13th Irish Neonatal Research Symposium
in association with the Irish Perinatal Society
Hyatt Centric Hotel, Dublin
Friday 31st March 2023

Programme

CPD Accredited – 6 CPD Credits

08:30-09:20	**Arrival Tea/Coffee/Scones and Meet the Sponsors**
09:20	**Session 1 - Chairpersons: Prof. Eleanor Molloy/Prof. Eugene Dempsey/Dr. John Kelleher**
09:20-09:30	**Welcome – Prof. Eleanor Molloy/Prof. Eugene Dempsey/Dr. John Kelleher**
09:30-10:00	**Guest Lecture: Introduced by Dr John Kelleher** ***Congenital Diaphragmatic Hernia: the prenatal period as a window of opportunity*** **Prof. Jan Deprest, Professor in Obstetrics and Gynaecology, Research Department of Maternal Fetal Medicine, UCL Institute for Women's Health (IWH), University College London**
10:00-11:10	**7 x Original Research Presentations**
10:00-10:10	**A RANDOMISED TRIAL OF ROUTINE OR SELECTIVE APPLICATION OF A FACE MASK FOR BREATHING SUPPORT OF PRETERM INFANTS; THE ROSA TRIAL** **Caitríona Ní Chathasaigh**, Neonatal Unit, National Maternity Hospital, Dublin, School of Medicine, University College Dublin, Ireland
10:10-10:20	**ASSESSMENT OF MYOCARDIAL FUNCTION IN INFANTS OF MOTHERS WITH GESTATIONAL DIABETES MELLITUS USING DEFORMATION IMAGING OVER THE FIRST YEAR OF AGE** **Dr Aisling Smith,** Rotunda Hospital, Dublin
10:20-10:30	**TRANSFUSING PLATELETS THROUGH LONG LINES IN NICU: IN-VITRO ASSESSMENT OF SAFETY AND FEASIBILITY** **Carmel Maria Moore**, National Maternity Hospital, Dublin 2, University College Dublin, Belfield, Dublin 4
10:30-10:40	**A RANDOMIZED TRIAL OF UMBILICAL OR PERIPHERAL CATHETER INSERTION FOR PRETERM INFANTS ON ADMISSION TO THE NICU** **Emma Dunne,** National Maternity Hospital, Dublin
10:40-10:50	**THROMBIN GENERATION IS ENHANCED IN PLATELET-RICH PLASMA IN PRETERM COMPARED TO FULL-TERM INFANTS; THE EVENT STUDY** **Claire A Murphy**, Department of Paediatrics, Royal College of Surgeons in Ireland, Dublin Department of Neonatology, Rotunda Hospital, Dublin, Conway-SPHERE Research Group, University College Dublin, Dublin
10:50-11:00	**RANDOMISED PLACEBO-CONTROLLED TRIAL OF EARLY TARGETED TREATMENT OF PATENT DUCTUS ARTERIOSUS WITH PARACETAMOL IN EXTREMELY LOW BIRTH WEIGHT INFANTS – PILOT STUDY (ETAPA PHASE 1)** **Niamh Ó Catháin**, Department of Neonatology, Coombe Women and Infants University Hospital, Dublin, School of Medicine, University College Dublin, Dublin, Ireland
11:00-11:10	**THE ACORN PROGRAMME: ESTABLISHING A NEONATAL DEVELOPMENTAL INPATIENT WARD ROUND AT THE NATIONAL MATERNITY HOSPITAL** **Jo Egan,** Physiotherapy, Speech and Language Therapy, Dietitian, Pharmacy, Medical Social Work, Developmental Psychology at Department of Neonatology, National Maternity Hospital, Holles Street, Dublin
11:10-11:40	**Tea/Coffee/Display Posters and Meet the Sponsors**
11:40-12:40	**Session 2 – Chairpersons: Dr Ann Hickey and Dr Adrienne Foran**
11:40-12:10	**Guest Lecture: Introduced by Prof. Eleanor Molloy** **"Translational research : my journey over the past forty years"** **Prof. Prem Puri**

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12:10-12:40	**Introduced by: Prof. Eugene Dempsey** **What is a realistic clinical benefit when testing a new intervention to improve brain outcomes?** **Prof. Gorm Greisen, Professor of Paediatrics/Consultant Neonatologist Affiliated to Department of Neonatology, Juliane Marie Centre and University of Copenhagen**
12:40-13:45	**Lunch**
13:45-15:25	**Session 3 - Chairpersons: Dr Afif El-Khuffash & Dr Rizwan Khan**
13:45-14:55	**7 x Original Research Presentations**
13:45-13:55	**INFANT BRAIN FUNCTIONAL MRI – *A NEW AWAKENING*** **Graham King,** [1]Trinity College Dublin, Dublin, Ireland, [2]The Coombe Hospital, Dublin, Ireland, [3]The Rotunda Hospital, Dublin, Ireland
13:55-14:05	**NEONATAL ABSTINENCE SYNDROME: A NATIONAL SURVEY** **Sean Tamgumus,** Department of Neonatology, Rotunda Hospital, Dublin
14:05-14:15	**STANDARDISATION OF PRETERM PARENTERAL NUTRITION IN IRELAND** **Ann-Marie Brennan**,[1]Department of Clinical Nutrition & Dietetics, Cork University Maternity Hospital, Cork; [2]INFANT Centre University College Cork, Cork
14:15-14:25	**THE EFFECT OF ANAKINRA (IL1 RECEPTOR ANTAGONIST) ON IMMUNE DYSFUNCTION IN INFANTS WITH NEONATAL ENCEPHALOPATHY** **Aoife Branagan**[1-3], [1]Discipline of Paediatrics, Trinity College, The University of Dublin, Dublin, Ireland. [2]Trinity Translational Medicine Institute & Trinity Research in Childhood Centre (TRiCC), Trinity College Dublin; [3] Paediatrics, Coombe Women and Infants University Hospital, Dublin
14:25-14:35	**REVIEW OF YEAR ONE OF ACORN CLINIC: POST DISCHARGE DEVELOPMENTAL SURVEILLANCE OF VERY LOW BIRTH WEIGHT LOW GESTATIONAL AGE INFANTS** **Jo Egan,** Physiotherapy, Speech and Language Therapy, Dietitian, Medical Social Work, Developmental Psychology at Department of Neonatology, National Maternity Hospital, Holles Street, Dublin
14:35-14:45	**TWO HANDS ARE BETTER THAN ONE: DELIVERING POSITIVE PRESSURE VENTILATION IN A NEONATAL MANIKIN MODEL** **Anne L Murray**, Department of Neonatology, Cork University Maternity Hospital, Cork
14:45-14:55	**OPTIMUM CORE TEMPERATURE AND INITIATION OF ACTIVE COOLING AMONG INFANTS WHO RECEIVED THERAPEUTIC HYPOTHERMIA (TH) TREATMENT IN IRELAND** **Aoife Flynn,** National Women and Infant Health Programme (NWIHP), Dublin, National Perinatal Epidemiology, Cork
14:55-15:25	**Guest Lecture: Introduced by Prof. Eugene Dempsey** **'To treat or not to treat a PDA; lessons from the BeNeDuctus Trial'** **Prof. Willem P. de Boode, Professor of Neonatology, Radboudumc Amalia Children's Hospital, Netherlands**
15:25-15:45	**Tea/Coffee/Display Posters and Meet the Sponsors**
15:45-16:30	**The Inaugural Henry Halliday Lecture - Introduced by: Prof. Eleanor Molloy** **The relevance of oxygen and heart rate in the first five minutes after birth of extremely preterm infants** **Prof. Max Vento, Professor of Paediatrics, Chief of the Division of Neonatology** **University & Polytechnic Hospital La Fe, Director of the Neonatal Research Unit, The Health Research Institute La Fe, Valencia**
16:30-16:45	**Awarding of Research Presentation Awards**

This meeting has been kindly sponsored by:

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CPD Accredited – 6 CPD Credits

A RANDOMISED TRIAL OF ROUTINE OR SELECTIVE APPLICATION OF A FACE MASK FOR BREATHING SUPPORT OF PRETERM INFANTS; THE ROSA TRIAL

Authors: Caitríona M. Ní Chathasaigh[1,2], Emma A. Dunne[1,2], Lucy E. Geraghty[1,2], Madeleine C. Murphy[1,2], Eoin M. Ó Curraín[1,2], Lisa K. McCarthy[1,2], Colm P.F. O'Donnell[1,2]

1. Neonatal Unit, National Maternity Hospital, Dublin, Ireland
2. School of Medicine, University College Dublin, Ireland

Background

Face mask positive pressure ventilation (PPV) is recommended for newly born infants who have apnoea or bradycardia. Though the majority of preterm infants breathe spontaneously at birth, most have a mask applied for continuous positive airway pressure (CPAP) shortly after delivery. Applying a face mask may inhibit spontaneous breathing.

Objectives

To determine whether selectively applying a face mask to give PPV to preterm infants for apnoea or bradycardia only, rather than routinely giving face mask CPAP, resulted in fewer infants receiving PPV in the DR.

Design/Methods

Infants born before 32 weeks' gestation were randomly assigned before birth to 'Routine' or 'Selective' groups, stratified by gestational age (GA) [<28 and 28^{+0}– 31^{+6} weeks]. 'Routine' infants had a face mask applied to give CPAP as soon as possible after birth. 'Selective' infants were placed supine to breathe spontaneously and were not to receive mask CPAP before 5 minutes of life. Infants in both groups were given mask PPV for apnoea or bradycardia (heart rate <100bpm). All other aspects of DR care were the same. The primary outcome was face mask PPV in the first 5 minutes of life. Secondary outcomes in the DR included use of face mask CPAP, face mask PPV, endotracheal intubation, and chest compressions; and heart rate and oxygen saturations at 5 minutes. Secondary outcomes in the NICU included endotracheal ventilation and surfactant administration.

Results

We enrolled 200 infants; 100 were randomly assigned to "Routine" [mean (SD) GA 28 (2) weeks and birth weight (BW) 1157 (426) g] and 100 to "Selective" [mean (SD) GA 28 (3) weeks and BW 1122 (439) g]. There was no difference in the proportion of babies who received PPV in the first 5 minutes of life [52/100 (52%) vs 62/100 (62%), P = .150] between the groups. More infants in the Routine group received mask CPAP in the DR, in accordance with the protocol. There were no differences between the groups in other secondary outcomes.

Conclusions

Selective application of a face mask for PPV did not result in fewer preterm infants receiving PPV in the DR.

ASSESSMENT OF MYOCARDIAL FUNCTION IN INFANTS OF MOTHERS WITH GESTATIONAL DIABETES MELLITUS USING DEFORMATION IMAGING OVER THE FIRST YEAR OF AGE

Aisling Smith[1]; Orla Franklin[2]; Naomi McCallion[1,3]; Fionnuala Breathnach[4]; Afif EL-Khuffash[1,3]
[1] Department of Neonatology, The Rotunda Hospital, Dublin, Ireland.
[2] Department of Paediatric Cardiology, Our Lady's Children's Hospital Crumlin, Ireland.
[3] Department of Paediatrics, The Royal College of Surgeons in Ireland, Dublin, Ireland.
[4] Department of Obstetrics & Gynaecology, The Royal College of Surgeons in Ireland, Dublin,

Background
An increasing number of studies have highlighted impaired biventricular myocardial function and altered pulmonary haemodynamics in the early newborn period in infants of mothers with gestational diabetes mellitus (GDM). The aim of this study was to serially assess myocardial performance and pulmonary vascular resistance (PVR) in infants of mothers with GDM over the first year of age and to compare them to a group of controls.

