

Selected Abstracts of the 6th International Congress of UENPS • Session “Outcomes of prematurity”

VALENCIA (SPAIN) • NOVEMBER 23RD-25TH 2016

The Congress has been organized by the Union of European Neonatal and Perinatal Societies (UENPS).

PRESIDENTS

Manuel Sánchez Luna, UENPS President
Maximo Vento, UENPS 6th Congress President

UENPS EXECUTIVE COMMITTEE

President: Manuel Sánchez Luna; **Vice President:** Corrado Moretti; **General Secretary:** Artur Beke; **Treasurer:** Gabriel Dimitriou; **Members:** Rosalina Barroso, Rasa Tameliene, Heili Varendi; **Supervisory Committee:** Giuseppe Buonocore, Boris Filipovic-Grcic, Nelly Jekova

SCIENTIFIC COMMITTEE

Manuel Sánchez Luna, Maximo Vento, Corrado Moretti, Artur Beke, Gabriel Dimitriou, Rosalina Barroso, Rasa Tameliene, Heili Varendi, Giuseppe Buonocore, Boris Filipovic-Grcic, Nelly Jekova

LOCAL SCIENTIFIC COMMITTEE

Máximo Vento, Isabel Izquierdo, Marta Aguar, María Cernada, María Gormaz, Nuria Boronat, Anna Parra Llorca, Antonio Nuñez, Julia Kuligowski, Maria Consuelo Chafer, Angel Sánchez-Illana

MEMBERS OF UENPS

Association of Neonatologists of Georgia; Association of Neonatologists of Ukraine; Bulgarian Neonatology Association; Croatian Society for Neonatology and Neonatal Intensive Care; Croatian Society for Perinatal Medicine; Czech Neonatology Society; Estonian Perinatal Society; Finnish Perinatology Society; French Society of Neonatology; Hellenic Neonatal Society; Hungarian Society of Perinatology and Obstetric Anesthesiology; Irish Society of Neonatology; Israel Neonatology Association; Italian Neonatal Society; Latvian Neonatal Society; Lithuanian Neonatology Association; Macedonian Neonatal Association; Neonatal Society of Bosnia and Herzegovina; Polish Neonatal Society; Portuguese Neonatal Society; Romanian Neonatology Association; Russian Neonatal Society; Serbian Perinatal Society; Slovakian Neonatal Pediatric Society; Slovenian Neonatal Society; Spanish Neonatal Society; Turkish Neonatal Society



Union of European
Neonatal & Perinatal
Societies

Organizing secretariat



HOW TO CITE

[Abstract's authors]. [Abstract's title]. In: Selected Abstracts of the 6th International Congress of UENPS; Valencia (Spain); November 23rd-25th 2016; Session "Outcomes of prematurity". J Pediatr Neonat Individual Med. 2017;6(1):e060108. doi: 10.7363/060108.

ABS 1

CHILDHOOD NEURODEVELOPMENTAL OUTCOME IN LOW BIRTH WEIGHT INFANTS WITH POSTLIGATION CARDIAC SYNDROME AFTER DUCTUS ARTERIOSUS CLOSURE: 5-YEAR FOLLOW-UP

M.C. Bravo¹, M. Ybarra¹, R. Madero², A. Pellicer¹

¹Department of Neonatology, La Paz University Hospital, Madrid, Spain

²Division of Statistics, La Paz University Hospital, Madrid, Spain

INTRODUCTION

Postligation cardiac syndrome (PLCS) is a common complication of the patent ductus arteriosus surgical closure in low birth weight infants. It has been associated with mortality, but there is a lack of information about the neurodevelopmental outcome of the survivors. We aimed to explore the prevalence of PLCS and to assess whether this clinical condition is a risk factor of neurodevelopmental impairment or cerebral palsy at the age of 5 years.

METHODS

We retrospectively reviewed the medical charts of all infants < 30 weeks of gestation who underwent ductus arteriosus ligation at our unit between 2005-2009.

RESULTS

During the study period 39 preterm infants (26.4 [± 2] weeks of gestation) underwent surgical closure of the ductus arteriosus at 25.3 (± 2.3) days of postnatal age. PLCS was observed in the 25% of the study population. Follow up to the age of 5 years old was accomplished in 25 infants (73% of the survivors). Neurodevelopmental impairment (p = 0.04) and cerebral palsy (p = 0.01) were more frequently observed among the infants who presented the PLCS than in those who did not.

CONCLUSION

According to this study, preterm infants undergoing surgical ductus arteriosus ligation that fulfil the criteria of PLCS are at higher risk of long-term neurodevelopmental impairment.

ABS 2

PARENT CARE TAGS: ENGAGING PARENTS IN CARE ON THE NEONATAL UNIT

R. Homer¹, L. Rattenbury²

¹Peninsula Medical School, Exeter, UK

²Exeter Neonatal Unit, Royal Devon and Exeter Hospital, Exeter, UK

INTRODUCTION

Early separation and disengagement between parent and baby on the neonatal unit risk long-term complications. This includes attachment issues, seen on the unit or once the family is home. Research highlights the damage of disengagement in care. Parent led care reduces disengagement and is supported by neonatal healthcare professionals. Parents lacking confidence in this role leads to complex issues, emphasised at discharge. Earlier engagement builds their relationships with the baby and staff. The challenge remains in communicating parent needs to neonatal nurses.

METHODS

Each baby was given a 'Parent Care Tag'. This is a bedside tool for parents, indicating elements of care they wish to participate in daily. Questionnaires before and after a two-week pilot across 12 cots evaluated nurses' perception of parent care needs and whether opportunities were missed to engage parents.

RESULTS

24 nurses completed questionnaires before and 14 after the pilot. All qualitative data was positive, with nurses requesting the tag for parents after the pilot. Improvements were seen in knowing parent arrival times (21%), communicating parent preferences from nurse-nurse (8%), parents communicating to nurses (13%), understanding parent needs (4%) and 'never' missing opportunities to involve parents in care (14%). Decreases were seen in perceived ability for parents to build confidence (-2%), being prepared to care for parents' individual needs (-15%) and nurses' confidence to teach parents (-10%).

CONCLUSIONS

Small scale results from the Parent Care Tag highlight their potential. Future larger scale research is necessary to evaluate the effect on parent experience and long term consequences on the family.

