ID 6 - COMPARING THE EFFECT OF ROOM AIR VERSUS COMMERCIALY AVAILABLE OXYGEN FOR THE RESUSCITATION OF ASPHYXIATED NEONATES IN KABUL CITY: A RANDOMIZED CLINICAL TRAIL.

Professor Mansoor Aslamzai

1Maiwand Teaching Hospital/ Kabul University Of Medical Science, Kabul, Afghanistan, 2Faculty of Nursing and midwifery/ KUMS, Kabul, Afghanistan

Introduction:
Perinatal asphyxia is one of the leading causes of neonatal death in Afghanistan. The recent recommendation has accepted room air as preferred therapy in the resuscitation of asphyxiated term neonates. Since the quality of air is poor in Kabul city so a study was needed to assess its efficacy in the resuscitation of neonates.

Aim:
To evaluate the effectiveness of room air versus commercially available oxygen for the resuscitation of the asphyxiated term and preterm neonates.

Materials and Methods:
This study was a randomized clinical trial conducted at the Neonatology ward of Malalai Hospital in Kabul city, Afghanistan. Total 300 neonates of 30-41 weeks gestation diagnosed as severe perinatal asphyxia were randomly resuscitated with either room air or commercially available oxygen. The clinical parameters were the Apgar score, oxygen saturation, and neonatal mortality percentage. Statistical analysis was performed by SPSS 20.

Results:
One hundred and fifty neonates in the room air group and 150 neonates in the commercially available oxygen group were investigated. The term neonate percentage was 76% and 75.3% in the room air and oxygen group respectively. Term neonates resuscitated with room air had obtained higher mean oxygen saturation (83.4±14.9, p=0.001) than oxygen (77.1±13.1, p=0.001) at 5 minute of birth. Median Apgar score was the same in both groups (5, p=0.001). The difference of mortality during hospital stay in both groups was not statistically significant (5.26% vs 7%, p=0.59). Mean oxygen saturation in preterm newborn babies was 80.58±15.62 and 78.41±11.91 with p=0.22, respectively in both groups. Median Apgar score in room air was 6 and in oxygen group was 5 with p=0.33. The preterm infant also showed a non-significant difference in mortality during hospital stay in both groups (11.1% vs 18.9%, p=0.5).

Conclusion:
Despite poor air quality in Kabul city, room air was significantly more effective than commercially available oxygen to increase oxygen saturation and as effective as commercially available oxygen to elevate Apgar scores in the resuscitation of asphyxiated term neonates. The difference in mortality was not statistically significant in both groups. The efficacy of room air did not appear statistically significant for the resuscitation of preterm neonates.

No conflict of interest
ID 169 - SIMULATION-BASED NEONATAL RESUSCITATION TEAM TRAINING: A SYSTEMATIC REVIEW

MD, PhD Morten S. Lindhard1, MD Signe Thim2, MSc Henrik S. Laursen3, MSc Anders W. Schram4, MD, MHPE Charlotte Paltved4, MD, PhD Tine B. Henriksen2

1Department of Pediatrics, Randers Regional Hospital, Randers, Denmark, 2Department of Pediatrics and Adolescent Medicine, Aarhus University Hospital, Aarhus, Denmark, 3Medical Library, Regional Hospital Central Jutland, Viborg, Denmark, 4Corporate HR, MidtSim, Central Region Denmark, Aarhus, Denmark

BACKGROUND:
Several neonatal simulation-training programs have been deployed during the last decade, and a growing number of studies have investigated effects of simulation-based team training. This body of evidence remains to be compiled. We performed a systematic review of the effects of simulation-based team training on clinical performance and patient outcome.

METHODS:
Literature search was performed in Medline, Embase, CINAHL and Cochrane Library databases. Two authors included studies of team training in critical neonatal situations with reported outcome on clinical performance and patient outcome. Two authors extracted data using a predefined template and assessed risk-of-bias using the Cochrane risk-of-bias tool 2.0 and the Newcastle-Ottawa quality assessment scale.

RESULTS:
We screened 1,434 titles and abstracts, evaluated 173 full-texts for eligibility, and included 24 studies. We identified only two studies with neonatal mortality outcome, and no conclusion could be reached regarding effects of simulation training in developed countries. Considering clinical performance, randomized studies showed improved team performance in simulated re-evaluations 3-6 months after the intervention. Meta-analysis was impossible due to heterogenous interventions and outcomes. Kirkpatricks’ model for evaluating training programs provided the framework for a narrative synthesis. Most included studies had significant methodological limitations.

CONCLUSION:
Simulation-based team training in neonatal resuscitation improves team performance and technical performance in simulation-based evaluations 3 to 6 months later. The current evidence was insufficient to conclude on neonatal mortality after simulation-based team training, since no studies were available from developed countries. Future research should include patient outcomes or clinical proxies of treatment quality whenever possible.