Methods
This was a prospective, observational study. Echocardiography was performed at birth, 6 months and 1 year of age. Pulmonary artery acceleration time (PAAT) and left ventricular (LV) eccentricity index (LVEI) provided measurements of PVR. Biventricular function was assessed by tissue Doppler imaging and deformation analysis.

Results
Fifty infants of mothers with GDM were compared to 50 controls with no difference in gestation (38.9 ± 0.8 vs 39.3 ± 0.9 weeks, p = 0.05) or birthweight (3.55 ± 0.49 vs 3.56 ± 0.41 Kg, p=0.95). Mothers with GDM had a higher BMI (31 ± 6 vs 25 ± 5, p < 0.01). At one year of age PAAT was lower (70 ± 11 vs 79 ± 10, p=0.01) and LVEI higher (1.1 ± 0.2 vs 1.0 ± 0.1, p<0.01) in the GDM group indicating significantly higher pulmonary vascular resistance. LV global longitudinal strain (24.7 ± 1.9 vs 28.8 ± 1.8 %, p<0.01), LV systolic strain rate (1.8 ± 0.2 vs 2.1 ± 0.3 1/s, p<0.01), and RV free wall strain (31.1 ± 4.8 vs 34.6 ± 3.9 %, p<0.01) were lower in the GDM cohort at 1 year of age (all p values adjusted for gestation, mode of delivery and maternal BMI).

Conclusion
There is increased recognition that GDM can exert adverse sub-clinical effects on neonatal biventricular myocardial function and pulmonary haemodynamics either in the presence or absence of morphological changes to the myocardium. However, there was a dearth of evidence assessing if such findings persisted or dissipated over time. Our findings demonstrate sustained abnormal elevation of pulmonary pressures and impaired biventricular systolic and diastolic performance in infants of mothers with GDM in comparison to controls that do not normalise by one year of age. At present data is limited to explain the biological underpinnings of these findings. Overall there is a now a growing body of evidence that GDM is an significant neonatal cardiovascular risk factor and greater surveillance of infants of mothers with GDM with increasing age may be warranted.

Oral Presentation – 10:20-10:30

TRANSFUSING PLATELETS THROUGH LONG LINES IN NICU: IN-VITRO ASSESSMENT OF SAFETY AND FEASIBILITY

Carmel Maria Moore[1,2], Alice Lorusso[3], Liam Morgan[3],Sinead Brazil[3], Harry Croxon[3], Aileen Farrelly[3], Allison Waters[2,3], Anna Curley[1,2]

1: National Maternity Hospital, Holles Street, Dublin 2
2: University College Dublin, Belfield, Dublin 4
3: Irish Blood Transfusion Service, National Blood Centre, Dublin 8

Background: Babies in the Neonatal Intensive Care Unit (NICU) often have central venous access in the form of umbilical venous catheters (UVC) and peripherally inserted central catheters (PICC). The PICCs used in the NICU population are commonly very small bore – 28G (1Fr) and 24G (2Fr). Babies who require platelet transfusions in the NICU are often very unwell, with difficult peripheral vascular access. The reported usage of UVC and PICC for platelet transfusion varies, and anecdotal concerns about line occlusion, platelet clumping and platelet activation were noted.

Objective: The primary objective of this study is to demonstrate feasibility and safety of transfusing platelets through long lines considering catheter blockage, inline pressure levels and platelet activation using CD62P.

Methods:
We performed the mock platelet transfusions as per our unit protocol. We compared 1Fr, 2Fr PICCs with a double 20G lumen UVC and a 24G standard PIVC. Donors gave informed consent. Platelets were processed as routine for neonatal-suitable transfusions. The volume and infusion rate was based on a 1000g neonate (15ml/kg over 30 minutes). Statistical analysis was completed using SPSS.

Results:
All 80 transfusions completed successfully. 5/16 transfusions through the 28G PICC line had their infusion rate reduced due to 'Pressure High' alarms. There was no difference in pre- and post-transfusion swirling values or aggregate formation.
Independent-samples Kruskal-Wallis test was used to determine if there were any significant differences in the post-transfusion parameters between groups. There was no difference across or between groups in post-transfusion CD62P levels.

Conclusions:
This study showed that in-vitro platelet transfusion through 24G and 28G neonatal PICC lines and double-lumen UVCs is non-inferior to 24G short cannulas, with no evidence of platelet clumping, platelet activation, or line occlusion.

A RANDOMIZED TRIAL OF UMBILICAL OR PERIPHERAL CATHETER INSERTION FOR PRETERM INFANTS ON ADMISSION TO THE NICU

Dunne EA,[1, 2] Ní Chathasaigh C, [1, 2] Geraghty L [1, 2] O'Donnell CPF,[1, 2] McCarthy LK [1, 2]

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2. School of Medicine, University College Dublin, Ireland

Background

While hypothermia on admission to the neonatal intensive care unit (NICU) is known to be an independent risk factor for mortality in preterm infants, less is known about the effect of hypothermia after NICU admission. Umbilical venous catheters (UVC) are inserted in extremely preterm infants on NICU admission. This involves a period of exposure which may increase infants' risk of hypothermia. We aimed to determine whether placing a peripheral intravenous catheter (PIVC), compared to a UVC on admission to the NICU, results in more infants with a normal temperature 2 hours after birth.

Methods

We conducted this randomised trial at a university maternity hospital. Infants born before 29 weeks gestational age (GA) were eligible for inclusion. Infants were randomly assigned to PIVC or UVC on NICU admission. The primary outcome was rectal temperature in the normal range (36.5^{o}C – 37.5^{o}C) two hours after birth.

Results

Between March 2021 and November 2022, 118/129 (91%) infants were enrolled. 59 infants were randomly assigned to PIVC and 59 to UVC (mean[SD] GA 27[2] vs 28[9] weeks, mean[SD] BW 893[280] vs 916[250] grams). The proportion of infants with a temperature in the normal range two hours after birth was similar between the two groups (PIVC; 37/59(63%) vs UVC; 31/58(53%), p 0.31). Ninety-eight (84%) infants had a temperature outside of the normal range in the 2 hours after birth.

Conclusion

Placing a PIVC instead of a UVC on admission, does not result in more infants with a normal temperature 2 hours after birth. Abnormal temperature after admission to the NICU is common in extremely preterm infants. Research into thermoregulation after admission to the NICU is needed.

Oral Presentation – 10:40-10:50

THROMBIN GENERATION IS ENHANCED IN PLATELET-RICH PLASMA IN PRETERM COMPARED TO FULL-TERM INFANTS; THE EVENT STUDY

Claire A Murphy[1,2,3], Elaine Neary[4,5], Daniel P O'Reilly[2,3], Luisa Weiss[3], Hayley Macleod[3], Ana Le Chevillier[3], John O'Loughlin[6], Afif EL-Khuffash[1,2], Patricia B Maguire[3], Fionnuala NíAinle [3,7,8], Barry Kevane[3,7], Naomi McCallion [1,2]

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2. Department of Neonatology, Rotunda Hospital, Dublin
3. Conway-SPHERE Research Group, University College Dublin, Dublin
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6. Department of Laboratory Medicine, Rotunda Hospital, Dublin
7. Department of Haematology, Mater Misericordiae University Hospital, Dublin
8. Department of Haematology, Rotunda Hospital, Dublin

Background: Very preterm infants are at risk of intraventricular haemorrhage, have prolonged standard clotting tests, hypo-reactive platelets *in vitro* and reduced levels of coagulation factors. Despite these deficiencies, Calibrated Automated Thrombography (CAT), a global coagulation assay, has been used to demonstrate similar or enhanced thrombin generation in preterm compared with term infants in platelet poor plasma (PPP). However, the effect of platelets on thrombin generation in the premature infant has not been described. We aimed to characterize phospholipid-dependent thrombin generation in platelet-rich (PRP) and platelet-poor plasma (PPP) in premature infants in both umbilical cord blood (UCB) & peripheral neonatal blood (PB) using CAT.

Methods: In this prospective observational study, PRP and PPP were prepared by centrifugation from citrated UCB and PB collected from premature infants (24 - 31 weeks) and healthy term controls (>37 weeks). Thrombin generation in PRP was assessed by CAT using PRP reagent (contains tissue factor only (1pM)). The experiment was repeated in a subset of infants in PPP using PRP reagent. This assay is dependent on the phospholipid content of PRP/PPP (platelets/ extracellular vesicles (EVs)). Ethical approval and parental consent was obtained.

Results: In UCB PRP (n=17 preterm, n=35 term), thrombin generation was accelerated in the preterm group, demonstrated by a reduction in lag time (LT) and time to peak thrombin (TTP). In PB PRP (n=16 preterm, n=13 term), thrombin generation was also enhanced in preterm infants, demonstrated by a shortened LT and TTP, and an increase in peak thrombin and endogenous thrombin potential (ETP).
In a subset of infants (n=23 term, n=10 preterm), CAT was assessed in paired PPP and PRP from UCB using PRP reagent, to evaluate the effect of platelets. The presence of platelets caused a small increase in the ETP and peak thrombin in preterm and term infants. However, the presence of platelets caused a prolongation in the LT and TTP in the term group only.

Conclusion: Thrombin generation in PRP is enhanced in preterm infants in both UCB and PB. In spite of reported "hypo-reactive" preterm platelets, it appears they adequately support thrombin generation. Interestingly, the presence of platelets in term infants prolonged the initiation of coagulation. This was unexpected and not observed in preterm infants. This warrants further study in view of the PlaNeT-2 Study findings, where the liberal transfusion of adult platelets to thrombocytopenic preterm infants resulted in an increased risk of haemorrhage, possibly due to a developmental platelet mismatch.

RANDOMISED PLACEBO-CONTROLLED TRIAL OF EARLY TARGETED TREATMENT OF PATENT DUCTUS ARTERIOSUS WITH PARACETAMOL IN EXTREMELY LOW BIRTH WEIGHT INFANTS – PILOT STUDY (ETAPA PHASE 1)

Niamh Ó Catháin[1,2], Jana Semberova [1,2,6], Eugene M Dempsey[3,4,5], Zbynek Stranak[6], Jan Janota[7], Robert B McGrath[1], John Kelleher[1], Anne Doolan[1], Anne O'Sullivan[1], Peter J Duddy[8], Orla Franklin[9], Mandy Daly[10], Aisling M Martin[11], Jan Miletin[1,2,6]

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4. Department of Paediatrics and Child Health, University College Cork, Cork, Ireland
5. INFANT Research Centre, University College Cork, Cork, Ireland
6. Department of Neonatology, Institute for the Care of Mother and Child, Prague, Czech Republic
7. Department of Neonatology, Motol University Hospital, Prague, Czech Republic
8. Department of Pharmacy, Coombe Women and Infants University Hospital, Dublin, Ireland
9. Department of Paediatric Cardiology, Children's Health Ireland at Crumlin, Dublin, Ireland
10. Irish Neonatal Health Alliance, Dublin, Ireland
11. Department of Foetal Medicine, Coombe Women and Infants University Hospital, Dublin, Ireland

Background

The efficacy and basic safety of Paracetamol in the treatment of Patent Ductus Arteriosus (PDA) is established, and Paracetamol has been shown to be as effective as Indomethacin and Ibuprofen for PDA closure, with reduced associated adverse effects. The aim of the ETAPA trial is to determine whether early targeted treatment of PDA with Paracetamol in Extremely Low Birth Weight (ELBW) infants results in significant reduction of adverse outcomes attributable to hypoperfusion (peri/intraventricular haemorrhage (PIVH), necrotising enterocolitis (NEC) and death). The objective of this pilot study (Phase 1) was to refine the trial Protocol and enrolment before proceeding to the multi-centre, international randomised trial (Phase 2).

