www.jpnim.com Open Access eISSN: 2281-0692
Journal of Pediatric and Neonatal Individualized Medicine 2018;7(2):e070236
doi: 10.7363/070236
Published online: 2018 Oct 03

Abstracts

Selected Abstracts of the 8th International Congress of UENPS • Session "Others"

BUCHAREST (ROMANIA) • OCTOBER 3RD-5TH 2018

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

PRESIDENTS

Manuel Sánchez Luna, UENPS President
Silvia Maria Stoicescu, UENPS 8th Congress President

UENPS EXECUTIVE COMMITTEE

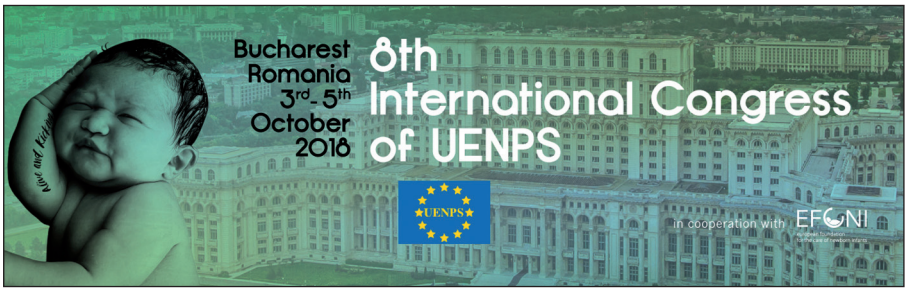
President: Manuel Sánchez Luna; **Vice President**: Corrado Moretti; **General Secretary**: Artur Beke; **Treasurer**: Gabriel Dimitriou; **Members**: Rosalina Barroso, Rasa Tameliene, Heili Varendi; **Supervisory Committee**: Giuseppe Buonocore, Boris Filipovic-Grcic, Nelly Jekova; **Executive Committee:**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

SCIENTIFIC COMMITTEE

Manuel Sánchez Luna, Silvia Maria Stoicescu, Corrado Moretti, Artur Beke, Gabriel Dimitriou, Rosalina Barroso, Rasa Tameliene, Heili Varendi, Giuseppe Buonocore, Boris Filipovic-Grcic, Nelly Jekova, Maria Livia Ognean

MEMBERS OF UENPS

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



Union of European Neonatal & Perinatal Societies

Organizing secretariat

MCA scientific events

How to cite

[Abstract's authors]. [Abstract's title]. In: Selected Abstracts of the 8th International Congress of UENPS; Bucharest (Romania); October 3rd-5th 2018; Session "Others". J Pediatr Neonat Individual Med. 2018;7(2):e070236. doi: 10.7363/070236.

Informatics and error

ABS 1

CRYING WOLF: ALARM FATIGUE AND RESPONSE TIMES FOR VASOACTIVE INFUSIONS

J. Waterson, S. Garcia, C. Vollmer, S. Rolt

Clinical and Connectivity Support Services Department, Medication Management Solutions [Infusion], BD Switzerland Sàrl, Eysins, Switzerland

INTRODUCTION

Alarm fatigue is the presence of "frequent false alarms, leading to reduced response to alarms" [1]. NICUs provide ample opportunities for IV medication error with the frequent administration of high-alert, short half-life medications that require rigorous maintenance and continuity of delivery. Most serious medication errors in critical care occur during the execution of treatment, with performance level failures outweighing rule-based or knowledge-based mistakes. Appropriate and timely response to IV pump alarms is crucial to infusion continuity, and the difficulty for staff in filtering critical from non-urgent alarms is a key element of risk-management.

METHODS

The event logs of 599 infusion pumps used in critical care environments within the European region were mined for a range of alarm states in order to assess the impact of simple volume of infusion alarms and to obtain a baseline of the 'white noise' of pump alarms present in critical care. Interrogations of individual pumps drug libraries allowed assessment of reaction time for short half-life vasoactive infusions via Date/Time Stamps where:

Reaction Time (in seconds) = (Issue Resolved and Restart) – (Pump Stopped and Alarm).

RESULTS

See **Tab. 1**. Initial analysis showed an average of 1.53 alarms per infusion, with 7.29 alarms per hour from the total pump population and 8 minutes and 19 seconds between alarms. 65.83% of all infusions were started from within the drug library allowing for the assessment of 4,197 short half-life vasoactive infusions. Mean reaction time for short half-life vasoactive infusions was 46.6 seconds ± 0/1,134 seconds.

Table 1 (ABS 1). Alarm types, alarms: infusion relationships, critical infusions and reaction times.