None declared
ID 256 - THEORETICAL KNOWLEDGE AND SKILL RETENTION 3 AND 6 MONTHS AFTER A EUROPEAN NEWBORN LIFE SUPPORT PROVIDER COURSE

Miss Styliani Paliatsiou1, Professor Theodoros Xanthos2, Professor Jonathan Wyllie3, Miss Paraskevi Volaki4, Doctor Rozeta Sokou4, Doctor Danai Bikouli4, Assistant Professor Zoi Iliodromiti4, Associate Professor Theodora Boutsikou4, Professor Nicoletta Iacovidou4

12nd Department of Obstetrics and Gynecology, Aretaieio Hospital, National and Kapodistrian University of Athens, Athens, Greece, 2Department of Medicine, School of Medicine, European University of Cyprus, Nicosia, Cyprus, 3Department of Neonatology, James Cook University Hospital, Middlesbrough, North Yorkshire, United Kingdom, 4Neonatal Department, Aretaieio Hospital, National and Kapodistrian University of Athens, Athens, Greece

Introduction:
The European Resuscitation Council Newborn Life Support Course (ERC-NLS) aims at training healthcare professionals, involved in perinatal care, in order to be able to intervene efficiently and promptly to assist transition or resuscitate neonates in need at birth. However, limited data exists for the retention of the theoretical knowledge and practical skills provided by the course. This study aims at evaluating the degree of knowledge and skill retention 3 and 6 months after the ERC-NLS provider course.

Methods:
This is a prospective study. Theoretical knowledge was evaluated using the ERC-approved NLS written test (50 True/False questions). Evaluation of technical skills included performance on an Advanced Life Support neonatal maniquin (LAERDAL) of airway management, ventilation and support of circulation (21 detailed skills). The effect of certain factors on theoretical skill retention was also evaluated.

Results:
One hundred and sixteen (n=116) participants were initially recruited in the study (12 males and 104 females). Theoretical knowledge was evaluated in 113 participants (3 participants missed follow-up appointments) and technical skills in 80 participants. The mean score for theoretical knowledge was 86.24±5.3, 80.88±7.43 and 80.04±7.04 at baseline, at 3 and 6 months, respectively. This difference was significant among the three time points (baseline vs 3 months: P < 0.001; baseline vs 6 months: P < 0.001; 3 month’s vs 6 months: P = 0.034). Although gender did not had an effect, doctors and participants of higher education yielded higher score of success. Regarding technical skills, 9 skills showed a continuous decline of performance from baseline to 6 months, while no difference existed for 12 skills.

Conclusions:
Healthcare professionals after the NLS provider course retain satisfactory levels of theoretical knowledge and technical skills even at 6 months post-training, although, there is a decline compared to baseline. Further research is needed in order to establish the proper time and type of refreshment course in order to improve outcomes.

None Declared
ID 309 - TRANSITIONAL CHANGES IN CEREBRAL BLOOD VOLUME IN TERM NEONATES AFTER VAGINAL DELIVERY VERSUS CAESAREAN SECTION

Dr. Johann Martensen1, Almut Pascher1, Prof. Berndt Urlesberger1, PD Alexander Avian2, PD Nariae Baik-Schneditz1, Prof. Gerhard Pichler1, PD Bernhard Schwaberger1

1Division of Neonatology, Department of Pediatrics, Medical University of Graz, Austria, 2Institute for Medical Informatics, Statistics and Documentation, Medical University of Graz, Austria

BACKGROUND
Recent studies demonstrated a significant decrease of cerebral blood volume (ΔCBV) during neonatal transition in healthy term neonates. Data about the transitional changes in CBV concerning the mode of delivery are lacking.

METHODS
Retrospective analysis of secondary outcome parameters of prospective observational studies. Term neonates with uncomplicated neonatal transition were included. Near-infrared spectroscopy (NIRS) measurements were conducted using ‘NIRO-200-NX’ (Hamamatsu; Japan) during neonatal transition. ΔCBV converted out of NIRS-derived total hemoglobin and cerebral tissue oxygenation index (cTOI) were evaluated. Pulse-oximetry measured heart rate (HR) and arterial oxygen saturation (SpO₂). Two groups of neonates were compared: born by vaginal delivery (VD) and caesarean section (CS). Timing of cord clamping was routinely performed 60 seconds after VD and 30 seconds after CS.

RESULTS
We included 71 neonates in the VD group and 140 in the CS group. The median (IQR) gestational age was 40.0 (39.0-40.9) and 38.9 (38.4-39.3) weeks in VD and CS group (p<0.001), respectively.

ΔCBV: The median decrease in CBV within the first 15 minutes after birth was 0.82 ml/100 g brain in the whole study population (p=0.006). We observed larger ΔCBV values in VD group compared to CS group, representing a pronounced decrease of CBV, compared to CS group. ΔCBV differed significantly between groups (p<.05) at minutes 2, 5 and 13.

cTOI, HR, and SpO₂: VD neonates had a significantly higher HR up to minute 4, and higher SpO₂ up to min 5 compared to CS neonates. cTOI showed significantly lower values for VD neonates at min 2, and significantly higher values at min 4 and 5.

CONCLUSION
During neonatal transition, we observed a larger decrease of CBV in VD neonates compared to CS neonates. We assume that higher SpO₂ levels correspond to higher pO₂ levels in VD neonates, and, consecutively, cerebral vasoconstriction is more pronounced. However, different cord clamping policies regarding the delivery mode might have influenced the findings of our study. The clinical impact of our findings needs to be studied in future.

None declared
ID 528 - AIRWAY SUCTIONING AT BIRTH: THE IMPACT ON HEART RATE AND OXYGEN SATURATION.