Methods

This is a parallel group, randomised, double-blinded, placebo-controlled trial. Phase 1 is an internal pilot study involving 30 ELBW babies to enable refinement of the trial processes and procedures before extension of the trial to all study centres (Phase 2 - 218 participants). ELBW infants with PDA diameter more than 1.5 mmm and non-restrictive left to right PDA flow between 6 and 12 hours of age were eligible for enrolment. Participants were randomised to Paracetamol or placebo (1:1) administered 6-hourly, until ductal closure as determined by serial 48-hourly echocardiography assessment, to a maximum of six completed days. Based on our inclusion/exclusion criteria we expected to enrol approximately 60% of the ELBW infants admitted to the participating centres. We planned to start Phase 2 if more than 75% of participants would be treated as per Protocol.

Results

Fifty-one ELBW infants were admitted to the participating NICU's during Phase 1, 41 were consented and screened (80%), with 30 infants randomised (58.8%) (see Figure 1). Median gestation was 25.9 weeks (IQR 2.2) and median birth weight was 780g (IQR 272.2). No participants were unblinded, and none received open-label treatment during the trial intervention period. All participants were treated as per Protocol. Of the non-randomised infants five infants had PDA <1.5mm and/or restrictive flow. PDA was closed spontaneously before discharge in all of these infants. The other six non-randomised infants had PPHN/bidirectional shunt, with high mortality (83.3.%) and morbidity (combined outcome of PIVH/NEC/Death of 83.3%) in this group.

Conclusion

We confirmed our estimated enrolment to the trial and the trial protocol has been adhered to. The results to date indicate that the trial selection criteria is appropriate for targeting infants that might benefit most from early targeted treatment of PDA.

THE ACORN PROGRAMME: ESTABLISHING A NEONATAL DEVELOPMENTAL INPATIENT WARD ROUND AT THE NATIONAL MATERNITY HOSPITAL

Jo Egan, Zelda Greene, Roisin Gowan, Roberta McCarthy, Montse Corderroura, Ciara Buggy, Marie Slevin

Physiotherapy, Speech and Language Therapy, Dietitian, Pharmacy, Medical Social Work, Developmental Psychology at Department of Neonatology, National Maternity Hospital, Holles Street

Introduction: Babies born at early gestation and/or low birthweights are at increased risk for developmental delays at age 2 and beyond. Using developmental supports in NICU can reduce the impact of this improving longer term outcomes. In 2022 the neonatal team structured an approach to developmental assessment and management in the NICU called ACORN: Allied Care Of at Risk Newborns.

Methods: The specialist multidisciplinary team established a weekly ward round. All stable infants in the NICU born < 30 weeks and/or weighing <1500g at birth were eligible. A range of standardised assessments were used for motor skills, feeding, communication and nutrition. Educational supports developed with the wider neonatal team and the NMH foundation supported a number of initiatives.

Results: From 17 Feb-20 Dec 2022 there were 35 developmental ward rounds. 44 babies were included, 18 were seen more than once. Ward round attendance varied depending on staffing availability with SLT/PT/Pharmacy and Dietitian attending most rounds. Standardised assessments included Brazelton NBO, GMA, LAPI, IPAT, MSK, NOMAS, NEOEAT, general communication observations, growth and nutrition assessments. Bespoke leaflets on kangaroo care were well received by parents and staff reporting improved confidence and earlier signposting of concerns.
Conclusion: This initiative has progressed team building & co-working. At-risk infants are identified earlier. Standardized care is being developed. NICU staff are supportive. Informal feedback from parents is positive. Staffing and the administrative burden is challenging. Longer term 2 year Bayley outcomes for this cohort will be compared with age matched cohorts pre 2022 to assess impact.

Oral Presentation – 13:45:13:55

INFANT BRAIN FUNCTIONAL MRI – *A NEW AWAKENING*

Graham King [1,2,3], Áine Dineen[1], Cliona O'Doherty[1], Anna Truzzi[1], Chiara Caldinelli[1], Enna-Louise D'Arcy[1], Jessica White[1], Anna Kravchenko[1], Lorijn Zaadnoordijk[1], Amy Burke[1], Maebh Healy[1], Sojo Joseph[1], Eleanor Molloy[1, 2, 5], Adrienne Foran[3, 4], Ailbhe Tarrant[3, 4], Angela T Byrne[2, 5], Rhodri Cusack[1]

Institutions:

[1]Trinity College Dublin, Dublin, Ireland, [2]The Coombe Hospital, Dublin, Ireland, [3]The Rotunda Hospital, Dublin, Ireland, [4]Children's Health Ireland at Temple Street, Dublin, Ireland, [5]Children's Health Ireland at Crumlin, Dublin, Ireland

Background: Traditionally, awake functional MRI (fMRI) scanning has involved older aged paediatric or asleep ('resting state') infant populations. Recently a few groups worldwide have commenced awake infant scanning. Central to their success is the use of naturalistic paradigms (more complex and dynamic visual stimuli such as movies) compared to historically simple stimuli. These naturalistic paradigms recruit brain regions more generally and are shown to improve the quality of awake fMRI data.

Methods: The Foundations of Cognition (FOUNDCOG) Project is a longitudinal study (2 & 9 month age visits) scanning term control infants and infants from the NICU. Awake fMRI runs consist of two naturalistic paradigms (video and picture stimuli) selected to maximise infant engagement. Additional data collected includes facial camera footage during scanning, birth details, NICU data, and parental feedback. Important methodological steps have included: collaboration and recruitment between Trinity College Dublin and participating Dublin maternity hospitals; alternative MRI hardware setup and positioning (MRI head coil configuration and projection of engaging visual images); a dynamic experimental flow pathway which adapts to achieve both awake and asleep fMRI runs; and successful infant comfort and safety measures.

Results: 100 infants have participated to date, of which 98 have provided fMRI run data. All 98 infants provided a median 19min (IQR 8) of awake fMRI consisting of video (median 10min, IQR 4) and picture (median 8.5min, IQR 5) data. NICU infants (n=25) provided slightly less awake data (median 16min, IQR 10). 80% of infants fell asleep providing resting state fMRI. Assessing all fMRI data obtained, the 85th percentile of awake versus asleep images had <2.0mm and <0.2mm motion respectively. These results compare well to durations of usable data and motion thresholds from other research groups. Infants were engaged in the visual stimuli approximately 70-80% of total awake scan time, while fussing 10-15% of the time. Using a Likert-type questionnaire, parent feedback showed 52(90%) of 58 parents responding either 'agreed' or 'strongly agreed' that their infant was comfortable during scanning.

Conclusion: The FOUNDCOG Project is unique worldwide and is a first of its kind study in Ireland. Early measures show that infants aged 2 months are comfortable and engaged with complex visual stimuli and the quantity of usable awake data is good, while most also fall asleep. Analysis of this data is current, and it is hoped that this awake infant fMRI data will prove richer, allowing characterisation of typical development and correlation with behaviours and clinical outcomes.

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Oral Presentation – 13:55-14:05

NEONATAL ABSTINENCE SYNDROME: A NATIONAL SURVEY

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Background

Neonatal abstinence syndrome (NAS) occurs following prolonged in-utero exposure to drugs and/or medications. Units can differ in their strategies for management of NAS and the resources that are allocated to this. A survey conducted in 2009 showed that this was true within the UK and Ireland. The aim of this project was to conduct a national survey to assess current management of NAS in neonatal centres throughout Ireland.

Methods

The survey was conducted online via Surveymonkey and distributed via email in April 2022. A 30 question survey was developed based on current practices, NAS management changes and recent literature review in consultation with neonatal consultants, ANPs and pharmacy input in the Rotunda Hospital.

Results

All 21 neonatal units responded to the survey. 33% of infants are monitored for the recommended 5 days.

100% of units are using the Finnegan scoring however only 48% of staff are given training in using the tool.

66% had a non-pharmacological treatment plan. All units used oromorph as first line agent however frequency and dosing varied significantly. 66% based their dosing of oromorph on the withdrawal score. 71% use phenobarbitone as second line agent with others using clonidine and clonazepam. 57% did not have a different approach for non-opioid NAS.

57% had a policy of encouraging breastfeeding in mother who are on methadone/opiates. Only 24% of units had a specific parental education program for these families.

Conclusion

The results of this national survey show the wide discrepancy in treatment and management strategies for infants with NAS. The infrequency of units dealing with these infants compounds this and demonstrates the benefit that a National Guideline would have in guiding care in regional centres. This is a small, vulnerable population and the development of a consensus on management and treatment could standardise care and improve outcomes.

STANDARDISATION OF PRETERM PARENTERAL NUTRITION IN IRELAND

Authors: Ann-Marie Brennan,[1,2] Brendan P Murphy,[2,3] Anne Doolan,[4] Roberta McCarthy,[5] Sarah Fenton[6,2]

[1]Department of Clinical Nutrition & Dietetics, Cork University Maternity Hospital, Cork; [2]INFANT Centre University College Cork, Cork; [3]Department of Neonatology, University Hospital Waterford, Waterford; [4]Department of Neonatology, The Coombe Hospital, Dublin; [5]Department of Clinical Nutrition & Dietetics, National Maternity Hospital, Dublin; [6]Pharmacy Department, Cork University Hospital, Cork.

Background: Parenteral nutrition (PN) is a high alert medication.[1] European Expert Guidance recommend the use of standardised parenteral nutrition (SPN) over individualised (IPN) for the majority of preterm infants, due to increased patient safety and resource efficiency.[2] Globally, there has been a failure to implement this practice with large variations in the quality and models of PN provision.[3,4] Neonatal units (NUs) across Ireland have recently introduced an innovative, infant-driven SPN system including 1) two SPN products and 2) accompanying protocol, designed to deliver recommended levels of nutrients to support growth without providing excessive intakes**.[5,6]** Two clinical studies at CUMH have demonstrated high compliance with the core features of the system delivering improved clinical and economic outcomes (publications pending). Following implementation in CUMH in 2018, the system was endorsed by the National PN Expert Group as the National Model of Care for Preterm SPN.[7] An implementation group was established and national rollout was completed in July, 2021.

Methods: A retrospective analysis of 5-year national preterm PN purchasing data by NUs in Ireland from before implementation to completion of national roll-out of the new preterm SPN system (2017 - 2021).[8]

Results: The percentage of PN purchased that was SPN increased nationally year on year from 56% in 2017 to 90% in 2021, when national rollout was complete. The percentage of IPN purchased by NUs nationally reduced by 80% from pre-implementation to full rollout.

Conclusion: This innovative nutrition system has resulted in the standardisation of preterm PN provision in NUs across Ireland in line with international guidelines. This is the first time a country has presented this level of SPN usage in the high risk area of preterm PN delivery. A national implementation study and economic evaluation are planned to understand the effectiveness of the implementation and the direct and indirect cost savings.

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THE EFFECT OF ANAKINRA (IL1 RECEPTOR ANTAGONIST) ON IMMUNE DYSFUNCTION IN INFANTS WITH NEONATAL ENCEPHALOPATHY

Aoife Branagan[1-3], Claudia Stanciu[4], Johana Isaza-Correa[1,2], Lynne Kelly[1,2], Martin White[1], Jan Miletin[1], Claudine Vavasseur[5], Eleanor J Molloy[1-3,6]

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INTRODUCTION:

Neonatal encephalopathy (NE) describes acute brain injury in newborns. Despite routine use of therapeutic hypothermia (TH), there remains a significant burden of mortality and morbidity. There is an urgent need for the development of new treatments. NE pathophysiology is based on immune dysregulation, and therefore immunomodulatory drugs may have a positive effect. Anakinra (interleukin-1 receptor antagonist) (ILRA) is one such drug, blocking IL-1α and IL-1β biologic activity.
AIMS: To assess the impact of ILRA on ex-vivo immune function in infants with NE.