ABS 3**STRESS BIOMARKERS AND PSYCHOSOCIAL FACTORS AS PREMATURE PREDICTORS IN THREATENED PRETERM LABOR**A.C. García-Blanco^{1,2}, M. Vento¹, P. Sáenz¹, V. Diago³, C. Cháfer-Pericás¹¹Neonatal Research Unit, Health Research Institute La Fe, Valencia, Spain²University of Valencia, Valencia, Spain³Division of Obstetrics and Gynecology, Hospital Universitari i Politènic La Fe, Valencia, Spain**INTRODUCTION**

Preterm labor can be due to multiple stress-related factors (psychosocial, biological). However, few works studying these variables simultaneously have been carried out. Therefore, the prediction of preterm labor based on stress remains a challenge.

METHODS

Prospective cohort in the Division of Obstetrics and Pediatrics from Hospital Universitari i Politènic La Fe, Valencia, Spain. Eligible patients were pregnant women who were hospitalized due to a threatened preterm labor between 22 and 31 weeks gestation (n = 210) and were recruited over a period of 12 months. The exclusion criteria were major medical disorders and severe obstetric complications during pregnancy. Participants were classified in two groups according to the gestation week at labor: preterm: < 32 weeks (n = 71); and term: > 37 weeks (n = 60). Women with late preterm labor (32-37 weeks) were also excluded (n = 49). In the morning following the admission day, questionnaires addressing social functioning, previous traumas, anxiety and depression were filled out. In addition, saliva samples to determine cortisol and α -amylase were collected. Mann-Whitney test was carried out to compare potential diagnosis variables between both groups. The variables which showed significant differences were introduced in logistic regression model to predict the prematurity.

RESULTS

Mothers who had a preterm labor showed higher trait anxiety (p = .030), lower social support (p = .016), lower partner support (p = .021), and higher cortisol levels (p < .001) than mother who had a term labor. Logistic regression model indicated that partner support and cortisol level

on the morning of the admission day were the best predictors of prematurity (R² = .342, p = .001).

CONCLUSIONS

Among psychosocial conditions and stress biomarkers, low partner support and high cortisol level are relevant factors associated with preterm labor.

ABS 4**PREDICTION OF WEEK OF CHILDBIRTH FOR WOMEN WITH THREATENED PRETERM LABOR**C. Cháfer-Pericás¹, M. Vento¹, V. Diago², V. Serrano-De la Cruz², D. Hervás³, A. García-Blanco^{1,4}¹Neonatal Research Unit, Health Research Institute La Fe, Valencia, Spain²Division of Obstetrics and Gynecology, University and Polytechnic Hospital La Fe, Valencia, Spain³Biostatistics Unit, Health Research Institute La Fe, Valencia, Spain⁴University of Valencia, Spain**INTRODUCTION**

Preterm birth is a major obstetrical challenge due to the lack of reliable tools to predict it in women with threatened preterm labor. Among the factors with influence over threatened preterm labor, the role of maternal stress is relevant, and specifically chronic stress seems to increase the risk of preterm birth. However, related biomarkers are scarcely studied.

METHODS

In this prospective cohort study, pregnant women between 24 and 31 weeks gestation admitted to the hospital with the diagnosis of TPL were included. Stress-related biomarkers were determined in saliva samples the morning after admission. A parametric survival model was adjusted using a logistic distribution and it was constructed by means of several demographic and analytical variables. Statistical analysis was conducted using R.

RESULTS

The statistically significant variables in this model to determine the time until labor were cortisol and α -amylase, showing an inverse correlation with time until labor.

CONCLUSIONS

This study showed that acute and chronic maternal stress may have an important role in preterm birth prediction.

ABS 5**DELIVERY ROOM CARDIOPULMONARY RESUSCITATION (CPR) AT THE LIMIT OF VIABILITY**

S. Zeballos Sarrato, S. Villar, I. Pescador, M. Carrón, A. Rodriguez, M. Sánchez Luna

Neonatology Department, Gregorio Marañón Hospital, Madrid, Spain

BACKGROUND

Delivery room resuscitation at the threshold of viability is a clinical and ethical problem of great importance for professionals and families.

OBJECTIVE

To assess perinatal risk factors and adverse outcome of preterm infants ≤ 25 weeks gestational age (WGA) who received extensive CPR at birth (chest compressions with or without administration of epinephrine).

METHOD

Preterm infants between 23^{0/6} and 25^{6/6} WGA born at our hospital (IIIc level) and admitted to NICU from January 2008 to December 2015 were included in the analysis. We compared perinatal risk factors and the rates of mortality and major morbidity (BPD: supplemental oxygen use at 36 weeks postmenstrual age; neurologic morbidity: IVH grade 3-4, PVL and cerebellar injury; ROP \geq grade 3 and NEC \geq stage 2 of Bell) during neonatal admission between preterm infants who needed extensive CPR and those who did not.

RESULTS

We included 158 preterm infants. Only 9 needed extensive CPR (5.7%). Although differences were not significant, we found a higher incidence of multiple pregnancy (55.6% vs 36.9%), pathologic fetal echography (44.4% vs 28.2%), cesarean delivery (66.6% vs 42.3%), male sex (77.7% vs 46.3%), lower incidence of chorioamnionitis (22.2% vs 43.6%) and antenatal steroids administration (66.7% vs 83.9%) in extensive CPR patients. In these patients, we found a significant higher mean gestational age (25.3 ± 0.4 w vs 24.8 ± 0.7 w, p 0.021), CRIB index (12 [7-14.5] vs 7 [5-9], p 0.012), mortality rate (88.9% vs 47%, p 0.015) and neurologic morbidity (66.7% vs 31.7%, p 0.031).

CONCLUSIONS

In our study, 5.7% of preterm infants ≤ 25 weeks GA needed extensive CPR. A significant increase in mortality and neurological morbidity was observed in this group of patients. Perinatal risk factors and

outcome of preterm infants at the limit of viability who receive extensive CPR should be analyzed in order to improve resuscitation and post-resuscitation strategies for this vulnerable population.

ABS 6**QUALITY OF LIFE IN PREMATURE BABIES FROM MOTHER'S PERSPECTIVE**

A. Bivoleanu¹, A. Avasiloaiei², M. Stamatini²

¹"Cuza-Voda" Clinical Hospital of Obstetrics and Gynecology; ²Division of Neonatology, Department of Mother and Child Care, "Gr.T.Popa" University of Medicine and Pharmacy, "Cuza-Voda" Clinical Hospital of Obstetrics and Gynecology; Regional Neonatal Intensive Care Unit, Iasi, Romania

INTRODUCTION

The consequences of preterm birth are more significant in childhood; however, they can extend into adolescence and adulthood with impact on quality of life (QoL). The evaluation of QoL of a former premature child is often more of an estimation estimated than a real assessment, because it is not possible to make an exact prognosis of evolution.

