Sciences, Konya Education and Research Hospital, Ankara, Turkey.
2- Division of Neonatology, Pediatric Dept., Ankara Yıldırım Beyazıt University, Ankara, Turkey.
3- Neonatology Dept., University of Health Sciences, Ankara Etlik Women's Health Teaching and Training Hospital, Ankara, Turkey.

CONTENT:

The neonatal abstinence syndrome (NAS) is a drug-withdrawal syndrome that most commonly occurs after in utero exposure to opioids. It typically manifests in the first few days of life as hypertonia, autonomic instability, irritability, poor sucking reflex, impaired weight gain, and less commonly, seizures. The frequency of use opioids isn’t known among pregnant women in our country, however the incidence of maternal use of opioids are increasing. The aim of this study is to evaluate the clinical characteristics of the neonates who were at risk of neonatal abstinence syndrome.

Patient records of between Jan 2013 – June 2017 were evaluated retrospectively. Newborns at risk of NAS who were admitted to level III NICU for follow-up were included. Maternal-neonatal demographic characteristics and clinical data (type of drug, maternal age, gestational age, mode of delivery, birth weight, time of onset of neonatal symptoms, Finnegan score, duration of hospitalization, and requirement of treatment) were recorded. In our unit, infants with NAS are treated with phenobarbital (loading dose: 16 mg/kg; maintenance dose: 5 mg/kg/day; 2 doses) if two consecutive Finnegan scores are greater than 12 or three consecutive Finnegan scores are greater than 8. Descriptive statistics were performed with SPSS V15.0, the data were given as mean ± standard deviation and n (%).

The study included 11 neonates (37.0 ±2.3 weeks, 2635±666 grams). Heroin addiction was present in all mothers. Seven mothers had been using the substance at delivery. The duration of substance use was first four months in three mothers and first seven months in one mother. Smoking was co-abused substance in 10 mothers, of which four of them also used alcohol. Mean time of onset of symptoms was 2.3±0.9 days. Six out of seven neonates whose mothers used substance until delivery were treated with phenobarbital. The treatment lasted 10±1.8 days. Duration of hospitalization was 26±13 days.

Morphine, the first line treatment of NAS, is not readily available in some countries. Phenobarbital is another drug which was reported to be effective in infants with NAS due to opioid exposure. In literature, duration of treatment was found be similar in infants treated with phenobarbital with a loading dose and morphine (Nayeri F, BMC Pediatrics, 2015). In our study, the symptoms of the treated infants could be taken under control successfully.

COI: None declared
ID: 948

TITLE: PALLIATIVE CARE SERVICES FOR THE PERINATAL POPULATION IN SWITZERLAND

AUTHORS: Antonio Boan Pion 1; Deborah Gubler 1,2; Jean-Claude Fauchère 1; Manya Jerina Hendriks 1,3

AFFILIATIONS: 1 Department of Neonatology, Perinatal Centre, University Hospital Zurich, University of Zurich, Switzerland
2 Palliative Care University Children’s Hospital Zurich, University of Zurich, Switzerland
3 Department of Health Sciences and Health Policy, University of Lucerne, Switzerland

CONTENT:

Despite major diagnostic and medical advances in perinatal medicine, nearly 40% of all childhood deaths in Switzerland occur in the first four weeks of life, making neonates the largest subgroup. While there is a body of knowledge about key elements of perinatal palliative care (PC), evidence shows the inconsistency and fragmentation in the application of PC principles for this patient group. Although many recommendations advise what health care professionals (HCPs) should do, there is little data on how HCPs actually proceed in perinatal PC.

It is, therefore, the goal of this study (1) to explore existing local guidelines with a documentation analysis and (2) to assess the structure of perinatal PC services through a questionnaire across Swiss perinatal centres. In a first step, we performed a quantitative content analysis on protocols, concepts and hospital guidelines concerning perinatal PC in the nine perinatal centres. In a second step, we sent out a questionnaire to neonatal HCPs in each centre. The survey was distributed randomly to allow for participant anonymity. Analyses were carried out using Stata 15.1 (StataCorp LP, College Station, TX).

Documentation of internal hospital guidelines, protocols and concepts illustrated concepts and topics such as symptom management, advance care planning, end-of-life care, loss and grief, and social and spiritual support. Whereas the survey collected data about personal views on perinatal PC, the hospitals approach on implementation of perinatal PC and each HCPs satisfaction with the execution of perinatal PC in its centre.

In this study, we have taken a first step in gathering national data on how HCPs actually proceed in the practice of perinatal PC. Showing gaps in the implementation of perinatal PC, the gathered knowledge can undergird national clinical guidelines, so that families could benefit from consistent care as well as strengthen perinatal PC nation-wide.

COI: None declared
ID: LATE BREAKER
TITLE: POSITIVE REPORTING OUTCOMES AND EXCELLENCE (PROE) TOOL: A POSITIVE FEEDBACK TOOL IN THE NEONATAL INTENSIVE CARE UNIT
AUTHORS:
AFFILIATIONS:

CONTENT:

Background
Incident reporting is an integral component of quality improvement in healthcare. Our current practice of incident reporting is to place emphasis on identifying and examining failure of systems. Psychological research has revealed that people can learn effectively both from reflecting on failure and success (positive reinforcement).

Methods
We created an online (electronic) positive feedback tool, the Positive Reporting Outcomes and Excellence (PROE) Tool: PROEtool.com. Staff at our Neonatal Intensive Care Unit (NICU) were asked to reflect on individual co-workers behaviours, interactions, processes and outcomes in their work and to feedback positive observations and learning points. The aim was to recognise excellent work practices, identify learning opportunities from excellence and influence a positive cultural change.

Results
The PROEtool.com was successfully piloted amongst the staff at the NICU at the National Maternity Hospital, Dublin for the month of June 2019. Sixty-two members of staff voluntarily registered to participate including doctors, nurses, and allied health professionals, administrative and ancillary staff.

Over the four week period a total of one-hundred and ten nominations were made. The data was then analysed with five key themes identified: communication, team work, employee wellbeing, patient advocacy and leadership. Feedback was in the form of a departmental feedback session highlighting the key learning points across the 5 domains and formally acknowledging individual staff members for their contribution to excellence in the Department. Individual feedback was also provided to all members of staff who received a nomination.

Conclusion
The PROEtool.com provides a platform for reflection, recognition and reward. It allows for interdisciplinary communication, collaboration and collegiality. Most importantly, the PROEtool.com creates a platform from which we can identify the best behaviours, processes and outcomes and use it to educate others. On-going study is required to examine the scope of the tool outside the department and to optimise the feedback process.