METHODS: Infants with moderate-severe NE (Sarnat scoring) undergoing TH were recruited. Samples were taken on days 1, 3 and 7 of life and compared with healthy neonatal controls and were stimulated with lipopolysaccharide and ILRA. A 10 spot Elisa Multiplex Cytokine Array was performed via a sandwich immunoassay format. Erythropoietin (EPO), granulocyte macrophage colony stimulating factor (GM-CSF), interferon gamma (IFN-g), interleukin (IL) 2, IL-6, IL-8, IL-10, IL-1β, tumour necrosis factor α (TNF- α) and vascular endothelial growth factor (VEG-F) were examined.

RESULTS:

Thirty-six neonates were included: 28 infants with NE with 40 samples assessed (day 1 (n=13), day 3 (n=19) day 7 (n=8)) and 8 neonatal controls. EPO was significantly increased in infants with NE compared to controls and decreased to baseline levels after anakinra treatment. IL 8 was also raised in infants with NE compared to controls and anakinra decreased this to control levels on day 3 and 7. Anakinra decreased cytokine responsiveness to LPS in GM-CSF, IFN-g, IL-6, IL-10 and TNF- α. Anakinra did not significantly affect cytokine levels, however trends towards an effect were seen.

DISCUSSION:

While no statistically significant differences were seen after treatment with anakinra, trends towards treatments effects were found. Further studies are needed to fully evaluate the treatment effect.

REVIEW OF YEAR ONE OF ACORN CLINIC: POST DISCHARGE DEVELOPMENTAL SURVEILLANCE OF VERY LOW BIRTH WEIGHT LOW GESTATIONAL AGE INFANTS

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Physiotherapy, Speech and Language Therapy, Dietitian, Medical Social Work, Developmental Psychology at Department of Neonatology, National Maternity Hospital, Holles Street

Introduction: In 2022 a structured inpatient developmental initiative (ACORN: Allied Care Of at Risk Newborns) was established in NICU to support at-risk infants. Multidisciplinary developmental follow up post discharge is recommended. The ACORN outpatient clinic was established for ongoing surveillance by physiotherapy (PT), Speech and language therapy (SLT), dietetics, psychology, Medical Social Worker (MSW), in conjunction with medical and nursing teams.

Methods: All infants born in the hospital catchment area and enrolled on the 2022 ACORN inpatient developmental programme were eligible for follow up. The clinic offers screening at 3/6/9 /12/18/24 months corrected age.

Results: 44 inpatients were seen. The 12 week corrected age follow up assessments commenced June, 14 eligible, 11 completed by Dec. The 6 month corrected follow ups started Oct, 6 eligible 2 completed. There were 3 non-attenders. SLT and PT consistently attended all appointments. Dietitian consults were required for 5 appointments. MSW were available for consultation. Direct therapist time per appointment is 1–1.5 hours with additional 1-1.5 hours of indirect time. Estimated total therapist time for anticipated 40-50 children with average 2 appointments per year is 200-250 hours per therapist. Challenges to service development included clinic space and administration.

Conclusion: The ACORN OPD clinic is comprehensive and supportive allowing early management of developmental delays and facilitating timely onward referral. Staffing and accommodation issues are challenging and require attention.

TWO HANDS ARE BETTER THAN ONE: DELIVERING POSITIVE PRESSURE VENTILATION IN A NEONATAL MANIKIN MODEL

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[1]Department of Neonatology, Cork University Maternity Hospital, Ireland
[2]University College Cork, Ireland
[3]INFANT Centre, Cork, Ireland

Background:
Approximately 10% of newly born infants require some form of assistance to establish regular breathing at birth. International guidelines advise the use of positive pressure ventilation (PPV) in newly born infants with bradycardia or inadequate respiratory effort.
Previous studies investigating mask leak in modified newborn manikin models have shown high levels of mask leak (up to 65%). Conflicting evidence exists for various hand hold techniques. The aim of the study was to determine if there is a difference in mask leak between one-handed (OH) and two-handed (TH) hold of the facemask when delivering PPV during neonatal resuscitation.
Methods:

A crossover randomized trial was performed. All participants had completed their Neonatal Resuscitation Programme training. A Neopuff Infant Resuscitator used with a size 35mm facemask and premature neonatal manikin. A Respironics Respiratory Function monitor (RFM) was used to measure inflation pressures, tidal volumes, and expiratory leak via a flow sensor between the mask and the Neopuff.

Two minutes of breaths were recorded for each participant for both OH and TH techniques. For TH technique, the participants performed the mask hold, while one of two researchers delivered breaths. Participants were randomly assigned to perform OH or TH technique first.

Results:

There were 41 healthcare providers included; one was excluded from the analysis due to missing data. A total of 1350 breaths were analysed. Median mask leak was greater with one-handed (median(IQR): 12.3%(5.5% to 49.1%)) compared with two-handed (median(IQR): 5.2%(2.6% to 14.6%)) technique (p=0.041). There were no significant relationships between years of experience or professional group with one-handed or two-handed leak values.

Conclusion:

When using positive pressure ventilation is provided in a neonatal manikin model, two-handed technique is superior to one-handed technique in reducing mask leak. Further clinical trials of OH versus TH are warranted in the delivery suite.

OPTIMUM CORE TEMPERATURE AND INITIATION OF ACTIVE COOLING AMONG INFANTS WHO RECEIVED THERAPEUTIC HYPOTHERMIA (TH) TREATMENT IN IRELAND

Authors: McGinley J, San Lazaro Campillo I, Corcoran P, Helps A, Meaney S, McKenna P, Filan P, Greene RA, Murphy J.

Affiliations:
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National Perinatal Epidemiology, Cork, Ireland.

Background. In line with practice guidelines, TH should be initiated within six hours of birth and should be continued for 72 hours. The optimum core temperature of 33°C to 34°C is targeted over this 72-hour period. To assess the average age when target temperature was reached among infants who received therapeutic hypothermia (TH) in the Republic of Ireland, 2019-2020.

Method. Retrospective reviews of inpatient medical records have been used as a gold standard approach when assessing multiple outcomes and rates of adverse events. In Ireland, TH is provided in four tertiary maternity hospitals. All babies born in the remaining 15 units requiring TH are transferred to one of these four centres.

Results. Of the 148 infants who received TH during the two-year period 2019-2020, 66% of the infants were born in a tertiary hospital (n=98 of 148). During the same period, according to HIPE data, 53% of all the mothers who gave birth in hospital did so in a tertiary hospital (n=60,286 of 113,198). Thus, TH was provided to 1.63 infants per 1,000 mothers who gave birth in a tertiary hospital (inborn, 95% CI=1.3-1.9) and 0.95 infants per 1,000 mothers who gave birth in a non-tertiary hospital (outborn, 95% CI=0.82-1.15), a 72% difference (Risk ratio=1.72, 95% CI=1.22-2.42, p-value <0.001). More than 85% of the 49 infants transferred for neonatal TH treatment required respiratory support (n=42), and two-thirds required sedation (n=33) in-route to the tertiary unit. Targeted temperature was reached at 4:12 hours (median: 3:47 hours) (SD=2:48) of average of age for inborn compared to 10:21 hours (median: 10:30 hours) (SD=7:18) for outborn infants. This difference was statistically significant, p-value <0.001.

Conclusion. The vast majority of all infants, both inborn and outborn, achieved optimum core temperature within six hours of birth. However, inborn infants achieved core temperature earlier than outborn babies.

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3	Costello	Sabha	IATROGENIC INTRAVENOUS LIPID OVERDOSE IN A PREMATURE NEONATE: A CASE REPORT
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21	Mehar Batool	Sidra	OUTCOME OF BABIES BORN TO COVID-19 POSITIVE MOTHERS AT WEXFORD GENERAL HOSPITAL FROM 1ST JANUARY 2021 TO 7TH OCTOBER 2021
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30	Toor	Bilal	BENIGN MULTIFOCAL CONGENITAL CUTANEOUS HEMANGIOMA INITIALLY THOUGHT TO BE MALIGNANT BLUEBERRY MUFFIN LESION : A CASE REPORT
31	Yasir	Alshareefy	PARENTAL PERCEPTIONS OF NEONATAL CLINICAL RESEARCH: A SYSTEMATIC REVIEW

Poster No.1

OUTCOME OF PRENATAL CHD SCREEN AT OLOL HOSPITAL, DROGHEDA

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BACKGROUND AND AIM:
Congenital heart disease (CHD) is a significant cause of perinatal mortality and morbidity worldwide. Prenatal detection rate of CHD remains low in most European countries and a substantial proportion of infants with serious heart disease are diagnosed only after discharge from hospital after birth. Earlier recognition of treatable abnormalities may improve the perinatal outcome. The purpose of this study to improve the antenatal detection of congenital heart disease (CHD) and its effect on foetal and
postnatal outcomes and to find the opportunity to facilitate the access to all antenatal scan.

METHOD:
Retrospective analysis of most foetus who received foetal anomaly ultrasound scan include (four champers and three vessels)and a detailed anomaly scan in January 2021at OLOL Drogheda hospital. A sample size was 87. All babies who were born in month of January 2021 included in this study and information was gathered from their relatives documents.

RESULT:
Total 87 women delivered during this period. We noticed that all foetal scans were restricted due to covid 19. 67 (77%) women had normal foetal scan at (18-23) weeks. While 20 (23%) did not receive foetal scan. The majority of maternal age was < 35 years, almost third between 35- 40 years and only 2% > 40 years. Maternal risk factors were due CHD 12%,GDM 38% respectively. All babies were term, average weight was 3.2kg and Apgar score 9,10. Even 23 % of them did not screened antenatally for CHD or anomalies were normal exam postnatally.

CONCLUSION:
While the number of maternity hospitals offering routine anomaly ultrasound scans has increased since 2017.This study highlights that a limited access to routine anomaly screening might be due to Covid 19 pandemic restrictions and also due to level 2 model of care. Our recommendation with our study is to provide universal access to all pregnant women regardless of level of care or restrictions, we will study with larger number in future.

Poster No 2

A Retrospective Review of Caffeine Citrate Prescribing in a Tertiary Neonatal Intensive Care Unit

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2 Department of Pharmacology, National Maternity Hospital, Holles Street, Dublin 2

Background:
Caffeine citrate used for neonatal apnoea of prematurity (defined as cessation of breathing for 20 seconds or >/=10 seconds with associated desaturations or bradycardia) (1) is also considered for neonates <1.25kg and is used in assisting with airway extubation from the ventilator. Caffeine prescription practice varies between neonatal units. A 15-year multi-centre cohort study reaffirmed this variation and the consensus surrounding its discontinuation (2).

Aims: To evaluate caffeine prescribing practices within our unit with particular focus duration of treatment and discontinuation in relation to gestational age.

Methods: A retrospective review of all caffeine prescriptions between October to December 2021 was performed and patient identification anonymised. Gestational age, respiratory support and presence of apnoea was extracted. Data collation assessed trends in prescribing practices and was reviewed alongside local protocol for prescribing.