METHODS

According to specific characteristics of our region (low socio-economic status, high rate of prematurity), an original questionnaire was elaborated, validated and delivered, in order to quantify outcome and QoL of former premature infants. These infants were born between 2006-2013, with gestational ages between 27-36 weeks, hospitalized in our NICU for more than a week, included in follow-up program of high-risk neonate, with no congenital anomalies or chromosomal disorders. 703 mothers were randomly recruited, who were able to speak, read and write Romanian, had no previous history of alcohol or drug abuse or psychiatric disorder. Mothers agreed and signed an informed consent form for the questionnaire.

RESULTS

The studied group was homogenous regarding maternal age, gestational age of infants and birth weight. 47.2% of mothers were working, 41% had finished high school, 44% were unmarried, 41% declared minimum income, 35% felt guilty for giving birth to premature infants. 50.2% of interviewed mothers associated motor acquisitions with a good QoL. Only 5.4% of mothers appreciated cognitive acquisitions as a marker of good neurologic outcome. 50% of infants were hospitalized at least one time, in first two

years of life. 29.2% of infants with severe risk at discharge, became at low risk at the end of follow-up program ($p = 0.001$). 25% of infants benefited of exclusive breastfeeding in first three months after discharge, which is also associated with a good QoL. Irritability and/or “social exclusion” in children were considered as a parameter that influenced QoL in 39.8% of cases. 86% of infants benefited of regular evaluations in the follow-up program. 59% of mothers, regardless of neurological risk, appreciated a good state of health in their children.

CONCLUSIONS

Regardless of other characteristics, the main element associated with a good QoL is weight (55.3%). High educational level in mothers was associated with a critical view on QoL of their own child ($p = 0.001$). From the neurologic point of view and from the mother’s perspective, motor acquisitions are more suggestive for a good QoL than cognitive ones.

ABS 7

PERINATAL MANAGEMENT AND MORTALITY RATES AT THE LIMIT OF VIABILITY

S. Zeballos Sarrato, E. Sanz, I. Pescador, S. Villar, N. Navarro, M. Sánchez Luna

Neonatology Department, University Hospital Gregorio Marañón, Madrid, Spain

INTRODUCTION

Available data on perinatal management and mortality rates of extremely low gestational age infants displays a wide variation. The objective of this study was to perform a review of perinatal risk factors, perinatal management and mortality rates at the limit of viability.

METHODS

This is a single centre cohort study (level IIIc), conducted over a period of 8 years (2008-2015). We included all intrapartum stillbirths (IS) and live births between 23^{0/6} and 25^{6/6} weeks gestational age (WGA). We analyzed perinatal risk factors, perinatal management, intrapartum stillbirths and mortality before discharge.

RESULTS

187 patients were included in this study. We show in **Tab. 1** the results according to gestational age (23, 24 and 25 WGA). The overall results were:

- Perinatal risk factors analyzed: control of pregnancy 93%, disease before and during pregnancy (arterial hypertension/preeclampsia, obstetric hemorrhage, gestational diabetes and unfavorable obstetrical history) 33.7%, assisted reproductive techniques 26.7%, multiple pregnancy 38.5%, pathologic fetal echography 32%, premature rupture of membranes 42.8%, and chorioamnionitis 43.8%.
- Perinatal management: maternal antibiotic administration 79.6%, prenatal steroids administra-

Table 1 (ABS 7). Results according to gestational age (23, 24 and 25 weeks gestational age [WGA]).

	23 WGA n (%)	24 WGA n (%)	25 WGA n (%)	Total n (%)
Number of patients	34	66	87	187
Controlled pregnancy	33 (97.1)	61 (92.4)	80 (92)	174 (93)
Gestational pathology	14 (41.2)	20 (30.3)	29 (33.7)	63 (33.7)
Assisted reproduction techniques	13 (38.2)	15 (22.7)	22 (25.3)	50 (26.7)
Multiple pregnancy	13 (38.2)	29 (43.9)	30 (34.5)	72 (38.5)
Pathologic fetal echography	6 (17.6)	24 (36.4)	30 (34.5)	60 (32)
Premature rupture of membranes	12 (35.3)	29 (43.9)	39 (44.8)	80 (42.8)
Chorioamnionitis	18 (52.9)	32 (48.5)	32 (36.8)	82 (43.8)
Antibiotic	27 (79.4)	54 (81.8)	68 (78.2)	149 (79.6)
Prenatal steroids (at least one dose)	10 (29.4)	49 (74.2)	78 (89.7)	137 (73.2)
Cesarean section	3 (8.8)	24 (36.4)	48 (55.2)	75 (40.1)
Intrapartum stillbirths	4 (11.8)	9 (13.6)	2 (2.3)	15 (8)
Live births	30 (88.2)	57 (86.4)	85 (97.7)	172 (92)
Active reanimation (denominator = live births)	19 (63.3)	55 (96.5)	85 (100)	159 (92.4)
Mortality before hospital discharge (denominator = live births)	22 (73.3)	37 (66.1)	32 (37.6)	91 (53.4)

WGA: weeks gestational age.

tion (at least one dose) 73.2%, cesarean section 40.1%, active management in the delivery room (denominator: live births) 92.4%.

- Mortality rates: intrapartum stillbirths 8%, mortality rates before hospital discharge (denominator: live births) 53.4%.

CONCLUSIONS

Perinatal risk factors, perinatal management and mortality rates should be analyzed periodically and, in our opinion, IS should be included in these reviews. We found that the lower gestational age, the greater discrepancy between obstetric perinatal management and neonatal management in the delivery room. A neonatal active management is observed in preterm babies ≥ 24 WGA.

ABS 8

OUTCOMES OF LATE PRETERM NEWBORNS

D. Stoniene¹, J. Ribeliene¹, S. Malik², J. Tomkeviciute³, R. Tameliene¹

¹Department of Neonatology, Lithuanian University of Health Sciences, Kaunas, Lithuania

²Lithuanian University of Health Sciences, Kaunas, Lithuania

³Department of Physics, Mathematics and Biophysics, Lithuanian University of Health Sciences, Kaunas, Lithuania

INTRODUCTION

Late preterm newborns (34-36 WG) have higher morbidity than term newborns due to their physiologic and metabolic immaturity. The overall rise in preterm birth rates was primarily due to an increase in late preterm births.