**Doctor, PhD-candidate Gazmend Berisha**, Doctor, PhD Anne Marthe Boldingh, Doctor, PhD, Consultant Elin Wahl Blakstad, Associate professor, doctor, PhD, Consultant Arild Rønnestad, Doctor, PhD, Consultant Anne Lee Solevåg

1. Akershus University Hospital / Dept. of Pediatrics & Adolescent medicine and Neonatal Intensive Care Unit, Lørenskog, Norway, 2. Oslo University Hospital Rikshospitalet / Neonatal Intensive Care Unit, Oslo, Norway

**BACKGROUND**

Historical data suggest that delivery room airway suctioning can be detrimental to newborn infants. Although recent meta-analyses did not demonstrate a difference in significant outcomes between infants receiving routine suctioning vs. no suctioning, routine airway suctioning of newly born babies is not recommended. The aim of this study was to examine the effect of airway suctioning on oxygen saturation (SpO2) and pulse.

**METHODS**

This was an observational study using transcribed video recordings of neonatal stabilizations in a Norwegian university hospital. We included all infants receiving delivery room positive pressure ventilation (PPV) August 2014 to November 2016. Video recordings were transcribed using Interact 9 software (Mangold Int GmbH, Arnstorf, Germany). The transcripts contained verbal communication about the status of the infant, including the results of heart rate assessment. Pulse oximetry SpO2 and pulse were digitized and saved. Main outcome measure was the effect of airway suctioning on oxygen saturation (SpO2) and pulse. Secondary outcome measure was the effect of suctioning on initiation of PPV.

**RESULTS**

In 148 out of 314 video recordings, airway suctioning was performed. We analyzed 334 suction episodes of a median (interquartile range, IQR) duration of 11 (7-20) sec, range 1-183 sec. The median (IQR) number of suction episodes per infant was 2 (1-3), ranging up to 11 episodes in one infant. Two hundred and thirty-two suction episodes were in spontaneously breathing infants, whereas 112 episodes were in an obstructed airway, i.e. no chest rise, falling SpO2 and/or cyanotic infant. A moderate decrease in SpO2 and pulse was seen after airway suctioning in 25 (17%) of the infants. In 41 (28%), airway suctioning preceded PPV. In the remaining infants, suctioning was performed late and in infants described as vigorous. No serious adverse events were observed.

**CONCLUSIONS**

In this observational study of delivery room PPV, nearly half the infants that received PPV were suctioned in the airways, despite national and international guidelines recommending the opposite. Moderate changes in pulse and oxygen saturation were seen after airway suctioning. In almost one third of the infants, suctioning may have delayed initiation of PPV.

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
ID 593 - EVALUATION OF PASSIVE THERAPEUTIC HYPOTHERMIA SAFETY AND THE RELATED LONG-TERM OUTCOMES ON NEONATAL ASPHYXIA IN A LOW-MIDDLE-INCOME COUNTRY

Medical specialist Waleska Rodrigues da Cunha Pereira¹, PhD Walusa Assad Gonçalves Ferri¹, PhD Davi Casale Aragon¹, Medical specialist Thaíssa Rodrigues de Souza¹, Medical specialist Laryssa de Carli de Almeida Couto¹

¹Hospital Das Clínicas - Faculty of Medicine of Ribeirão Preto - University of São Paulo, Ribeirão Preto, Brazil

Background:
Neonatal asphyxia is frequent, severe, with socioeconomic impact. The current treatment is therapeutic hypothermia; however, some hospitals in LMI countries do not have the technology to cooling, therefore, passive induction would be fundamental. It has a low cost; however, technic safety and its outcomes are still not well documented in developing countries. We analyzed passive hypothermia safety and its long-term outcomes to perinatal asphyxia in a Brazilian public hospital.

Methods:
Retrospective cohort study. Asphyxic patients were evaluated from January 2005 to May 2018. Two groups: Hypothermia group (HG) received supportive treatment and passive hypothermia and Conventional group (CG) supportive treatment.
The cooling was induced passively; the neonate was in a crib, in an ambient room 23-25°C. If necessary, ice packs were used.
The interest variables were temperature outside of the range (33.5°C ± 0.5°C), bradycardia, ventilation support, oxygen therapy, need for vasoactive amines, mortality, lactate, blood gases, CK-MB, ALT, urea, creatinine. Also, developmental milestones, seizure crisis, epilepsy, gastrostomy, tracheostomy, hearing, and ophthalmological disorders, diagnosis of cerebral palsy, head circumference, MRI, ultrasound, and EEG.

Results:
63 patients were submitted to passive hypothermia, 29 were not submitted. The method was feasible, maintaining the target temperature, reaching 33.5°C, an average of 5.84 (SD = ± 3.12) hours of life, without significant outside the range or bradycardia.
There were no significant differences regarding the cardiopulmonary and biochemical variables.
There was a reduction in mortality (11.1% HG versus 41.4% CG; p <0.01). There was an improvement in the items daily activity (47.2% disability in the HG and 82.35% in the CG; p = 0.02); Cognitive skills (40% HG, versus 57.14% CG; p = 0.02); and Social skills (50% HG, versus 62.50% CG; p = 0.02).
There was fewer epilepsy diagnosis in the HG (34.54% versus 100% in the CG; p <0.01). There was no difference regarding MRI, ultrasound, and EEG.

Conclusions:
Passive therapeutic hypothermia is feasible, safe, and effective in LMIC. It reduced mortality and showed improvement in neurological development, being superior to not cooling; therefore, it is recommended, mainly to LMIC countries, even if the hospitals do not have an active cooling method.

None declared
Introduction:
The European Resuscitation Council Newborn Life Support Course (ERC-NLS) aims at training healthcare professionals, involved in perinatal care, in order to be able to assist transition or resuscitate neonates in need at birth. Despite the published data on evaluating performance and retention of skills after the completion of such courses, data on anxiety during and after such seminars are sparse. This study aims to evaluate levels of anxiety from baseline up to 6 months after the completion of the ERC-NLS course.