Study dates: 1/1/2000 to 29/9/2017	
Total days of study	6,482
Total infusion starts	741,653
Pump count and type	282 volume pumps 317 syringe pumps
Infusions per day	114.4
Infusion alarms per day	174.9
Alarms per infusion	1.53
Total alarms per hour	7.29
Time between alarms	08:19
Alarm types	
Total alarms	1,133,898
Air in line accumulation exceeded	13,562
Air in line single bubble exceeded	53,729
Callback	405,269
Door open while infusing	1,398
Drive engage failure	8,810
End of infusion	12,497
Near end of infusion	135,134
Occlusion (down stream)	450,030
Occlusion (up stream)	42,291
Syringe disengaged	9,429
End of syringe	1,749
Percentage of infusions started from within drug library (hence detectable as critical infusions)	65.83
Critical infusions	
Noradrenaline (total infusions)	4,060
Noradrenaline (total infusion disruption events)	939
Noradrenaline (alarms per infusion)	0.23
Noradrenaline (alarm to restart time in seconds)	40.88 ± 675/0
Adrenaline (total infusions)	137
Adrenaline (total infusion disruption events)	69
Adrenaline (alarms per infusion)	0.5
Noradrenaline (alarm to restart time in seconds)	52.37 ± 1,134/4

CONCLUSION

There are multiple variables in any study of alarm fatigue and infusion continuity. The ability to quantitatively track the volume of alarms and short half-life vasoactive infusion alarm reaction

times contributes to a greater understanding of the issues of infusion delivery in the NICU and has the potential to aid in planning for improvement in the key area of reduction of failure to maintain steady state plasma levels of short half-life vasoactive medications. Comparison of this "raw" data with the data from a NICU where strategic changes to infusion monitoring were made indicates that the problems of alarm fatigue and critical short half-life vasoactive infusion interruption can be mitigated to as much as a 56.25% reduction in measured infusion alarms and a 31% reduction in reaction time to infusion alarms for short half-life vasoactive infusions [2].

REFERENCES

[1] Cho O, Kim H, Lee Y, Cho I. Clinical alarms in intensive care units: Perceived obstacles of alarm management and alarm fatigue in nurses. Health Inform Res. 2016;22(1):46-53.

[2] Bastanie M, Blom H, Mahieu L, Meeus M, Laroche S, VanLaere D, Voeten M, Demeulemeester V, Vermeulen R, Mulder A. Alarm visibility and infusion continuity: environmental change and technology assistance. In: Selected Abstracts of the 2nd Congress of joint European Neonatal Societies (jENS 2017); Venice (Italy); October 31-November 4, 2017; Session "Quality Improvement, Parents Centered Care". J Pediatr Neonat Individual Med. 2017;6(2):e060248.

DECLARATION OF INTEREST

All Authors are employees of Becton Dickinson. All authors are registered nurses. The Authors' key function within Becton Dickinson is the assessment and improvement of patient safety solutions in partnership with healthcare practitioners and providing clinical support services. The event-data presented in this paper was generated from data routinely analysed and reported on by the clinical service of Becton Dickinson for customer hospitals and healthcare units.

ABS 2

TYPES OF CONGENITAL MALFORMATIONS AT PRETERM AND TERM NEWBORNS

G. Noditi[1], D. Iacob[1], I. Enatescu[1], N. Ionita[1], M. Pantea[1], E.R. Iacob[2]

[1]Obstertrics and Gynecology and Neonatology Department, Victor Babes University of Medicine and Pharmacy, Bega University Clinic, Spitalul Clinic Judetean de Urgenta Pius Branzeu, Timisoara, Romania

[2]Pediatric Surgery Department, Victor Babes University of Medicine and Pharmacy, Spitalul Clinic de Urgenta pentru Copii Louis Turcanu, Timisoara, Romania

INTRODUCTION

Congenital malformations may manifest as a single defect or multiple defects. These are associated with spontaneous abortion, intrauterine fetal death or death in the immediate postnatal period. The severity of the defects can vary. The aim of this study was to analyze the frequency of congenital abnormalities in the term and preterm newborns over the two-year period 2016-2017, in a group of 48 neonates.

METHODS

The data was collected from the Bega University Clinic, The Department of Neonatology and Prematurity Timisoara and statistically processed. Cardiovascular, central nervous system malformations, renal, digestive and non-classified malformations occurred in a group of 48 newborns over the two-years period 2016-2017.

RESULTS

Out of the 48 neonates with congenital malformations, 30 were preterm newborns and 18 term newborns. In 2016, out of 34 newborns with congenital malformations, 24 were preterm neonates and 11 were term neonates, while in 2017, out of 14 newborns with congenital abnormalities, 7 were preterm and 7 were term. Congenital malformations in preterm newborns were more frequent in the male gender (the difference was 14%), while in term newborns in female gender (the difference was 34%). The most frequent congenital abnormalities are those of the cardiovascular system 57% and of the central nervous system 15%. 9% of the malformations are digestive, 9% reno-urinary and 9% non-classified.