METHODS

A retrospective analysis of case histories of newborns at 34-36 weeks of gestation (WG).

RESULTS

A total of 3,450 newborns were born in 2015 in Hospital of LUHS. 281 (8.14%) of them were late preterm newborns. 269 (95.7%) newborns were included into research. 72 (26.8%) – 34th WG, 79 (29.4%) – 35th WG and 118 (43.9%) – 36th WG. The weight of 34 WG was significantly lower than 35 and 36 WG. The evaluation by Apgar score after 1st minute did not show any differences among the groups, but after 5th minutes the group of 34 WG showed significantly lower points. 158 (58.7%) of late preterm newborns were born by vaginal delivery (VD) and 111 (41.3%) by cesarean section (CS). There was no significant difference in mode of delivery between WG

groups. Newborns of 36 WG were significantly more often admitted to NICU after CS than after VD. Jaundice and respiratory morbidity occurred significantly more often in the group of 34 WG. Newborns after VD had jaundice significantly more often than newborns after CS. The mode of delivery did not influence other morbidities. Newborns of 34-35 WG after VD had jaundice significantly more often than newborns delivered by CS. The breastfeeding rate at discharge was significantly higher in the group of 36 WG. The mode of delivery significantly influenced feeding type at the time of discharge. Newborns after VD were significantly more often breastfed than newborns delivered by CS. An admission to NICU had significant influence on the feeding type at the time of discharge at home. Newborns who had been treated at NICU were significantly more often formula fed, regardless of WG. Newborns of 36 WG born by VD and not treated at NICU were most often breastfed.

CONCLUSIONS

Respiratory morbidity and jaundice were significantly associated with lower gestational age and mode of delivery. Newborns of 34 WG had a significantly higher risk of developing respiratory morbidity and jaundice. Late preterm newborns delivered by the natural way had significantly higher risk of developing jaundice. The feeding type at discharge was significantly influenced by gestational age, mode of delivery and admission to NICU.

ABS 9

MAGNESIUM SULPHATE, ANTENATAL STEROIDS, CORD CLAMPING, THERMOREGULATION (MASCOT)

A. Ansary, D. Anand

Neonatal Unit, Royal Hospital for Children, Glasgow, UK

INTRODUCTION

Millions of pounds are spent in developing evidence-based treatments (EBT) around the time of birth to improve outcomes of infants born prematurely. However, not all eligible patients receive every relevant EBT. To improve clinical outcomes, it is important to know the proportion of patients who fail to receive EBT and the factors preventing their reliable delivery. This study is aimed at evaluating the effectiveness of existing systems of service

provision in delivering EBT reliably around the time of birth of infants born before 29 weeks.

METHODS

This is a prospective study of such infants born and admitted to the tertiary neonatal unit at Royal Hospital for Children between September 2015 and August 2016. The four EBTs that are being monitored are: 1) antenatal magnesium sulphate (AMS), 2) antenatal steroids (ANS), 3) delayed cord clamping (DCC) (> 30 s), 4) thermoregulation. In addition, some of the related clinical outcomes were also monitored.

RESULTS

26 patients were included in the study to date (September 2015 and May 2016). The median gestational age was 27⁺³ weeks and median birth weight is 983 g.

Process reliability:

1. AMS: 46.1% of mothers received AMS;
2. ANS: 92.3% of mothers received at least one dose of ANS;
3. DCC: of ≥ 30 s was carried out in 76.9% of infants;
4. thermoregulation: Plastic bags were used in 96.1 of the deliveries.

Outcomes:

1. the mortality rate is 15.3;
2. hypothermia was noted in 38.4% of infants at admission;
3. the incidence of chronic lung disease was 72.2%;
4. the proportion of infants who underwent laser for retinopathy of prematurity is 15.7%.

(Data collection is ongoing and will be updated for presentation at the conference)

CONCLUSIONS

The findings from the study suggest that the delivery of EBT is sub-optimal. There is potential to improve clinical outcomes of these infants by identifying and developing interventions to overcome the factors preventing the reliable delivery of EBT.

ABS 10

FOLLOW-UP AT AGE 8 YEARS OF A POST-DISCHARGE NUTRITION RCT IN PRETERM INFANTS

C.A. Ruys, H.N. Lafeber

Department of Pediatrics/Neonatology, VU University Medical Center, Amsterdam, The Netherlands

INTRODUCTION

Little is known about the long-term effects of post-discharge nutrition on growth and body composition with respect to health risks later in life. Previously, we showed that preterm infants fed an isocaloric, protein-enriched post-discharge formula (PDF) from term to 6 months corrected age (CA) gained more lean mass compared to infants fed standard term formula (TF) or human milk (HM) [1]. We now present the follow-up of this randomized controlled trial (RCT) at age 8 years.

METHODS

The original RCT included infants born at a gestational age of ≤ 32 weeks and/or with a birth weight of ≤ 1,500 g. The present study included 79 of the original 139 children, 40 males, age 7.9 [IQR 7.6-8.3]. Height, weight and head circumference were measured. Fat mass (FM), lean mass (LM), bone area (BA), bone mineral content and density (BMC/BMD) were determined by Dual-Energy X-ray Absorptiometry (DEXA).

RESULTS

At term age, 3 and 6 months CA and 8 years there were no differences in weight, length or head circumference between the PDF, TF and HM group. At 8 years, regression analyses showed no differences in FM, LM, BMC and BMD between the feeding groups (**Tab. 1**).

Table 1 (ABS 10). Body composition and bone parameters in HM, PDF and TF fed infants.

Age		HM (n = 25)	PDF (n = 33)	TF (n = 21)
6 months CA	FM (kg)	1.76 [1.34; 2.28]	1.85 [1.34; 2.24]	1.82 [1.61; 2.29]
	LM (kg)	5.55 ± 0.59	5.9 ± 0.63 ^a	5.70 ± 0.70
	BMC (g)	132.4 ± 25.6	146.5 ± 24.5 ^b	144.3 ± 25.2
	BMD (g/cm ²)	0.219 ± 0.026	0.234 ± 0.022 ^b	0.231 ± 0.017
8 years	FM (kg)	6.86 ± 2.33	7.17 ± 2.36	6.58 ± 2.41
	LM (kg)	18.16 ± 1.89	18.95 ± 2.81	18.39 ± 3.75
	BMC (g)	870 ± 74	909 ± 100	896 ± 129
	BMD (g/cm ²)	0.72 ± 0.037	0.74 ± 0.055	0.74 ± 0.064

Values are presented as mean ± SD or median [25th-75th percentile].