Results: 37 neonates were prescribed caffeine citrate. N=26; 11 patients were excluded from final analysis (redirection of care/transferred to another hospital). 11 of 26 patients remained on caffeine beyond the recommended gestation of 34 weeks.1 patient had a documented apnoea in this period of extended treatment.
7 patients had caffeine discontinued while remaining on respiratory support. Their gestational age ranged between 33-40 weeks at discontinuation. Discontinuation regime of the patients without respiratory support varied (n=19). 4 patients were on a weaning regime (dosage <5mg/kg) versus those on weight appropriate dosing (n=15) (5-10mg/kg). Discontinuation dose was variable.

Conclusion: Caffeine prescribing practise continues to vary in our unit. The discontinuation of caffeine in our patients with chronic lung disease on respiratory support with no further apnoeas has been identified. Dosing optimisation for weight increase is required regularly.

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Poster No 3

IATROGENIC INTRAVENOUS LIPID OVERDOSE IN A PREMATURE NEONATE: A CASE REPORT

Costello S, Twomey A, Aminudin N
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Background
Intravenous lipids (IL) are a vital component of parenteral nutrition (PN) as a source of energy for growth and development for premature neonates in NICU. IL has been well tolerated by neonates for over five decades provided safe administration. We report a case of iatrogenic lipid overdose detected at 25 hours of life in a premature neonate at 31 weeks of gestation (birth weight 1.24kg). A double volume exchange transfusion was performed. The patient was closely monitored and had a good clinical outcome with satisfactory neurodevelopmental assessment at 6 months corrected gestational age.

Case: A 31-week premature male infant, delivered via emergency caesarean section under general anaesthetic due to foetal bradycardia; required resuscitative measures at delivery (CPR and mechanical ventilation) and was admitted to the NICU for management. PN (aqueous and IL) was commenced at 90 minutes of life. Due to hypotension; umbilical catheters were placed for central access, new sets of TPN were connected at 5 hours of life. The following morning, the patient developed jaundice and was placed on phototherapy. The laboratory alerted staff that the biochemistry profile was lipaemic. Following this, what was thought by staff to be the IL infusion; was stopped. The patient developed pyrexia, tachypnoea, hyponatraemia, hypoglycaemia and acidosis. It was then discovered that the remaining TPN infusing was IL; incorrectly connected to the aqueous infusion pump and administered at the rate of the aqueous solution (65ml/kg/day). The infusion was stopped immediately. The baby was rehydrated with intravenous fluids and specialist opinion sought. The patient underwent a double volume exchange transfusion. An open disclosure conversation with a formal apology took place with the parents

Discussion Following departmental investigations this error was felt to be multifactorial. This incident occurred a few months after the Health Products Regulatory Authority (HPRA) approved a change recommending UV protective lines for both IL and aqueous. This led to challenges in distinguishing between the lipid and aqueous infusions on visual inspection. Human factors played a role as busy staff managed patients. We reviewed 5 other cases of iatrogenic lipid overdose in the preterm infant population, 4 out of 5 of whom also certainly underwent exchange transfusions.

Conclusion: Although shown to be effective in IL overdose; exchange transfusion also carries its own risks and challenges. Awareness and prevention of similar situations in the future by performing strict safety checks is important as part of good clinical practise.

Poster No 4

USE OF RECOMBINANT ACTIVATED FACTOR FVII IN THE NICU – A RETROSPECTIVE REVIEW

Ciara Dixon, Siobhan Coughlan, Sonia Varadkar, Jana Semberova; Dept of Neonatology, Coombe Women & Infants Hospital, Dublin

Background

Factor VII (FVII) is a vitamin K-dependent glycoprotein that binds to Tissue Factor in the setting of endothelial injury. This gives rise to activated Factor VII (FVIIa), which further activates Factors IX and X, promoting thrombin release, platelet activity and formation of a fibrin clot. Recombinant activated FVII (rFVIIa) (Novoseven) is a synthetic form of FVIIa that is licensed in cases of intractable bleeding in patients with haemophilia, congenital FVII deficiency, and Glanzmann's thrombasthenia. It is also used in severe postpartum haemorrhage. Off-label use of NovoSeven as a potentially effective haemostatic agent has been rapidly expanding, although its utility in the newborn population is under-investigated. In the neonatal intensive care unit (NICU), rFVIIa is most commonly used off-label as a rescue intervention in those with uncontrolled haemorrhage that is unresponsive to conventional treatment with fresh frozen plasma (FFP) and other blood products.

This paper outlines a cohort of critically ill patients at a tertiary neonatal centre who received rFVIIa, and evaluates indications for treatment, number of doses, and clinical outcomes.

Methods

A retrospective chart review was carried out on newborns who were administered rFVIIa in a tertiary NICU from January 2008 to January 2022. Demographic, clinical and laboratory data was collected from charts and the laboratory computer system.

Results

10 infants were identified as having received one or more doses of rFVIIa between January 2008 and January 2022. The median birth weight was 2630g, with a median gestation of 37^{+6}/40. Precipitating diagnoses included pulmonary haemorrhage (n=4), subgaleal haematoma (n=2), superficial skin haemorrhage (n=1), and severe disseminated intravascular coagulation (DIC) (n=2). Two patients were identified as having specific factor deficiencies causing bleeding. One infant was treated for DIC with hypovolaemia following a maternal antepartum haemorrhage. Between one and thirteen doses of rFVIIa were administered. 70% of patients (n=7) received a single dose, one patient received four doses, and two patients received thirteen doses. The median prothrombin time prior to rFVIIa was 29.1, and the median after treatment was 18.1. Four (40%) infants survived to discharge. Two infants died within 72 hours of rFVIIa treatment, and four died more than three days after. Overall hospital mortality was 6/10 (60%).

Conclusion

Use of rFVIIa in our NICU is infrequent, and is reserved for critically unwell infants with a high risk of mortality. Early consideration of rFVIIa may be an effective addition to current treatment modalities for refractory haemorrhage in infants.

Poster No 5

A THREE YEAR REVIEW OF PLATELET TRANSFUSIONS PRESCRIBED TO NEONATES ADMITTED TO NICU

Ciara Dixon, Siobhan Coughlan, Sonia Varadkar, Jana Semberova; Dept of Neonatology, Coombe Women & Infants Hospital, Dublin

Background

Platelet transfusion is commonly carried out in thrombocytopaenic infants to prevent bleeding. The PlaNeT-2 trial supports a threshold of $25x10^9$/L to guide administration of platelets. Policy in our hospital dictates that platelet transfusions are indicated at an absolute platelet count of $<25x10^9$/L, or 25-50 $x10^9$/L under consultant guidance. Our aim is to assess adherence to local transfusion guidelines and ensure our practice aligns with best available evidence.

Methods

Records of all neonates admitted to NICU who received platelet transfusion in 2019, 2020 and 2021 were retrospectively reviewed. Pre and post transfusion platelet counts were recorded, along with any significant bleeding events, markers for critical illness and the presence of sepsis, NEC and IVH.

Results

136 platelet transfusions were administered to 55 infants in the NICU over a three year period. 53% were issued in the setting of a platelet count of $<25x10^9$/L, 41% were issued to those with a count of $25\text{-}50x10^9$/L, and 6% of transfusions were prescribed to those with a count of $50x10^9$/L or higher. Of those with a count of $25\text{-}50x10^9$/L, 51% were prescribed to unstable neonates and 49% were administered to correct bleeding or pre-operatively. 62 transfusions were part of multiple transfusions administered to correct persistent thrombocytopoenia.

Conclusion

Recent evidence favours an absolute threshold of 25 $x10^9$/L as an indication for platelet transfusion. On the basis of our findings, we should reserve transfuse for platelet counts below 25 $x10^9$/L to ensure compliance with evidence -based o=medicine, and re-audit after a 12 month period.

Poster No 6

INTRODUCING LISA: A RETROSPECTIVE OBSERVATIONAL STUDY AND NATIONAL SURVEY

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Background: Less Invasive Surfactant Administration (LISA) has become the preferred mode of surfactant administration and has been widely adopted in Europe. However, despite European Consensus Guidelines, the uptake in the UK and USA has been much slower.

Aim: To report on the experience of LISA introduction to a Level 2 neonatal unit. To determine the proportion of neonatal units currently using LISA in the Republic of Ireland (ROI).

Method: Retrospective audit of infants who had received surfactant via LISA in our unit from February 2018 to December 2021, and a nationwide online survey, to quantify the national prevalence of LISA use.

Results: Over a three-year period, 97 infants (GA 25-41 weeks) received surfactant via LISA, and LISA became the dominant method of surfactant delivery in our unit. Over 70% of infants received surfactant via LISA in 2021 compared to less than 20% in 2018. Tracheal catheterization was achieved exclusively by video-laryngoscopy, and complications and failure rates (5%) were low. Our nationwide survey demonstrated a low uptake of LISA, with only 26% of Irish units using LISA.

Discussion: Video laryngoscopy facilitates LISA training, and enabled LISA to become the dominant mode of surfactant delivery in our unit. The slow uptake of LISA in the ROI is due a general satisfaction with current surfactant delivery methods, and probably concerns about deskilling among trainees.

Conclusion: Our study demonstrated that video laryngoscopy guided LISA can be safely and successfully introduced to a level 2 neonatal unit. Our national survey identified a low uptake of LISA, a finding that is out of keeping with most European countries.

Poster No 7

PLACING PRETERM INFANTS IN POLYETHYLENE BAGS BEFORE UMBILICAL CORD CLAMPING: A RANDOMISED TRIAL

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Word count: 300 / 348

Background: Hypothermia on admission to the neonatal intensive care unit (NICU) increases preterm infants' risk of death. We wished to determine whether placing very preterm infants in a PB before CC, compared to after CC, results in more infants with a temperature in the normal range on NICU admission.

Methods: We conducted a randomised controlled trial at a tertiary maternity hospital. Infants < 32 weeks' GA for whom intensive care was planned were eligible for inclusion. Infants were randomly assigned to have a PB placed before or after CC. The primary outcome was rectal temperature within the normal range (36.5°C – 37.5°C) on NICU admission.

Results: Between July 2020 – September 2022, 198/220 (90%) eligible infants were enrolled to this study; 99 were randomly assigned to BEFORE (43 [44%] female) and 99 (53 [54%] female) to AFTER. The median [IQR] GA was 29[27,31] vs 29[27,31] weeks, and mean [SD] birthweight was 1200 [426] vs 1138 [419] grams respectively. Baseline demographics were well matched between the groups. The proportion of infants who had normal temperature on NICU admission did not differ between the groups (BEFORE 54/98 [55%] vs AFTER 55/98 [56%]; RR 0.98, 95% CI 0.77 – 1.27, p 0.886). The proportion of infants with a temperature outside of the normal range was similar between the groups; hypothermia (BEFORE 34/98 [35%] vs AFTER 33/98 [34%], p 0.880), hyperthermia (BEFORE 10/98 [10%] vs AFTER 10/98 [10%], p 1.00). There were no significant differences in secondary outcomes between the groups.

Conclusions and Relevance: This is the first study to examine a thermal care intervention before cord clamping. Placing a PB before CC did not increase the proportion of preterm infants with normal temperature on NICU admission. A large proportion of preterm infants had abnormal temperature at NICU admission. Further studies on thermoregulation before CC are warranted.

Poster No 8

THE MEASUREMENT OF NOISE LEVELS IN NMH NEONATAL UNIT

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Background
Noise represented by sound pressure level (SPL) is an environmental health hazard. Increased level of activity and stressors renders busy neonatal units to high SPL. In the NICU, SPL should not exceed 45 decibels(dB); as recommended by the American Academy of Paediatrics. (COEH 1997) Previous studies demonstrated exposure beyond this were associated with physiological instability such as increased heart rate and reduced oxygen saturation. Studies have also demonstrated links between noise reduction strategies and improved developmental score in neonates. We hypothesised that environmental SPL in our unit exceeds recommended levels. We aimed to compare SPL (Peak and Total) in our unit in varying times of a day. The results may promote awareness of unit noise exposure and reinforce implementation of noise reduction strategies.