Methods:
This is a prospective study. Anxiety was evaluated among trainees right after the completion of the ERC-NLS course (baseline), and after 3 and 6 months, using the State-Trait Anxiety Inventory (STAI-Y). This questionnaire includes 20 questions referring to State-Anxiety and 20 questions referring to Trait-Anxiety. The effect of certain factors on stress was also evaluated.

Results:
One hundred and sixteen (n=116) participants were initially recruited in the study (12 males and 104 females). However, anxiety levels were measured among 110 trainees. State anxiety presented a significant reduction up to 6 months after the completion of the course (baseline: 42.12 ± 10.74; 3rd month: 39.17 ± 10.76; 6th month: 39.05 ± 9.88; F (1.218) = 8.871, p = 0.001) although Trait anxiety did not show any differences among timepoints (baseline: 39.00 ± 7.36; 3rd month: 38.27 ± 7.75; 6th month: 38.45 ± 7.64; F (2.218) = 1.249, p = 0.283). Male trainees, doctors and individuals of higher education presented lower Trait anxiety levels at baseline although this difference was eliminated during the following 6 months. On the contrary, trainees of lower education showed higher Trait anxiety levels at baseline. Gender and specialty did not have any effect on Trait anxiety levels at all.

Conclusions:
Healthcare professionals improve their State-anxiety levels up to 6 months after the completion of the NLS provider course although Trait-anxiety remains unchanged. Gender, specialty and level of education affect anxiety levels at baseline although these factors do not play a significant role thereafter. Further research is needed in order to establish the effect of such anxiety on the performance and retention of theoretical knowledge and technical skills.

None Declared
ID 343 - CPR IN MATHEMATICAL MODEL OF NEONATE AND COMPARISON OF COMPRESSION VENTILATION RATIOS

Miss Mirjam Markusse1,2, Dr. Tim Antonius2, Proff.dr. Willem de Boode2
1University Of Twente, Enschede, Netherlands, 2Department of Neonatology, Radboud University Medical Center, Radboud Institute for Health Sciences, Amalia Children’s Hospital, Nijmegen, Netherlands

BACKGROUND:
Around 0.1% of the neonates born need cardiopulmonary resuscitation. This is done with a compression:ventilation (C:V) ratio of 3:1. However, there is an ongoing debate about what the best C:V ratio would be for this population. Because studies are difficult in this vulnerable population, it is expected that mathematical models could help to give insight in the cardiorespiratory state of the neonate.

METHOD:
In this research, a resuscitation module is added to the neonatal model of Van Meurs and Antonius1. The 3:1 ratio, 15:2 ratio, continuous compressions and ventilation, and only ventilation without chest compressions are compared with regard to the cerebral oxygen delivery. The cerebral oxygen delivery is analysed in three modelled neonates with a different heart rate: 0bpm (Figure 1A and 1B), 30bpm (Figure 1C and 1D) and 55bpm (Figure 1E and 1F).

RESULTS:
For the neonate with a heart rate of 0bpm the median (interquartile range) of the cerebral oxygen delivery is 0.2015 mmol/kg/min (0.1014) for the 3:1 ratio, 0.1988 mmol/kg/min (0.0533) for the 15:2 ratio, 0.2043 mmol/kg/min (0.0547) for continuous resuscitation and 0.000 mmol/kg/min (0.0000) for only ventilation. For the neonate with a heart rate of 30 bpm this is 0.2223 mmol/kg/min (0.1028) for the 3:1 ratio, 0.2153 mmol/kg/min (0.0590) for the 15:2 ratio, 0.2152 mmol/kg/min (0.0539) for continuous resuscitation and 0.1523 mmol/kg/min (0.1130) for only ventilation. For the neonate with a heart rate of 55 bpm this is 0.2384 mmol/kg/min (0.0945) for the 3:1 ratio, 0.2332 mmol/kg/min (0.0748) for the 15:2 ratio, 0.2232 mmol/kg/min (0.0582) for continuous resuscitation and 0.2482 mmol/kg/min (0.0926) for only ventilation.

CONCLUSION:
Continuous compressions and ventilation resuscitation gave the most stable cerebral oxygen delivery compared to the other three ratios. The analysis of the neonate with a heart rate of 55bpm showed that support with only mechanical ventilation gave the same amount of cerebral oxygen delivery as the other resuscitation ratios. As chest compressions may harm, in the situation of a neonate with a HR of 55bpm, the intervention of only giving respiratory support may suffice.

ID 387 - TRANSCUTANEOUS BLOOD GAS MONITORING DURING THERAPEUTIC HYPOThERMIA IN NEONATES WITH HYPOXIC-ISCHEMIC ENCEPHALOPATHY

Miss Norani Gangaram-panday1, Miss Tanja van Essen1, Mr Willem van Weteringen1, Dr. Marjolein Dremmen1, Mr. Tom Goos1, Dr. Rogier de Jonge1, Prof. Irwin Reiss1

1Erasmus Mc Sophia Children’s Hospital, Rotterdam, Netherlands

BACKGROUND
When asphyxiated term infants develop hypoxic-ischemic encephalopathy (HIE), therapeutic hypothermia (TH) is applied for 72 hours after birth to reduce mortality and extreme neurodevelopmental disability. During this period, it is essential to maintain carbon dioxide and oxygen levels within the normal range to prevent further neuronal damage. Transcutaneous blood gas monitoring is frequently used at the neonatal intensive care unit to continuously monitor carbon dioxide (tcPCO₂) and oxygen (tcPO₂) levels. Its use has never been investigated in infants undergoing TH due to uncertainty of performance. This study aims to investigate the accuracy and clinical value of transcutaneous blood gas monitoring during TH.