^aHM vs. PDF p = 0.039; ^bHM vs. PDF p < 0.05.

HM: human milk; PDF: post discharge formula; TF: term formula; CA: corrected age; FM: fat mass; LM: lean mass; BMC: bone mineral content; BMD: bone mineral density.

CONCLUSIONS

At age 8 years, the positive effects of PDF on body composition as shown at 6 months CA were no longer present. To achieve long-lasting effects, the pre- and post-discharge period may have to be seen as a continuum instead of separate periods in terms of nutritional interventions.

REFERENCES

- [1] Amesz EM, Schaafsma A, Cranendonk A, Lafeber HN. Optimal growth and lower fat mass in preterm infants fed a protein-enriched postdischarge formula. *J Pediatr Gastroenterol Nutr.* 2010;50(2):200-7.

ABS 11

NEONATAL OUTCOMES OF PRETERM BABIES (23-32 WEEKS GESTATION) CLASSIFIED BY THE UNDERLYING AETIOLOGIES: A RETROSPECTIVE STUDY IN A SPECIALISED NEONATAL UNIT

F. Jaffar¹, S. Sankaran², S. Tan³, A. Shennan²

¹Division of Women's Health, King's College, London, UK

²Fetal Medicine Unit, Guy's and St Thomas' Hospital NHS Trust, London, UK

³Neonatal Intensive Care Unit, St Thomas' Hospital, London, UK

BACKGROUND

While it is a well-known fact that very preterm babies are at an increased risk of mortality and morbidity, current literature is scarce in providing useful information to aid individualised counselling according to the reason for preterm delivery. This study is aimed at determining the mortality and adverse neonatal outcomes in groups of preterm babies born between 23-32 weeks of gestation classified by their underlying aetiologies.

METHODS

This was a descriptive population-based retrospective study examining a cohort of 410 singleton infants born at St Thomas' Hospital, London from January 2010 to January 2016. Data on maternal history, neonatal outcomes such as survival, bronchopulmonary dysplasia, pulmonary interstitial emphysema, intraventricular haemorrhage, necrotising enterocolitis, retinopathy of prematurity and sepsis were collected using the neonatal database BadgerNet.

RESULTS

The overall mortality rate of the preterm babies in this study was 9.0%. The highest mortality rate was seen in the chorioamnionitis group (15.2%) and the lowest in the urinary infections

group (0.0%). Neonates in the vaginal bleeding cohort had the best outcomes, as defined by the proportion of surviving babies with no adverse outcomes (66.7%) in contrast to growth-restricted neonates without hypertension, which had the worst outcome (34.5%). Bronchopulmonary dysplasia was the leading adverse outcome in all aetiological subgroups, followed by sepsis. Necrotising enterocolitis was the third most common adverse outcome; it was most prevalent in growth-restricted neonates.

CONCLUSIONS

This retrospective study allowed us to explore the heterogeneity of clinically defined subgroups based on underlying aetiologies of preterm birth. Our study suggests that preterm infants may have different profiles of risk of neonatal mortality and morbidity according to their underlying aetiologies.

ABS 12

ARE THERE PREDICTIVE PARAMETERS FOR THE OCCURRENCE OF RETINOPATHY OF PREMATURITY – ROP?

V. Filip, C. Lazar

Department of Neonatology, Clinical Hospital, Oradea, Romania

INTRODUCTION

Oxygen-therapy is well-known to have a role in the occurrence of retinopathy of prematurity (ROP) in premature newborns with low gestation and birth weight. Are there any other parameters that can be taken into account to predict the evolution of newborns developing ROP?

METHODS

Premature newborns born in 2013 and screened for ROP were included. The following parameters were recorded during hospitalization: erythrocyte values (E), hemoglobin (Hb), hematocrit (Ht), platelets (P), leukocytes (L) and retina aspect and ROP presence. For those who developed ROP, it was recorded whether it regressed or had required treatment. We compared the blood count parameters in those who developed ROP compared to those who did not develop ROP. Furthermore we differentiated those who required treatment from those in whom ROP had regressed.

RESULTS

The study included 115 premature newborns GA < 34 weeks and BW < 2,500 g, of which

29 cases (25.22%) developed ROP. Of these, 5 cases (17.24%) developed aggressive posterior ROP form and required treatment. The results in dynamics of E, Hb, Ht for those who developed ROP compared to those without ROP were as follows: E from the 4th examination $p_{4E} = 0.074$, Hb at the 4th examination $p_{4Hb} = 0.064$, Ht at the 4th examination $p_{4Ht} = 0.049$, Ht at the 7th examination $p_{7Ht} = 0.083$, P the 4th examination $p_{4P} = 0.036$, L on the 2nd examination $p_{2L} = 0.024$ and 3rd examination $p_{3L} = 0.029$. Those who required treatment showed no significant differences in these parameters during hospitalization, compared to those in whom ROP regressed.

CONCLUSIONS

L and P, as indicators of the state of infection, are statistically significantly better associated to the development of ROP than Ht values, Hb and E, as indicators of anemia. However, these parameters cannot be used as indices of severity.

ABS 13

POSTNATAL GROWTH OF PRETERM CHILDREN: A LONGITUDINAL STUDY

F. Stripeli, A. Koutroumpa, P. Loukeri, P. Papadogeorgou, H. Bouza

Neonatal Intensive Care Unit, "Aghia Sophia" Children's Hospital Athens, Greece

INTRODUCTION

Premature infants are at high risk for growth delays in later life. Postnatal growth curves for premature infants in Greece have never been constructed before.

METHODS

Our aim was to develop postnatal growth curves for preterm infants from birth to 30 months of age and to relate growth pattern to several common morbidities of prematurity. Growth data of 342 premature infants (gestational age < 37 weeks) who were hospitalized in our neonatal intensive care unit and were followed up to the fourth year of age were analyzed. Growth curves were constructed and adjusted to Count's model.