Method
We performed a prospective observational study by measuring SPL in decibel-A (dBA) using a sound level meter (Svantek 958A®). The meter was placed in an opaque box in the middle of the clinical areas. SPL was recorded from 3 areas (HDU, ICU1 and ICU3) at various times of the day over 2 months, i.e., during active periods (a.m. and p.m. ward rounds) and inactive periods (night time). We recorded SPL in the form of 'peak' and 'total'. (Total SPL is equivalent to average level/ energy over a time period and relevant to noise dose exposure). Data was transferred using compatible software (SvanPC++®) for further analysis.

Results
Mean SPL (peak and total) in all 3 areas exceeded 45 dBA in all recording periods. In HDU, ICU1 and ICU3; peak SPL classified as "noisy" (46-65dBA) was experienced 97%, 84% and 91% of the recording times respectively. Peak SPL of 66-79dBA was categorised as "Very Noisy; and represented 2.2%, 12.1% and 7.4% of the recording in the 3 locations. Concernedly, the mean peak SPL across all recordings was above 70dBA during active and inactive periods and reached a maximum recording of 126 dBA during an inactive period. Total SPL was above 55 dBA across all recordings. The minimum SPL recorded was 46dBA during an active period in ICU1.

Conclusion
This study demonstrates that noise in our unit constantly exceeds recommended limits during all periods and reaches harmful levels. There was very little difference between noise levels during active and inactive periods. Further action is needed on noise reduction strategies to counter this risk towards vulnerable patients and promote staff awareness of reducing noise levels in the unit.

Poster No 9

RE-ESTABLISHING FEEDS POST NECROTISING ENTEROCOLITIS (NEC) - A SURVEY OF PRACTICE IN IRISH NEONATAL UNITS

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Introduction

NEC is a very serious, potentially lethal and complex disease of the bowel and occurs with an incidence of up to 11% in preterm infants with less than 1500 g of birth weight. Current management of NEC is to allow for bowel rest for a specific amount of time. Re-establishing feeds afterwards can be a challenge as there is perceived a high risk of re-developing NEC or causing feeding intolerances. The management on restarting enteral feeds post-NEC is still quite unclear

Methods

A prospective study was conducted to explore the re-establishment of enteral feeding after NEC. An online questionnaire was sent to dietitians, surgeons and neonatologists (*n= 53*). A total of 19 clinicians (35%) completed the national survey.

Results

19 clinicians (77% dietitians, 40% surgeons, 26% neonatologists) completed the survey. 52% (n=10) stated “severity of the NEC and the clinical condition” influenced their decision on restarting feeds post-medical NEC, 63% (n=12) stated “upper GI losses and stoma function” influences their decision restarting feeds post-surgical NEC. 63% would advance the rate of feeds by 15-20mls /kg/d. 50% (n=9) chose donor breast milk as a substitute to maternal breast milk post-NEC whilst 32% (n=6) chose formula. 57% (n=11) would add breast milk fortifier at 80-120mls /kg/d.

Conclusion

This survey demonstrates that there is a variation in practice when initiating feeds post-medical or surgical NEC, the practice when restarting feeds remains multifactorial. As the first survey of this kind to be conducted in Ireland, the results provide useful information in re-establishing feeds post-NEC and potentially support future practice.

Poster No 10

ELIGIBILITY FOR SPEECH AND LANGUAGE THERAPY (SLT) SERVICE ON AN IRISH NEONATAL INTENSIVE CARE UNIT: A PROSPECTIVE AUDIT

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Introduction: Babies in NICU are at risk of paediatric feeding disorder (PFD) and delays in speech and language development. The SLT service at NMH was established in 2021. An NMH SLT referral pathway was developed in line with international recommendations for service provision. Eligibility for referral has not been prospectively captured to date. With referral criteria established potential caseload size could be assessed to inform service development.

Method:
Audit was conducted on different days by SLT during routine neonatal ward round. All babies on the neonatal unit were included on the day. Based on the SLT referral criteria the following information was recorded: Age, medical stability, respiratory support, weight, presence of syndrome/craniofacial problems, neurological presentation, nursing concerns about oral feeding. If the baby met criteria for SLT referral or if the baby was already known to SLT this was recorded as 'eligible'.

Results:
12 audits were completed on 12 different days from Dec 2021 – Nov 2022. 320 babies were included in total across the 12 days, 158 were deemed eligible for SLT (49%). A mean of 27 (19-36) infants were present on the Neonatal Units during audit. Of these 13 (7-18) were eligible for SLT service on that day. Overall 49% (39%-62%) were eligible to be seen. The majority of infants were preterm, other conditions included cleft palate, syndromic/neurological presentation, neonatal encephalopathy, NAS

Conclusions: On average 49% of all babies on the neonatal unit at NMH meet criteria for SLT referral. All these babies require careful assessment and intervention from SLT working with the multidisciplinary neonatal team and supportive transition to community therapy teams.

Poster No 11

OUTCOME AT THE EXTREME OF VIABILITY: A SINGLE CENTRE EXPERIENCE

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Background: There is limited recent Irish data describing the survival and neurodevelopmental outcomes of extremely preterm infants delivered at less than or equal to 25 weeks gestation. The objective is to examine survival and outcome of infants born under 26weeks' gestation in an Irish tertiary maternity hospital from 2007-2016.

Method: The population is 132 infants born at 23, 24, 25 weeks in CUMH from 2007 to 2016. Ethical approval was granted by the Cork Clinical Research Ethics Committee. Patient details were obtained from the Vermont Oxford and Badger Networks. Survival rates and Bayleys scores were calculated to assess neurodevelopmental outcomes. Statistical analysis with SPSS included frequencies, distributions and comparisons between data from 2007-2011 and 2012-2016.

Results: Overall survival rate was 63%. Of the surviving babies 61% had Bayleys scores calculated. Survival stood at 39% for delivery at 23 weeks, 50% at 24 weeks and 83% at 25 weeks. The 2012 to 2016 cohort has shown further increases in survival with 50% of babies at 23 weeks, 58% of 24 weeks and 89% of 25 weeks. Corresponding figures for 2007-2011 are 20%, 39% and 75%. Gestational age and incidence of periventricular leukomalacia was statistically significant with a p-value of 0.022. Gestational age and delivery room deaths had a p-value of 0.025 as did gestational age and birth weight. Comparison of the 2 cohorts (2007-2011 and 2012-2016) with administration of antenatal steroids showed a statistically significant p-value of 0.044.

Conclusion: There is less morbidity and mortality of the infants born at 25 than at 23 or 24 weeks. Survival of extremely premature infants has increased significantly over the past 10 years. Survival rates with normal neurodevelopmental outcomes are comparable with international standards, and reflect positive changes in attitude and practices in neonatal intensive care. This study will inform parents on the potential outcomes of extreme prematurity and policy regarding management of extreme prematurity.

Poster No 12

THE CURRENT STATUS AND CLINICAL MANAGEMENT OF ANTENATAL RUBELLA SCREENING.

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INTRODUCTION

RUBELLA INFECTION IN A NON-IMMUNE MOTHER MAY CAUSE SEVERE TERATOGENIC EFFECTS IN THE FETUS, ESPECIALLY IF INFECTION OCCURS IN THE FIRST TRIMESTER.
RUBELLA IMMUNITY IS TESTED IN ALL MOTHERS AT THEIR BOOKING ANTENATAL VISIT. MOTHERS WITH A RUBELLA IGG LEVEL LESS THAN 10 IU ARE CONSDIERED TO HAVE INADEQUATE IMMUNITY.
The MMR VACCINATION IS PRESCRIBED POSTNATALLY TO THOSE WITH LOW IMMUNITY IF THEY DO NOT HAVE A HISTORY OF PREVIOUS VACCINATION.
THIS RETROSPECTIVE STUDY WAS UNDERTAKEN TO EVALUATE THE CURRENT STATUS OF THE RUBELLA SCREENING PROGRAM.

METHODS

THE STUDY PERIOD WAS AUGUST 2018 – JULY 2022.
THE LABORATORY RECORDS OF ANTENATAL BOOKING RUBELLA SEROLOGY RESULTS AND THE PHARMACY RECORDS FO POSTNATAL MMR PRESCRIPTIONS WERE OBTAINED.
THE NUMBER OF MOTHERS WITH LOW-IMMUNITY WHO WERE PRESCIBED MMR VACCINATION WAS DETERMINED.

RESULTS

31,192 MOTHERS HAD ANTENATAL RUBELLA SCREENING.
2247 (7%) MOTHERS WERE FOUND TO HAVE LOW IMMUNITY.
957 (43%) OF THE MOTHERS WITH LOW IMMUNITY WERE PRESCRIBED THE MMR VACCINE.

CONCLUSIONS

THE PURPOSE OF ANTENATAL RUBELLA SCREENING IS TO IDENTIFY THOSE WITH LOW IMMUNITY AND NO PREVIOUS MMR VACCINATION. IN IRELAND THE RISK OF ANTENATAL RUBELLA INFECTION IS VERY LOW BECAUSE THE INCIDENCE OF RUBELLA IN THE COMMUNITY HAS BEEN ZERO SINCE 2016. HOWEVER , THE CONTINUATION OF ANTENATAL SCREENING IS JUSTIFIED BECAUSE A SMALL CLUSTER OF RUBELLA CASES AMONG CHILDREN IS STILL POSSIBLE. ONE OF THE RISK FACTORS IS THAT IMMIGRANT CHILDREN OVER 2-5 YEARS MAY HAVE MISSED OUT ON ROUTINE CHILDHOOD VACCINATIONS. A SECOND CONCERN IS THAT THE MMR UPTAKE IN IRELAND BETWEEN 2019 AND 2021 DECREASED FROM 91% TO 88%. THIS IS BELOW THE DESIRED 95% UPTAKE.

Poster No 13

ATYPICAL RASH IN A CHILD WITH AUTOSOMAL DOMINANT ANHIDROTIC ECTODERMAL DYSPLASIA WITH IMMUNODEFICIENCY

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Case Description

A female infant was born at term and in good condition to unrelated Irish parents. Antenatal ultrasound suggested intrauterine growth restriction and the birth weight was 2.6kg. In the first few days of life she was noted to have leucocytosis and a shiny, icthyotic rash predominantly on her hands, soles of her feet and scalp. The rash evolved to become pustular and she was treated with intravenous antibiotics and acyclovir.

The combination of rash, low birth weight and lymphocytosis suggested a possible inborn error of immunity. A skin biopsy was performed, showing interface vacuolar dermatitis reminiscent of graft versus host disease and consistent with Omenn syndrome or maternal engraftment.

Genetic testing demonstrated a pathologic mutation causing gain of function in the *NFKBIA* gene (c.95G>A; p.Ser32Asn heterozygote). A diagnosis of autosomal dominant EDA-ID was made based on these results and the patient commenced on prophylactic antimicrobials and immunoglobulin replacement. She has subsequently undergone haematopoietic stem cell transplant (HSCT) at ten months of age with a significant improvement in her rash.

Case Discussion

EDA-ID typically presents with cutaneous manifestations including skin dryness, eczema, icthyosis, sparse hair and abnormal teeth in addition to heat intolerance caused by anhidrosis and an increased susceptibility to infection[1]. This case is unusual as the rash seen was more typical of that seen in patients with Omenn syndrome. The histological features of focal spongiotic and lichenoid dermatitis associated with histiocyte-rich inflammation have not been previously described in a child with AD-EDA-ID.