METHODS
Infants receiving TH and simultaneously monitored with transcutaneous blood gas monitoring between October 2015 and December 2019 were included in this retrospective cohort study. Arterial blood gas samples were paired with transcutaneous blood gas samples during TH for analysis of agreement. To investigate the effect of body temperature on the tcPCO₂ and tcPO₂ levels, marginal models were fitted. Additionally, tcPCO₂ trends during the first 24 hours were compared between infants with and without ischemic brain injury on magnetic resonance imaging (MRI) shortly after TH.

RESULTS
A total of 34 infants with a median (interquartile range) gestational age 38 6/7 (37 1/7 – 40 6/7) weeks were included, of which eleven showed ischemic brain injury on MRI. Agreement (bias (95% limits of agreement)) between tcPCO₂ and arterial partial pressure of carbon dioxide (PaCO₂) was 3.88 (-12.38 – 20.15) mm Hg. Agreement between tcPO₂ and the arterial partial pressure of oxygen decreased with an increase in mean oxygen tension. No significant relations were found between the body temperature and tcPCO₂ or tcPO₂. TcPCO₂ trends in patients with and without ischemic brain damage on follow-up MRI differed significantly at 6 and 9 hours after the start of TH.

CONCLUSION
TcPCO₂ levels provide an accurate estimation of PaCO₂ levels during TH. TcPO₂ measurements were inaccurate and should not be used during TH. In addition, preliminary results show that tcPCO₂ trends during the first 24 hours of TH could provide more information on the severity of ischemic brain damage in the infant. This study was partially funded by SenTec AG.
ID 570 - THE ROLE OF THE IMMATURE TO TOTAL (IT) NEUTROPHIL RATIO IN NEONATAL SEPSIS

Doctor Kaumal Baig Mirza1, Ms. Sorcha Murray1, Ms Siobhán Burke1, Ms Jia Ying Chin1, Ms Jennifer Sheerin1, Ms Olivia Novaes2, Mr Conor McVeigh1, Ms Niamh Ó Catháin3,5, Dr Judith Meehan1,2,3, Dr John Allen1,2,3, Dr Eman Isweisi1,2,3, Professor Edna Roche1,2,3, Professor Eleanor J Molloy1,2,3,4,5

1Discipline of Paediatrics, Trinity College Dublin, Dublin, Ireland, 2Department of Paediatrics, Children’s Health Ireland (CHI) at Tallaght, Tallaght, Dublin, Ireland, 3Trinity Research in Childhood Centre (TRiCC) & Trinity Translational Medicine Institute (TTMI) , Trinity College Dublin, Dublin, Ireland, 4Department of Neonatology, CHI at Crumlin, Dublin, Ireland, 5Department of Paediatrics & Newborn Medicine, Coombe Women and Infants’ University Hospital, Dublin, Ireland

Background:
Sepsis is defined as life-threatening organ dysfunction caused by the host’s response to infection, which can lead to tissue damage, organ failure and even death. Neonatal sepsis is a leading cause of morbidity and mortality worldwide. Early diagnosis of neonatal sepsis is essential to improve outcomes and reduce fatality in neonates.

The immature to total neutrophil count (IT Ratio) has been used as a tool for early diagnosis of neonatal sepsis due to its simplicity, accessibility, and rapidity – even in low resource settings.

Methods:
A literature review was conducted using the search terms ‘immature to total neutrophil ratio neonatal sepsis’ on PubMed-NCBI database. This led to 111 search results. Search results not in English and those not involving human participants were excluded. This yielded a total of 89 results.

Results:
There was a wide-ranging sensitivity (42-90%) and specificity (28-84%) for the IT ratio in the diagnosis of neonatal sepsis. An IT ratio value of up to 0.16 is considered normal, and following postnatal day 5, this decreases to 0.12 until the end of the neonatal period. A ratio of >0.2 is suggestive of neonatal sepsis, but cannot be used as a sole marker due to lack of robust clinical data. The IT ratio was unsatisfactory alone as a marker for detecting invasive bacterial infections with sensitivity 0.29 (0.19 to 0.41) and instead may be used with other parameters such as C-reactive protein and platelet count for this reason. The IT ratio is also beneficial in low resource areas due to its economical nature, rapid results, and lack of deterioration in high humidity.

Conclusion: There is no individual test that can reliably diagnose sepsis and usually a combination of clinical findings and laboratory results are used. It may be possible to combine the IT ratio with other markers of infection to provide a more accurate diagnosis of neonatal sepsis.

None declared
Background.
Although outcomes in preterm newborns (PN) have improved over the past few decades, morbidity and mortality continue to be high. Kidney injury is common and may be independently associated with mortality in this group of the patients. Urinary proteins may help to understand the physiology and improve making the diagnosis of renal dysfunction in critically ill PN.