RESULTS

At 30 months of age the weight growth curves of both male and female premature infants were between the 10th and 25th percentile curves of the full term babies. Height growth curves were between the 10th and 25th percentile curves as well

for both males and females. Finally, the head circumference growth curves reached the 25th percentile curve for the two sexes. Respiratory distress syndrome, bronchopulmonary dysplasia, necrotizing enterocolitis, intraventricular hemorrhage, periventricular leukomalacia, patent ductus arteriosus and use of mechanical ventilation significantly negatively affected weight, height and head circumference. Finally, factors such as gestational age, weight and head circumference at birth were associated with growth restriction in preterm infants.

CONCLUSIONS

The preterms studied showed a tendency of rapid recovering weight, height and head circumference related to Greek term newborns. Factors independently associated with extrauterine growth restriction were major morbidities and perinatal factors.

ABS 14

MOTHER'S OWN MILK VS NATURAL MILK FROM HUMAN MILK BANK IN INFANT'S FEEDING – EVALUATION OF CLINICAL EFFECTS IN TREATMENT

M. Wilinska

Department of Neonatology, Centre of Medical Postgraduate Education, Warsaw, Poland

INTRODUCTION

Although breastfeeding is recommended for all infants, some NICUs use formulas for enteral feeding of the patients.

OBJECTIVES

To evaluate a) the possibility of feeding newborns at NICU only naturally; b) the influence of feeding with mother's own milk (MM) vs milk from human milk bank (HMB) on clinical effects of treatment and breastfeeding at discharge.

METHODS

We analyzed 639 newborns hospitalized in our Department of Neonatology from 1st April 2012 to 31st March 2016. Group I (n = 101) – newborns fed only with their mother's milk (MM), group II (n = 538) – newborns fed with MM and milk from HMB (MM+HMB). We evaluated demographical parameters, treatment and its clinical effects.

RESULTS

There were no statistically significant differences in demographic parameters between group I and

Table 1 (ABS 14). Feeding at discharge.

Food source	Maturity (weeks GA)	Feeding at discharge			Food source at discharge in total
		MM only (% of group)	Mixed (% of group)	Formula only (% of group)	
MM	< 28	50	40	10	94% any breastfeeding 6% formula only • 4.3% of MM group (I) • 6.4% of MM + HMB group (II)
	28-31	65	35	0	
	> 31	61.9	33.3	4.76	
MM + HMB	< 28	72.22	11.1	16.68	
	28-31	68.38	16.67	13.97	
	> 31	85.23	12.26	2.51	

MM: mother's own milk; HMB: milk from human milk bank; GA: gestational age.

II. Newborns GA > 31 weeks in group II were hospitalized longer (16 vs 11 days, $p = 0.002$). Minimal enteral feeding was introduced in the fourth and third hour of life in group I and II, respectively. Longer parenteral nutrition was observed in group of GA 28-31 weeks, 8 and 6 days respectively ($p = 0.004$); there was also longer maintenance of central venous line: 9 vs 5 days, $p = 0.002$. Higher frequency of retinopathy of prematurity (ROP) (II and III grade) occurrence was diagnosed in II group, $p = 0.021$. Feeding at discharge is presented in **Tab. 1**. 96% of newborns in group I and 94% newborns in group II were fed naturally. Exclusive breastfeeding was considered for 61.29% newborns in group I vs 80.04% in group II.

CONCLUSIONS

Natural feeding of patients in the neonatal intensive care units in Poland is now possible. Availability of milk from human milk bank accelerates the achievement of full enteral feeding, shortens the length of parenteral feeding and improves rates of exclusive breastfeeding at discharge. Exclusive feeding with mother's own milk should be preferred as it protects retina maturation and reduces retinopathy of prematurity of medium and high severity. Modern programs of care for pregnant women, women in labor and postpartum should be introduced to successfully start and continue lactation.

ABS 15

THE ROLE OF MATERNAL FACTORS ON LATE PRETERM RESPIRATORY MORBIDITY

E. Kreko¹, E. Kola², S. Bajo², E. Tushe¹

¹Service of Neonatology, University Hospital of Obstetrics and Gynecology (UHOG) "Koço Gliozheni", Tirana, Albania

²Department of Pediatrics, University Hospital Center "Nene Tereza", Tirana, Albania

INTRODUCTION

Maternal factors are very important in preterm delivery and their outcome. The objective of the study is to compare respiratory morbidity of late preterm neonates born to women who had previously received antenatal corticosteroids (ACS) to those unexposed to ACS.

METHODS

This prospective study analyzed the data of babies born late preterm from January 2015 to July 2015 at the UHOG Koço Gliozheni in Tirana. Maternal data were extracted from medical charts. We compared the respiratory morbidity of late preterm babies whose mothers received one or two courses of ACS with those not exposed to them. Multiple pregnancies and congenital anomalies are excluded.

RESULTS

A total of 91 babies were born late preterm during this period. After exclusion of multiple pregnancies and anomalies, 21 babies were exposed to ACS, versus 53 that were not exposed to ACS. The median gestational age was 35.5 weeks gestational age (WGA) for the control group vs 34.8 WGA of the exposed group. Maternal factors are listed in the **Tab. 1**. We found no significant difference between groups for mode of delivery, insurance and education. Respiratory morbidity as transient tachypnea and respiratory distress syndrome were analyzed. We found a small difference between the groups for the total respiratory morbidity (RR = 1.13, CI 95%: 0.6-2) and for RD and TT. They all were found higher in the ACS exposed group as shown in **Tab. 2**.

CONCLUSIONS

Exposure to ACS during pregnancy did not appear to change the proportions of adverse respiratory

Table 1 (ABS 15). Maternal factors in the 2 groups.

Maternal factors	Not exposed to ACS	Exposed to ACS	RR	CI 95%
Median age	28.2	27.7		
Insurance	19	6	0.9	0.4-0.2
CS delivery	26	10	0.6	0.3-1.4
Education	27	9	1	0.6-1.8

ACS: antenatal corticosteroids.

Table 2 (ABS 15). Respiratory morbidity (RM) in the 2 groups.

	Not exposed to ACS n = 53	Exposed to ACS n = 21	RR	CI 95%
Median gestational age	35.5 WGA	34.8 WGA		
Respiratory distress	4	2	1.26	0.2-6.3
Transient tachypnea	16	7	1.1	0.5-2.2
Total RM	20-38%	9-42%	1.13	0.6-2

ACS: antenatal corticosteroids; WGA: weeks gestational age; RM: respiratory morbidity.

outcomes in neonates born late preterm. To evaluate ACS in late preterm babies, better-designed and larger studies must be performed in the future.