AD-EDA-ID is a rare condition and genotype-phenotype relationships are being identified. In particular, missense mutations at serine 32 (as seen in this case) have been associated with a more severe disease phenotype[2,3]. This case serves to highlight that more severe cutaneous manifestations can occur in patients with this mutation than have been previously reported.

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Poster No 14

INVESTIGATING BREASTFEEDING KNOWLEDGE AND ATTITUDES OF MEDICAL STUDENTS IN UNIVERSITY COLLEGE CORK

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Supervisor: Anda Dumitrescu, Department of Paediatrics, Cork University Hospital

Background

Lactation is an integral part of an infant's development. The beginning 2 years of an infant's life are critical as optimal nutrition will lower mortality and reduce risks of chronic disease and encourage better child development. Ireland has one of the lowest breastfeeding rates in the world, according to the Irish Maternity Indicator System report for 2019. There are currently no studies being done on breastfeeding education in the medical school curriculum within Ireland. The study aims to address this knowledge gap and to investigate medical students' perception of breastfeeding support in UCC.

Methods

A cross sectional study was conducted between 22/10/21 and 20/3/22 to collect data on the delivery of teaching around breastfeeding within the undergraduate medical school curriculum. All students in their pen-ultimate and final year of medical school were eligible.
An online survey was used to disseminate information through the central student email system. (Surveys@umail.ucc.ie) Microsoft Excel was used to collate percentage data. Pearson's Chi-squared test and Mann-Whitney U Test was used to analyze categorical data and non-parametric data respectively.

This project was granted ethical approval by the Clinical Research Ethics Committee of the Cork Teaching Hospitals (CREC) on 27/5/2021.

Results

68 medical students in their pen-ultimate and final years of study participated in the study. 65% (n=44) of students received lectures on breastfeeding, while only 10% (n=7) of students received case problem-based learning, and 27% (n=18) had clinical interaction. Overall, 72% (n=49) of students received only 1-2 hours of breastfeeding education, with 13.2% (n=9) receiving none. Majority of the students were able to identify the benefits of breastfeeding, but a self-assessed confidence in clinical skills were poor. Giving advice about breastfeeding if mothers needed imaging was the least confident skill, with confidence in only 4% (n=3) of the students. Most students (84%, n=57) felt that the doctor's role was important in supporting breastfeeding. Overall, 95.6% (n=65) of students requested further breastfeeding education.

Conclusion

The study suggests that the medical curriculum was not adequately preparing students to support breastfeeding patients. Further plans to design optimal training for medical students should be implemented.

Poster No 15

INCOT: IRISH NEONATAL CARE IN OCCUPATIONAL THERAPY STUDY: PARENTAL MENTAL HEALTH AND SELF-EFFICACY SCALES

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Affiliations: [1]Trinity College Dublin, [2]Barts Health NHS Trust

Background:
Occupational therapy (OT) is an integral part of neonatal care in many units around the world although not currently part of the routine standard of care across units in Ireland. While there is evidence to support individual OT interventions within the neonatal environment, there is a paucity of studies which have examined the overall effectiveness of occupational therapy in neonatal units, including the impact on parental mental health and self-efficacy.

Methods:
Infants, and their parents, admitted to the neonatal unit within a 6-month period and with an anticipated stay of at least 14 days were invited to participate in the OT pilot intervention. Data collection at the commencement of the programme and post intervention included three assessment measures of parental mental health; The Parental Stress Scale: Neonatal Intensive Care Unit (PSS:NICU) (two subscales: Infant Appearance and Parental Role Alteration), The Edinburgh Postnatal Depression Scale (EPDS) and The Hospital Anxiety and Depression Scale (HADS) (two subscales: Depression and Anxiety) and two measures of parental self-efficacy; The Karitane Parenting Confidence Scale (Karitane) and Perceived Maternal Parenting Self-Efficacy Questionnaire (PMP-SE).

Results:
Forty-two parents (fathers or mothers or both) with a mean age of 35.4 years (range 19 to 50 years) completed the measures. Thirty-four families & babies completed the study. Pre and post assessment scores which showed a statistically significant change with a confidence interval of 95% included the PSS: NICU (Parental Role Alteration subscale), EDPS, HADS (Anxiety subscale), the Karitane and the PMP-SE. The PSS:NICU (Infant Appearance subscale) and the HADS (Depression subscale) mean scores did not demonstrate significant change from pre to post assessment.

Conclusion:
There were improvements in the mental health and parenting self-efficacy scores of the participants during this pilot study of neonatal occupational therapy in the neonatal unit in Ireland. This study does indicate that these assessments are sensitive to change and have the potential to be useful measures in future trials in this area of practice.

Poster No 16

A RARE CASE OF NOONAN SYNDROME/ MYELOPROLIFERATIVE DISEASE WITHOUT CHARACTERISTIC SYNDROMIC FEATURES: MYELOPROLIFERATIVE DISEASE VERSUS JUVENILE MYELOMONOCYTIC LEUKAEMIA

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Irfan Ahmed, University Hospital Limerick Paediatrics, University Hospital Limerick

Background

Noonan syndrome (NS) is an autosomal dominant syndrome affecting 1 in 1,000-2,500 most commonly due to mutations in the PTPN11 gene. It commonly presents with characteristic dysmorphic features, skeletal malformations and cardiac defects. Frequently associated haematological disorders include coagulation factor deficiencies, thrombocytopaenias and myeloproliferative disorders with prevalence estimates from 20% to 34%. Noonan Syndrome/ Myeloproliferative disorder (NS/MD) is a self-limiting disorder which presents similarly to Juvenile Myelomonocytic Leukaemia (JMML). In contrast, JMML has a median survival time of 10-12 months without hematopoietic stem cell transplantation and a relapse rate of 1/3 with treatment. We present a rare case of NS/MD without features of NS presenting a difficult diagnostic challenge.

Method

Our patient is a dichorionic diamniotic twin 1 delivered by ELSCS at 37 weeks, birth weight 2.2kg. Admission to the neonatal unit was due to hypoglycaemia and suspected IUGR with bruising noted. A full blood count (FBC) was completed showing thrombocytopenia (Platelets: $35.1x10^9$/L). Weekly FBC revealed progressive leukocytosis (WBC: $31.5x10^9$/L) with associated leucoerythroblastosis and myeloid proliferation with 2% blast cells. Initially, these results were highly concerning for JMML. Twin 2's neonatal course and subsequent development has been unremarkable.

Results

Due to high index of concern for JMML, bone marrow aspirate was conducted with cytomorphology results consistent with myeloproliferation or JMML. JMML screen was positive due to PTPN11 mutation. Follow-up germline PTPN11 was tested using hair follicles confirming germline mutation and a diagnosis of NS. Due to this underlying diagnosis, a watch-and-wait approach was taken and improvement of blast counts confirmed the NS/MD diagnosis.

Conclusion

The diagnosis between NS/MD and JMML is challenging due to similarities in presentation but vital given the prognostic differences. PTPN11 mutations are associated with JMML in 35% of cases and with NS in 50% of cases. Our case described a rare manifestation of NS with no other classical features leading to diagnostic confusion.

Preferred presentation type: Display Poster

Poster No 17

PERSISTENT PULMONARY HYPERTENSION OF THE NEWBORN: SYSTEMATIC REVIEW OF BIOMARKERS.

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Background: Persistent pulmonary hypertension of the newborn (PPHN) is a leading cause of morbidity and mortality in neonates. Past research suggested links between brain natriuretic peptide (BNP), endothelin-1 (ET-1) and troponin levels and PPHN development. This review aimed to investigate associations of BNP, Troponin and ET-1 with PPHN development and mortality and morbidity.
Methods: This systematic review followed PRISMA guidelines. Databases MEDLINE, EMBASE and CINAHL were searched to identify primary articles. Primary outcomes were BNP, ET-1, and troponin levels. Secondary outcomes were morbidity and mortality. The Newcastle-Ottawa Scale (NOS) was used to assess methodological quality and risk of bias.
Results: There were 18 articles eligible for qualitative synthesis, 5 examined BNP alone, 4 examined NTproBNP alone, 1 examined BNP and NT-pro BNP, 1 examined BNP and troponin and 7 examined ET-1 alone.

Out of 7 articles, 5 measured median BNP levels in PPHN (126.8 – 1,610 pg/mL) versus controls (34.6 – 443 pg/mL), and 2 articles measured mean BNP levels in PPHN (625.35 – 6,231 pg/mL) versus controls (404.25 – 955.18 pg/mL). Six of seven articles showed increased BNP levels in PPHN patients versus controls.

Out of 5 articles, 4 articles measured median NT-proBNP levels in PPHN (1,650 – 10,882 pg/mL) versus controls (500 – 8,472 pg/mL), and one article measured mean NT-proBNP levels in PPHN (603 – 5,102 pg/mL) versus controls (22 – 2,934 pg/mL). All 5 articles showed increased NT-proBNP levels in PPHN patients versus controls.

Out of 7 articles, 6 articles measured mean ET-1 levels in PPHN (2.04 – 855.36 pg/mL) versus controls (1.04 – 44 pg/mL). The values of one article were not clearly indicated. All 7 articles showed increased ET-1 levels in PPHN patients versus controls.

Mean troponin levels in PPHN were 1.95 ± 2.36 ng/mL versus 0.63 ± 0.15 ng/mL in healthy newborns, indicating increased troponin levels in PPHN patients compared to healthy newborns.

Conclusions: BNP, NTproBNP and ET-1 may be useful biomarkers for PPHN as levels were significantly higher in PPHN. Structured research is needed to investigate its prognostic and diagnostic value, and relevant thresholds. Further clinical research is required to ascertain troponin's role.

Poster No 18

PRIME B - SUSTAINING THE JOURNEY TO BREASTFEEDING IN THE NEONATAL UNIT

Roberta McCarthy[1], Sinéad O'Donovan[1], Jessica Caldeira[1], Roísín Gowan, Madeleine Murphy[2], Anna Curley[2], Jyothsna Purna[2], Helen Batson[3], Ramita Dangol[2], Ciara Murphy[2], Fidelma Martin[2], Tiji Jose[2], Joanne Egan[4], Zelda Greene[5] and the wider PRIME Neonatal MDT
[1]Dept Clinical Nutrition and Dietetics, [2]Dept Neonatology, [3]Breastfeeding Support, [4]Physiotherapy, [3]Speech and Language Therapy at the National Maternity Hospital, Holles Street, Dublin 2

Background: Maternal milk (MM) provides multiple benefits for babies born preterm, including protection from infection and necrotising enterocolitis and improved neurodevelopment. Breastfeeding (BF), brings further advantages including safety, efficiency, comfort and longer duration of MM exposure.
Despite MM feeding rates close to 100 % amongst babies born very preterm or very low birth weight (VLBW) in the neonatal unit (NU), we observed a tendency for bottle-feeding, rather than BF, as their predominant oral feeding method.
Our aim was to optimise BF rates amongst babies born very preterm or VLBW admitted to the NU.

Method: We introduced a multidisciplinary quality improvement initiative, PRIME (PReterm Infants need Milk Early), to drive this innovation. PRIME was first introduced in 2017 to improve the early supply of MM; and expanded in 2019 to support the transition to BF, PRIME-B.
Our focus is to encourage practices that support the transition to BF, including optimising MM supply, by improving knowledge and empowering parents and staff hospital wide. Activities include the development of guidelines and care bundles, staff training, specialist support, provision of breast pumps and other resources, parent involvement, focus groups, staff surveys, guidance posters, awareness campaigns, and two-way feedback.
We monitored progress using PDSA cycles and audited the impact on BF rates among babies born very preterm or VLBW admitted to the NU.