CONCLUSIONS

The number of congenital malformations in newborns is high, but with the benefit of information, prenatal counseling and genetic testing they have been reduced. There are still many risk factors that contribute to the occurrence of these abnormalities, which is why research in this area should continue.

New designs of neonatal units

ABS 3

LABORATORY AND GAS-ANALYSER CONCORDANCE IN THE NEONATAL POPULATION

I. Ahmed, N. Subbaraya, M. Cawsey

Neonatal Unit, Birmingham Women's Hospital, Birmingham, UK

INTRODUCTION

Blood gas analysis is a common point of care test in the neonatal population as it is easy to perform,

provides instant results and requires small volume of blood sample. Alongside gas parameters, the analyser also provides various other values such as electrolytes, haemoglobin and bilirubin. However, in clinical practice the gas-analyser is underutilised due to concerns about the reliability of results. The aim of our study was to ascertain comparability between laboratory and gas-analyser test parameters.

METHODS

Time-matched paired results of serum sodium, potassium, haemoglobin and bilirubin were compared between laboratory and gas-analyser. Data was collected in a combined prospective-retrospective manner between January and May 2018. Arterial and capillary blood samples were separately analysed for concordance. The degree of agreement between paired samples was determined by calculating Lin's coefficient of concordance.

RESULTS

Data was available for 98 paired samples from 12 neonates during the five-month period. This included 50 arterial and 48 capillary samples. The data also tracked 34 capillary and 10 arterial paired serial samples to assess for concordance. The concordance coefficient was highest for bilirubin and haemoglobin for arterial and capillary samples when analysed in cross-section and serially. The concordance coefficients for sodium and potassium were lower.

CONCLUSION

Our study demonstrates that the haemoglobin and bilirubin values from the gas-analyser are in good concordance with laboratory results. There was no significant level of agreement between the laboratory and gas-analyser for serum sodium and potassium values. We chose to analyse samples by Lin's concordance coefficient as it is a concise summary of consistency and bias between paired samples. Our conclusion is that the gas-analyser can be relied upon for serum bilirubin and haemoglobin values, while laboratory testing is appropriate for serum sodium and potassium. The results of this study have strong clinical implications for patient safety, cost-efficiency and cost-effectiveness.

ABS 4

THE CONTRIBUTION OF GENETIC DETERMINANTS TO ADVERSE TREATMENT OUTCOMES IN PREMATURELY BORN INFANTS WITH SEVERE INTRAVENTRICULAR HEMORRHAGES

T. Znamenska[1], O. Kovalova[2], V. Pokhylko[2], N. Artyomova[2], S. Tsvirenko[2], Y. Cherniavska[2], O. Vorobiova[1]

[1]State Institution, Institute of Pediatrics, Obstetrics and Gynecology National Academy of Medical Sciences of Ukraine, Department of Neonatology, Kyiv, Ukraine

[2]Department of Pediatrics #1 with Propedeutics and Neonatology, Higher State Educational Institution "Ukrainian Medical Stomatological Academy", Poltava, Ukraine

BACKGROUND

Severe intraventricular hemorrhage (IVH) in premature infants is an important pediatric public health problem, as it is one of the main causes of mortality and cognitive-developmental disorders in this cohort of patients. Recent studies have shown that lethality in children with IVH III is approximately 30% and in those with IVH IV it is 60%. The aim of our study was to assess the impact of the renin-angiotensin system genes on the development of adverse events in premature infants with IVH.

MATERIALS AND METHODS

Prospective observational study conducted on 117 prematurely born children (n = 56 with IVH III-IV and n = 61 without IVH) in the Poltava regional perinatal center (high level, 2,000 births per year) during 2014-2016. The analysis of associations between different genotypes of the eNOS, ACE and AGT2R1 genes and the development of adverse outcomes of treatment in prematurely born children with severe IVH was conducted.

RESULTS

It was found that the dominant model (aa + ba vs. bb) of the eNOS gene, as well as its combination with the dominant model (DD + ID vs. II) of the ACE gene significantly increases the chances of a lethal incident, even after taking into account weight at birth (corresponding OR 3.66, p = 0.060 and OR 4.5, p = 0.050). The aa + ba combination of the eNOS gene and the DD + ID combination of the ACE gene significantly reduces the chances of ventricular dilatation (OR 0.23).

CONCLUSION

The combination of (aa + ba vs. bb) genotype of the eNOS gene and (DD + ID vs. II) genotype of the ACE gene significantly affects the occurrence of fatal cases and the development of ventricular dilatation in premature infants, which may indicate genetic determinism of cerebral mechanisms of fetal/child adaptation to the multiple effects of perinatal factors.