ABS 16

EVALUATION OF DEVELOPMENT OF PRETERM INFANTS USING BAYLEY-III

M. Kherkheulidze¹, N. Kavlashvili¹, E. Kanelaki¹, T. Tabatadze², T. Ivanashvili²

¹Pediatric Department, State Medical University, Tbilisi, Georgia

²Iashvili Children's central hospital, Tbilisi, Georgia

OBJECTIVES

The aim of the study was to evaluate cognitive, motor, and language development in preterm infants, and perinatal, neonatal and socioeconomic factors associated with abnormal development.

METHODS

A cross-sectional study was carried out with 78 preterm infants (gestational ages < 33 weeks) between 18-24 months corrected ages using the Bayley III Scale. Congenital malformation, genetic syndrome, symptomatic congenital infection at birth, deafness,

and blindness were excluded. History of medical condition, biologic as well as socioeconomic risk factors were recorded and analyzed. The statistical analyses were based on SPSS® 19.

RESULTS

We evaluated patients at 18-24 months corrected age. All patients in neonatal period were treated at NICU. The duration of stay in the NICU was at mean 46.8 ± 22.6 days. Of the 78 evaluated children, 47.4% (n = 37) were males, 20.5% (n = 16) were SGA, 48.7% (n = 38) were breastfed for at least 4 months. 55.1% (n = 43) of children presented with different delays in one or more areas, of whom 62.7% (n = 27) showed delay in one sphere, 23.2% (n = 10) showed delay in 2 areas and 13.9% (n = 6) showed delay in 3 and more areas. For the majority of infants with delay, language development was their weakest domain (55.8%, n = 24), 39.5% (n = 17) showed motor and mainly fine motor delays, cognitive delays were seen in 25.5% (n = 11) of children. The male sex correlated with lower language and social emotional scores. Periventricular leukomalacia, history of peri/intraventricular hemorrhage, longer stay in hospital and lower socioeconomic condition correlated with lower cognitive scores.

CONCLUSIONS

Early preterm infants aged from 18 to 24 months of corrected age frequently presented language, social-emotional, motor and adaptive-behavior delays. Factors such as periventricular leukomalacia, peri/intraventricular hemorrhage, longer stay in hospital, lower socioeconomic condition and male sex were associated to reduced developmental scores.

ABS 17

RESPIRATORY DISTRESS IN NEWBORNS AND DEVELOPMENTAL OUTCOMES

M. Kherkheulidze¹, E. Kandelaki¹, N. Kavlashvili¹, N. Solomonias²

¹Department of Pediatrics, State Medical University, Tbilisi, Georgia

²Iashvili Children's Central Hospital, Tbilisi, Georgia

OBJECTIVES

The aim of the study was to assess the impact of respiratory distress syndrome (RDS) on children's health and neurodevelopmental outcome at 2 years of age.

METHODS

Our retrospective observational study included 138 children (91% of 151 newborns enrolled

in the study group, whose parents agreed to participate) with mean age (corrected age) 24 + 4 months, divided into 3 groups. I group: 38 children born 30-36 weeks of gestation with RDS; II group: 36 children born 30-36 weeks of gestation, without complications; III group: 42 term born healthy children. Children with the following problems were excluded from the study: CNS, neuromuscular, or sensory disorders; hydrocephalus; intraventricular hemorrhage more than grade II; severe congenital malformations metabolic disorders; severe hyperbilirubinemia and sepsis. Full medical history was assessed and development was evaluated using PEDS and Bayley III Scale.

RESULTS

There was no difference in growth pattern among preterms with RDS and without RDS. 15.2% (n = 6) of preterms with RDS and 11.1% (n = 4) preterms without RDS did not present catch-up growth for 2 years. The rate of acute respiratory viral infection (ARVI) and hospitalization compared with term newborns was higher, but this difference was not significant. The study revealed that preterms with RDS have lower cognitive composite scores compared to preterm infants and term newborns, while motor development does not show any significant correlation.

CONCLUSIONS

Our study revealed that cognitive scores are significantly lower in children born premature with RDS compared to premature without RDS and term infants. Motor skills did not show any significant correlation. Growth failure in premature infants with RDS is higher than in term infants but it is similar with the group of preterm infants without RDS.

ABS 18

GENETIC PREDICTORS OF EARLY NEONATAL PERIOD COMPLICATIONS

V. Bushtirev¹, I. Bushtireva², V. Chernavsky¹, A. Gugugeva²

¹Rostov Regional Perinatal Center, Rostov-on-Don, Russia

²Department of Obstetrics and Gynecology #4, Rostov State Medical University, Rostov-on-Don, Russia

INTRODUCTION

Early neonatal period in prematurely born infants is often associated with different syndromes, such as

respiratory distress (RDS), systemic inflammatory response (SIRS), hemorrhagic syndrome (HS). Different genes polymorphisms (coagulation system and folate pathway) were shown to be associated with hemorrhagic complications (intraventricular and periventricular hemorrhage). The goal of this study was to evaluate the association of genetic polymorphisms with complications of early neonatal period in premature newborns.

METHODS

A retrospective analysis of early neonatal period in 36 premature infants (gestational age from 29 to 34 weeks) was performed. Blood samples of both mother and child were obtained for real-time PCR-analyzes for polymorphisms of 21 genes (8 genes of coagulation factors, 4 genes of folate pathway, 9 genes associated with blood pressure regulation) in all cases. All infants were divided into three groups: I – 16 patients diagnosed with RDS only, II – 12 newborns with both RDS and SIRS, III – infants with RDS, SIRS and HS combination. Decision Trees algorithm was used for detection of most valuable polymorphisms for group distribution.

RESULTS

In mothers, the most valuable gene polymorphisms were F VII (proconvertin, G 10976 A), F XIII (fibrinase, G>T), MTHFR (methylenetetrahydrofolate reductase, C 677 T, A 1298 C), AGT (angiotensinogen, T 704 C, C 521 T). In newborns, the most predictive value was shown by gene polymorphisms F VII (proconvertin, G 10976 A), F XIII (fibrinase, G>T), FGB (fibrinogen, G 455 A), MTHFR (methylenetetrahydrofolate reductase, C 677 T, A 1298 C), AGT (angiotensinogen, T 704 C, C 521 T).