Methods.
A prospective cohort study of 28 critically ill PN was performed. All newborns had clinical symptoms of severe disorders and had the score of the neonatal Therapeutic Intervention Scoring System ≥ 10. The exclusion criteria were major congenital anomalies of the kidneys and urinary tract.
The urinary concentrations of creatinine (UCr), urine (UUr), total protein (UTPr), albumin (UAlb), α1-microglobulin (Uα1-MG), and β2-microglobulin (Uβ2-MG) were determined on the 3rd day of life. The results were expressed as median (Me) and interquartile range (IQR): lower quartile (Lq) and upper quartile (Uq). The association between urinary parameters was determined using the Spearman (rs) correlation coefficient as appropriate; statistical significance was set at P < 0.05.
The study was approved by the research ethics committee of Bukovinian State Medical University.

Results.
The median of the gestational age (GA) was 31.0 [29.0; 32.0] weeks. The level of UCr was 832.0 [687.0; 1177.5] µmol/l, the level of UUr was 54.5 mmol/l, the level of UTPr was 0.21 [0.13; 0.45] g/l, the level of UAlb was 18.9 [16.3; 30.9] mg/l, the level of Uα1-MG was 26.2 [15.1; 48.1] mg/l, and the level of Uβ2-M was 6.32 [2.71; 11.2] mg/l.
Significant (P < 0.05) Spearman correlation coefficients (rs) were found between UTPr and different types of urinary proteins, between UTPr and UCr, and between UAlb, Uα1-MG, Uβ2-M (Table). The negative correlation was found between GA and UTPr (rs -0.501, p 0.024), and Uα1-MG (rs -0.462, p 0.039).

Conclusion.
The established features of the correlation between the urinary markers of renal dysfunction may indicate a complex violation of the processes of glomerular filtration and tubular reabsorption in critically ill PN. The study of this issue requires further research with a large cohort of the patients and comparison with a group of healthy newborns.
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Spearman's correlation coefficients between urinary markers in preterm critically ill newborns (n=28)

None declared
ID 303 - PULMONARY OUTCOME ON LUNG ULTRASOUND IN LATE PRETERM INFANTS AFTER USE OF RAM CANNULAE IN DELIVERY ROOM

Doctor Carmela Santelia¹, Doctor Isabella Mauro¹, Doctor Giulia Paviotti¹, Doctor Carla Pittini¹
¹Azienda Ospedaliero Universitaria di Udine, Udine, Italy

BACKGROUND:
Preterm infants require respiratory assistance at birth due to an inability to maintain adequate spontaneous respiratory effort. Literature recommends the use of non-invasive ventilation in delivery room for a particular cohort of newborns to decrease lung injury. Our study aimed to evaluate the impact on lung recruitment with the use of Ram cannulae during resuscitation in delivery room in infants born at less than 34 +6 of gestation.

METHODS:
A retrospective observational study was performed from December 2018 and September 2019 in a single level center III NICU. A group of preterm infants less than 34+6 weeks of gestation who needed PPV or NCPAP in delivery room were included. National Resuscitation Program algorithm was followed for all the patients requiring resuscitation at birth, using Nasal interface (Neotech RAM Cannula) or a face mask. After their admission to the Unit, lung ultrasound was made to evaluate the degree of respiratory distress and lung recruitment. The primary outcome was to assess the incidence of white lung on lung ultrasound. We also analyzed the incidence of intubation in delivery room, need of PPV, need of surfactant, need of early intubation and incidence of pneumothorax as secondary outcomes. The data are presented as mean ± standard deviation for normally distributed continuous variables and median and interquartile range when the distribution was skewed. Categorical variables are expressed as numbers or percentages.

RESULTS:
We enrolled 30 newborns: 13 patients received PPV or CPAP with face mask and 17 patients with Ram cannulae. The incidence of white lung on lung ultrasound was comparable in the canula group and in the facemask group. Secondary outcomes showed the same results (Table 1).

CONCLUSION:
The latest NRP guidelines published in 2020 and the 2019 European Consensus guidelines for management of respiratory distress emphasize the use of nasal cannula to respiratory support in the delivery room. A mask may need to be adjusted several times due to mask leak and airway obstruction; these complications may compromise an adequate ventilation. Our study showed a comparable effect between two different respiratory devices; for this reason the nasal cannula may be considered a valid alternative to face mask during newborn resuscitation.

Table 1 shows the results of our study: primary outcome and also secondary outcome.
None declared

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<th>Ram Cannule Group (n=17)</th>
<th>p-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Primary Outcome:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White lung on ultrasound</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>FIo2 max in delivery room</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>Intubation in delivery</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>room</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PPV</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Surfactant</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Intubation in first 72 hrs</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Pneumothorax</td>
<td>0</td>
<td>2</td>
</tr>
</tbody>
</table>

Table 1 shows the results of our study: primary outcome and also secondary outcome.
None declared
ID 335 - PERINATAL STRESS WITH CONCOMITANT MORTALITY AND MORBIDITY AMONG REFUGEE NEONATES

Doctor Loukia Lianou¹, Doctor Margarita Pesmatzoglou¹, Doctor Chrysa Petropoulou¹, Doctor Vili Economidis¹, Doctor Niki Lipsou¹, Doctor Eleni Bouza¹
¹B' Neonatal Intensive Care Unit (NICU) and Neonatal High Dependency Unit (NHDU), “Agia Sofia” General Children’s Hospital, Athens, Greece., Athens, Greece

BACKGROUND:
Perinatal stress (PNStress) and induced hypoxia during antepartum, intrapartum or postpartum period is high among refugee neonates, as migrant and refugee pregnant women constitute a highly vulnerable group. This study was conducted in order to evaluate the prevalence and risk of PNStress among refugee neonates.