CONCLUSIONS

Gene polymorphisms of mother and premature newborn (F VII, F XIII, MTHFR, AGT) can be used as predictive factors for complications of early neonatal period in premature newborns. Further investigation is needed to reveal particular pathophysiological mechanisms of gene-syndrome association.

ABS 19

EARLY PERINATAL OUTCOMES OF PREMATURE BIRTH

I.V. Ignatko, A.N. Strizhakov, N.G. Popova, A.M. Rodoinova, I.M. Bogomazova, A.L. Martirosova, N. Polshina

Obstetrics, Gynecology and Perinatology Department, I.M. Sechenov First Moscow State Medical University, Moscow, Russia

INTRODUCTION

Maternal and child health are seen as an important component of the health system that is crucial for the formation of a healthy generation. The aim was to find the most significant changes in the statistical indicators of morbidity and mortality observed among premature infants with very low (VLBW) and extremely low birth weight (ELBW) at birth. The aim of our investigation was to assess early perinatal outcomes of preterm labor.

METHODS

Main results are reported in **Tab. 1**. We examined 96 pregnant women with a diagnosis of threatened preterm labor at 22-36 weeks of gestation. 26 (20.63%) patients gave birth at 33-36 weeks duration – 1st subgroup, 26 patients (20.63%) in the period 29-32 weeks – 2nd subgroup, 18 (14.29%) in the period 26-28 weeks – 3rd subgroup and 26 (20.63%) in the period of 22-25 weeks of pregnancy – 4th subgroup.

RESULTS

In the analysis of the main causes of children deaths respiratory disorders and infectious complications were equally present in the 3rd and 4th subgroups, with 7 (28.57%) and 4 (28.57%) cases respectively. As well as the cause of death, morphological pathology of the central nervous system is often observed: subarachnoid hemorrhage in the 4th subgroup – 4 (14.29%), the 3rd subgroup – 3 (16.67%), intraventricular hemorrhage – in the 4th subgroup of 6 (21.49%), in the 3rd subgroup – 4 (23.08%). In all subgroups a concomitant pathology was observed in 100% of cases. The dominant pathologies were: infectious diseases – in 65 (92.86%) newborns, respiratory disorders – in 59 (84.29%) cases. In 37

(52.85%) newborns intrauterine malnutrition and morphofunctional immaturity were observed. CNS lesions, such as subarachnoid and intraventricular hemorrhages, were observed in equal numbers – 9 (12.86%) children. In the 22-25 weeks we observed infectious diseases and RDS, malnutrition and immaturity – 18 (100%) observations, to a lesser extent – IVH – 9 (34.62%) newborns and SAH – in 7 (26.92%) children.

CONCLUSIONS

Our data could be helpful in the evaluation of early perinatal outcomes of premature birth.

ABS 20

RISK FACTORS FOR CEREBRAL HEMORRHAGE IN PRETERM INFANTS ≤ 32 WEEKS GESTATIONAL AGE

M.L. Ognean¹, O. Boantă¹, E. Olariu¹, S. Kovacs², D. Andreicuț²

¹Neonatology Department, Clinical County Hospital Sibiu, Romania

²Preterm Infant Department, Clinical County Hospital Sibiu, Romania

INTRODUCTION

Cerebral hemorrhage (CH) is a perinatal complication of prematurity associated, in severe cases, with important impact on morbidity, mortality, and long-term neurodevelopmental outcome.

AIMS

The authors aimed to identify perinatal risk factors for CH and for severe CH (grade 3 and 4) in preterm infants ≤ 32 weeks gestational age (GA).

METHODS

The prospective study was developed over a 2 years period (1st January 2010-31st December 2011) and is based on the information collected in the National Registry for Respiratory Distress

Table 1 (ABS 19). The incidence of diseases, depending on the duration of pregnancy.

Diseases	33-36 wks (n = 26)	29-32 wks (n = 26)	26-28 wks (n = 18)	22-25 wks (n = 26)	Total (n = 96)
Breathing disorders	19 (73.08%)	26 (100%)	18 (100%)	26 (100%)	89 (92.7%)
Infectious complications	26 (100%)	25 (96.15%)	18 (100%)	26 (100%)	94 (97.92%)
Malnutrition and morphofunctional immaturity	13 (50%)	10 (38.46%)	18 (100%)	26 (100%)	67 (69.79%)
Subarachnoid hemorrhage at NSG	-	4 (15.38%)	5 (27.78%)	7 (26.92%)	16 (16.67%)
Intraventricular hemorrhage at NSG	1 (3.85%)	3 (11.54%)	6 (33.33%)	9 (34.62%)	19 (19.79%)
Syndrome of persistent fetal communications	-	-	1 (5.56%)	1 (3.85%)	2 (2.08%)
Comorbidity	26 (100%)	26 (100%)	18 (100%)	26 (100%)	96 (100%)

Syndrome (RDS). All preterm infants ≤ 32 weeks gestational age were included and data analysis was performed using IBM® SPSS® Statistics 19 ($p < 0.05$, 95% CI).

RESULTS

The study group comprised 139 preterm infants with GA of 30.3 ± 1.9 weeks, and mean birth weight (BW) of $1,412 \pm 367$ g. CH occurred in 70 cases (50.3%) and severe CH in 7 cases (5.3%). Perinatal data were analyzed and correlations with CH were found only with low GA and BW ($p = 0.000$), poor condition at birth (indicated by Apgar score at 5 minutes) ($p = 0.023$), and severe RDS as revealed by need for surfactant administration ($p = 0.000$; OR: 5.0), mechanical ventilation (MV) ($p = 0.038$; OR: 2.4) and persis-

tent ductus arteriosus (PDA) ($p = 0.004$; OR: 2.9). The same correlations were found for severe CH (GA, BW, Apgar score at 1 and 20 minutes, need for surfactant administration, MV, and PDA – $p = 0.000/0.038$), but correlations were also found with birth in a lower level unit ($p = 0.020$; OR: 5.7) and necrotizing enterocolitis (NEC) ($p = 0.000$; OR: 44.7).

CONCLUSIONS

A high incidence of CH was noted in preterm infants less than 32 weeks GA, but severe CH had a low incidence. Lower GA and BW, birth asphyxia, and severe RDS were identified as risk factors for CH and severe CH, while being outborn and developing NEC are additional risk factors identified in severe CH.