METHODS:
Records of all refugee neonates admitted to B’ Neonatal Intensive Care Unit (NICU) and Neonatal High Dependency Unit (NHDU) during a 4-year period, up to December 2020 were analyzed. Demographics and corresponding risk factors were compared between neonates with and without PNStress which was defined as any condition producing stress in immediate prenatal, during labor or immediate postnatal period.

RESULTS:
A total of 77 refugee neonates (60% males, 35±4.3 weeks of gestation) were recorded. Among them, 16 neonates (20.8%) were diagnosed with PNStress and were admitted to the NICU. Males were more common among neonates with perinatal stress (81.3%), compared to those without perinatal stress (54.1%; p=0.04). Half of the refugee neonates with PNStress, compared to 15.3% without PNStress were delivered and transferred from the islands of Chios, Kos, Mytilene and Samos (p=0.003). All neonates with PNStress belonged to families with no health insurance. Mortality was higher among PNStress (37.5%), compared to no PNStress neonates (3.3%; p<0.001). Meconium-stained amniotic fluid (AF) was detected in 42.9% of neonates with, compared to 12.5% of neonates without PNStress (p=0.01). Endotracheal intubation prior to transfer to our Hospital was more common for neonates with PNStress (75%), contrary to 26.2% of the neonates with no perinatal stress (p<0.001). Moreover, pulmonary hypertension, cerebral brain injury and periventricular leukomalacia was also more common in stressed, compared to non-stressed neonates (33.3% vs. 8.6%, p=0.01, 30.8% vs. 3.4%, p=0.001, and 54.5% vs. 16.1%, p=0.005, respectively).

CONCLUSION:
PNStress was more prevalent among refugee neonates transferred from Greek islands and was linked with increased mortality and morbidity.
No conflict of interest
ID 493 - PHYSIOLOGICAL TRANSITION OF NEONATES BORN THROUGH LSCS AS COMPARED TO NORMAL DELIVERY

Professor Archana Nimbalkar¹, Professor Minal Patel¹, Dr Reshma Pujara³, Professor Dipen Patel¹, Mr Mayur Shinde¹, Mr Ajay Phatak¹, Professor Somashekhar Nimbalkar¹

¹Bhaikaka University, Karamsad, India

Introduction
Neonates make the transition from intrauterine to extra-uterine life through a normal delivery or assisted deliveries such as lower segment caesarean sections. Difference in rise of saturation of newborn infants born through LSCS or Vaginal delivery has not been extensively studied. We aim to compare the physiological transition of neonates >35 weeks old that are born vaginally versus those born by elective LSCS with the use of three parameters (SpO2, Heart Rate and Temperature in the first hour of life).

Methods
Prospective analytical study which included all newborns born during the period of July 2020 to January 2021 and were eligible for the study. Physiological parameters were recorded regularly and compared across the two groups. We recorded SpO2 of babies at 0, 15s, 30s, 45s, 60s, 75s, until 5 minutes (15 second intervals) and every 30 second thereafter till 10 minutes. Heart Rate was recorded using stethoscope at 30 second intervals by counting for six seconds and multiplying by 10. Temperature was recorded every 1 minute till 10 minutes via digital thermometer. Newborns were excluded if there was a need for bag and mask ventilation, obvious life threatening congenital malformations, congenital cardiac diseases and other assisted deliveries such as forceps, etc. Descriptive analysis was done.

Results
Study included total 221 neonates with 111 being born vaginally and rest of were by elective LSCS. Baseline characteristics such as gestational age, sex, weight was comparable. The mean duration of skin-to-skin contact was higher in the vaginal deliveries as compared to LSCS [32.1(8.6) vs 4.6 (4), p<0.001]. The mean SPO2 in both the groups at different time intervals was not statistically significant upto 6 minutes after which it was higher in normal deliveries till nine minutes (statistically significant) and after nine minutes it was again similar in both groups. Heart rate and Temperature were similar in both groups.

Conclusion
Physiological parameters in the newborn do not differ much despite the difference in delivery methods. The gap in saturation at six minutes can be explained by the moving away of the baby from the mother after LSCS.
ID 473 - PLANT POISONING A HARMFUL PRACTICE: CASE SERIES OF NEWBORNS HOSPITALIZED AT THE MOHAMMED VI HOSPITAL IN MARRAKECH

Doctor Hajar Benfadila1, Doctor Nahid Mahir1, Professor Fatiha Benmaoui1, Professor Nadia El Idrissi Slitine1, Professor Fadl Mrabih Rabou Maoulainine1
1Mohammed VI Hospital, Neonatal intensive care unit, Marrakech, Morocco

BACKGROUND
Acute plant poisoning is the set of pathological manifestations secondary to the ingestion of poisonous plants, used frequently by a lady named Ferraga in North African countries whose purpose is to treat newborns (traditional treatment), it is a cosmopolitan problem whose prognosis depends on the quantity of the ingested product and the quality of the management.

METHODS
This is a retrospective descriptive study, from 2015 to 2020, collecting 56 records of newborns treated in the neonatal intensive care unit at Mohamed VI Hospital in Marrakech.

RESULTS
In this study, 42.8% of patients were between 8 and 20 days old (late neonatal period). A predominance of males was noted with a sex ratio of 1.39 (M/F). The vast majority of cases (18 cases or 32.1%) were observed in 2015. The methods used by el ferraga varied between the oral route in (51 cases = 91.07%), and the percutaneous route in (25 cases = 44.4%) and by scarifications in (11 cases = 19.64%), the mixtures of unknown nature were the recourse of the practice of ferragas in 80% (45 cases). In 25% (14 cases) of cases, death occurred after a maximum hospital stay of 12 days.

CONCLUSION
Plant poisoning is a worldwide problem with African countries being the most likely to suffer from it. The prognosis of this problem is harmful and requires urgent and rapid treatment.

NONE DECLARED
ID 583 - REWARMING SPEED IS A CRUCIAL PREDICTOR OF DEATH IN HYPOTHERMIC PRETERM INFANTS.


1Department Of Pediatrics, Ribeirão Preto School Of Medicine, University Of Sao Paulo, Brazil, Ribeirão Preto, Brazil

**Background:**

The hypothermia at NICU admission is associated with mortality in preterm infants. Also, asphyxia, gestational age, and the rewarming speed are associated with poor outcomes. We hypothesized that these variables could potentize the adverse effects of hypothermia in preterm infants.

**Methods**

A retrospective study assessed hypothermic premature infants < 1500 g (<36°C) at NICU admission from January 2019 to December 2020. Two groups: Death until seven days of life, for any cause, and survivors until seven days of life. Malformation and genetic syndromes were excluded.

We analyzed gasometric value (after 1 hour of birth), lactate, SNAPPEII, and rewarming speed. In order to assess the association between the variables of interest, we used the conditional inference tree to evaluate death. The software used was R 4.0.5.

**RESULTS:**

107 hypothermic patients were analyzed. 28 (26.1%) died < 7 days.

The group death and survivors presented, respectively: mean GA 29.3 (SD 2.9) vs. 25.3 (SD 2.4) weeks; birth weight 1045.1 grams (SD 289.8) vs. 649.2 grams (SD 231.9); SNAPPE-II 29.3 (SD 19.6) vs. 63.6 (SD 24.3).

Regarding gasometric values, the deaths and survivors groups presented, respectively: pH 7.28 (DP 0.09) x 7.22 (DP 0.16), arterial lactate 6.4 (SD 4.9) vs. 7.5 (DP 5.2), excess base -7.3 (DP 4.5) vs. -9.6 (DP 5.9), bicarbonate 19.0 (DP 4.4) vs. 17.6 (DP 4.4) and rewarming speed 0.17 degrees/hour (SD 0.15) vs 0.27 (DP 0.29).

According to the conditional inference tree (figure 1), gestational age at birth ≤ 25 weeks is an essential predictor for death; in patients > 25 weeks of GA, the rewarming rate was crucial for death (rate > 0.425 degrees/hour). For patients who presented rewarming speed less < 0.425 degrees/hour, the arterial pH was a significant predictor (< 7.215).

**Conclusion:**

In our study, gestational age ≤ 25 weeks is an independent predictor of death. The rewarming rate > 0.4°C/h is the independent predictor of death in patients > 25 weeks. The eagerness to take the patient out of hypothermia leads the staff to underestimate the rewarming, which is a significant predictor of death in these hypothermic neonates.
None declared
ID 357 - MAPPING CLINICAL PRACTICE AROUND DELAYED UMBILICAL CORD CLAMPING IN THE NEONATAL UNITS ACROSS THE UK

Doctor Harriet Ayling¹, Doctor Niha Peshimam³, Doctor Aniko Deierl¹, Doctor Jayanta Banerjee¹,²

¹Imperial College NHS Healthcare Trust, London, United Kingdom, ²Imperial College, London, United Kingdom

Background:
Current literature and guidelines have validated the benefits of delayed cord clamping (DCC) in preterm infants. DCC has shown to reduce mortality, use of inotropes and blood transfusion, maintain blood pressure and reduce the risk of intraventricular haemorrhage (IVH) and necrotising enterocolitis (NEC). Studies have demonstrated variability in optimal cord management practices worldwide and highlighted logistical challenges and barriers in its implementation.

Methods:
An electronic survey prepared in Qualtrics (Qualtrics XM, Utah, US) was distributed to all 195 UK neonatal units, via a link on a standardised email correspondence. Data was collated on implementation of DCC, technical methodology and equipment, use of a standard operating procedure (SOP) and understanding of the evidence base.

Results:
We received responses from 76 neonatal units: 12 SCBU, 27 local neonatal units and 37 neonatal intensive care units, the majority were geographically located in London and the South West. 98% of units recognised DCC is an important tool to improve outcomes in the preterm population, highlighting the evidence base and reduced incidence of blood transfusions and risk of IVH and NEC in their reasoning. Only 4 units reported not practising DCC, and 10% of units reported practising DCC for term deliveries only. 84% of units practice DCC for all deliveries, 37 units doing so for over 2 years and 60% following a SOP. Specifically, 56 units practiced DCC at all gestations including under 27 weeks. DCC was practised for 1-2 minutes in the majority of units (58%). 48% of units started respiratory stabilisation with the cord intact; 30% of units using specialised equipment. 8 units are currently using the LifestartTM trolley, other units described extended tubing on the Neopuff circuit.

Conclusion:
DCC is evidenced based to improve short and long-term outcomes of preterm infants and part of the recommendations in the ERC 2021 guidelines and BAPM Perinatal Optimisation Toolkits. Developments in equipment facilitate lung aeration, ventilation and thermoregulation of extremely preterm infants whilst placental transfusion stabilises their cardiopulmonary physiology. The survey demonstrates varied national practise, highlighting a priority to routinely establish optimal cord management within UK neonatal units inclusive of unwell or preterm infants, and to streamline SOPs.

No conflict of interest