Results: Over the 7 years 2016-2022, approx. 130-180 very preterm or VLBW babies were admitted annually. Among those inborn (n=896), the number receiving MM was sustained at 98-100% annually; and the BF rate increased from 39% to 72%.

Conclusion: Together we are achieving significant improvements in BF rates, conferring significant long-term benefits to babies and their families. We are committed to continue PRIME/PRIME-B to optimise care and outcomes for this high-risk population. The journey continues…

Acknowledgements
Thank you to everyone for their dedication, commitment and support, including the babies, their mothers and families, the PRIME MDT, dietitian colleagues, neonatal staff and staff throughout the hospital and community and the NMH Foundation

Poster No 19

NEONATAL ABSTINENCE SYNDROME: AN AUDIT OF PRESENTATIONS AND MANAGEMENT

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Background

Neonatal Abstinence Syndrome (NAS) encompasses a variety of clinical signs and symptoms, and is a result of withdrawals from exposure to opioids in-utero. Along with the risk of more long-term neurodevelopmental morbidity and mortality in those affected, it has also resulted in an increased burden on hospital resources due to prolonged treatment requirements and admissions for those affected. Our audit aims to review our own clinical practice over two separate two year time points, to ascertain if there has been improvements in our overall management of these cases by adhering to clear clinical guidelines.

Method

Retrospectively reviewed the numbers of neonates diagnosed with NAS in our hospital from January 2020 to December 2021 and compared with our number from 2014 to 2015 inclusive. Information was obtained through our hospital database, focusing on neonates with a confirmed diagnosis of NAS, prolonged admissions, and the treatments required.

Results

Our audit revealed an average rate of 0.193% of all live births between the years 2014 – 2015 receiving a confirmed NAS diagnosis, approximately 1 in every 518. In comparison, between 2020 and 2021 there was a rate of 0.177%, or 1 in every 565 births. Overall, this showed a slight decrease in the percentage of all neonates diagnosed with NAS between the two time periods. Further breakdown of our results also revealed a decrease in prolonged admissions in the years 2020/21 compared to 2014/15, with admissions lasting longer then 4 weeks dropping from 53.6% to 10.5% in all term infants diagnosed with NAS. There was also a decrease in the need for opioid medications in this same cohort, dropping from 78.6% to 36.8%.

Conclusion

These results reflect an overall improvement in both the early identification and focused management of this group of neonates, and would support the idea of ongoing use of clear guidelines in the future.

Poster No 20

ETIOLOGY, OUTCOME OF NEONATAL JAUNDICE IN WEXFORD GENERAL HOSPITAL FROM AUGUST 2021 TO AUGUST 2022, AND COMPLIANCE WITH LOCAL GUIDELINES

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Aim: Jaundice,hyperbilirubineamia refers to the yellow coloration of the skin caused by accumulation of bilirubin.It is common in newborns affecting between 60% of term and 80% of preterm infants.There are two types of jaundice, Pathological and Physiological [1][2].Current guidelines in Wexford General Hospital (WGH) includes serum bilirubin and DCT (Direct Coombs Test) within first 24 hours of life in infants with visible jaundice or risk factors and repeat SBR in 8hrs if recent levels are below 50mmol treatment line. The aim is to review the etiology and outcomes of neonatal jaundice(NNJ) admissions and whether compliance with local guidelines is achieved for effective treatment.

Methods: A retrospective review of medical records of infants who have had NNJ screening done between August2021 to August 2022. Data was analysed for all those babies. The data was categorised according to their aetiology, treatment and outcome.

Results: 14(0.8%) of total births were admitted in SCBU due to NNJ.10 (71%) were boys and 4(28%) were girls and 3(21%) were premature babies. The causes of neonatal jaundice were as follows; 10(71%) had physiological jaundice, 2(14%) had ABO incompatibility, 1(0.07%) had Rhesus incompatibility, 1(0.07%) had NNJ due to sub galeal hematoma.There were 2(0.1%)readmissions.

Conclusion: Care was successfully managed in WGH SCBU with no infants experiencing additional adverse outcomes relating to diagnosis or treatment. No infants required transfer to tertiary care hospital. Local guidelines support expert treatment in relation to NNJ. Evaluation of records demonstrated a high standard of care, significant adherence and implementation to guidelines exists within the hospital.

Poster No 21

OUTCOME OF BABIES BORN TO COVID-19 POSITIVE MOTHERS AT WEXFORD GENERAL HOSPITAL FROM 1ST JANUARY 2021 TO 7TH OCTOBER 2021

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Aim: To evaluate incidence of vertical transmission from Covid-19 positive mothers to their babies and access their morbidity and outcome.

Method: A retrospective review of medical records of mother who were positive at time of their delivery with Covid-19 was done at Wexford General Hospital. Medical notes of these babies were also analysed. Data was collected on their hospitalization, treatment and outcome.

Results: Total number of births for same period were 1319, and 5 (0.3% of total births) amongst these mothers had covid-19 positive at the time of birth. 1 of these 5 babies, born to covid positive mothers was a premature birth (20% of the incidence). None of these 5 (0% of total incidence), babies were found to be covid positive. 4 of them required no hospital admission. 1 premature baby was admitted to SCBU for prematurity according to guidelines of WGH but baby was tested covid negative and all cultures came out to be negative as well. Baby was discharged later and there were no additional adverse neonatal outcomes other than those related to preterm delivery.

Conclusion: Although covid-19 is prevalent in aged 25-44 , but no cases of vertical transmission were observed in our cohort of patients. None of the newborns was transferred to Special Care Baby Unit (SCBU) or Tertiary Care Hospital for Covid-19 related illness. Therefore we could not find any significant morbidity in babies born to Covid-19 positive mothers.

Poster No 22

PREVALENCE OF HYPOGLYCEMIA IN NEWBORNS AND ADHERENCE TO THE NEONATAL HYPOGLYCEMIA MANAGEMENT GUIDLINES AT WEXFORD GENERAL HOSPITAL.

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Aim:
Neonatal hypoglycemia is regarded as the most common metabolic problem in neonates, affecting 15% of infants. Despite the high incidence, there are no international consensus guidelines and limited evidence is available on the diagnosis and management of neonatal hypoglycemia. Neonatal hypoglycemia management guidelines were implemented in Wexford General Hospital (WGH) in April 2021 for the better management of neonatal hypoglycemia.The aim of this study is to assess the prevalence of hypoglycemia in newborns at WGH and adherence to the guidelines.

Method:
Data was collected including basic demographics, gestational age, causes of hypoglycemia, management and outcome of the newborn with documented hypoglycemia,and who were born from August 2021 to August 2022. A total of 21 newborns were included in this study.

Results:
The prevalence of neonatal hypoglycemia at WGH in this duration was 1.2%. The commonest cause of hypoglycemia was maternal diabetes in 66.7%(13/21) of cases. 38% (8/21)of babies were asymptomatic. 90.5%(19/21) of neonates received formula feed initially. 62% (13/21) of newborns developed persistent hypoglycemia, for those babies intravenous (I.V) bolus of Dextrose 10% (2ml/kg) was given in 100% (13/13) cases. However, blood glucose recheck after the bolus was attempted in 61.5%(8/13) of cases. Furthermore, maintenance Dextrose 10% was continued in 84%(11/13) of cases who received the bolus. Glucose infusion rate (GIR) was calculated in 15% (2/13) of cases. Monitoring was stopped when blood glucose was ≥3mmol for 24 hours in 38.4% (5/13) of cases.

Conclusion:
The prevalence of neonatal hypoglycemia at WGH washigh and the highest risk group for hypoglycemia werethe infants of diabetic mothers. Our compliance levels was found to be satisfactory for initial formula feed, I.V bolus and maintenance of Dextrose 10%. However, further improvement is required for the blood glucose recheck, GIR calculation and monitoring.

Poster No 23

UTILITY OF HIP XRAY DONE AT 6 MONTHS OF LIFE FOR DIAGNOSIS OF DEVELOPMENTAL DYSPLASIA OF HIPS

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Aim: Developmental Hip Dysplasia is general term for infantile hip instability, dislocation, or shallowness of hip socket. Current guidelines in Wexford General Hospital (WGH) include an x-ray of the hips at 6 months of life as part of screening for DDH. Selection criteria for screening includes positive family history in first degree relatives, breech presentation, unstable lie after 36 weeks of gestation or positive exam. Hip x-ray is done in conjunction with an ultrasound of the hips at 6 weeks of life in Waterford Hospital. The aim is to review the incidence of DDH and of alternate x-ray finding that may require follow-up.

Methods: Children were identified who have had hip x-ray done between October 2020 to December 2020, and categorised according to their risk factors. Reviewed each x-ray report and noted the findings, and reviewed the follow-up and management in each case.

Results: 95 patients were advised to have x-ray at 6 months. Out of these 95 patients, 77 attended WGH. There were 16 cancelled appointments, of which 07 did not attend, 08 attended in another hospital and 01 rescheduled. Furthermore, of those who had their x-ray in WGH, 55 were girls and 45 boys and 38 had a positive family history. Moreover, there was only 1 case diagnosed of DDH with normal hip ultrasound and 13 were advised a follow up x-ray in 3 months.

Conclusion: Hence we can conclude that hip ray has significant role in diagnosis of DDH and other ossification abnormalities in infants with risk factors.

Poster No 24

PARENTS' UNDERSTANDING AND EXPECTATIONS OF BLOOD TRANSFUSIONS IN NICU

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Background:
Blood component transfusion, occurring commonly in NICU, is a high risk activity. Parents make decisions for their babies in NICU. There is limited research into parents understanding and experiences of blood component transfusion in NICU. Decision-making around blood transfusion has been identified as being an area of NICU decision making that is important to parents. Information provided to parents on blood transfusion has not been assessed by parents.

Objectives: The aim of this study was to explore parents' understandings and experiences of blood transfusion in the neonatal unit.

Methods: A 'low-inference' design of this qualitative descriptive semi-structured interview-based study was chosen. Informed consent was obtained and confirmed. Interviews were held in-person or via video-link, audio-recorded and transcribed. Grounded theory was used to analyse the interviews, using inductive thematic analysis. NVivo (QSR International, MA, USA) was used to record codes. As data collection continued, codes were combined and refined and themes were identified.

Results:
Seventeen parents of fourteen babies took part in 11 interviews, between February 2021 and March 2022. Interviews lasted between 06:35 and 25:11 (median 18:25). Four babies were born at term, ten babies were preterm. Two babies died in NICU.
The main themes elicited by the interviews were parents' expectations and outcomes of transfusion, parents' prior and current opinions of transfusion, parents trust in healthcare professionals and how parents would like to be able to get information about transfusions in the NICU.

Conclusion: Parents in our study trust information from the healthcare professionals caring for their baby, and would like more specific information about how blood transfusion will impact their baby, in a variety of means. Parents felt that blood transfusions were beneficial for their babies in NICU. These findings can be used to improve information provision to parents about blood transfusion in NICU.

Poster No 25

A NATIONAL REVIEW OF JAUNDICE MANAGEMENT IN THE REPUBLIC OF IRELAND

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Background:

Jaundice describes yellow discolouration of the skin and sclerae due to elevated serum bilirubin (SBR). Kernicterus describes encephalopathy resulting from very high SBR levels. Near term infants with serum SBR values >425 umol/L are widely considered to be at highest risk of neurotoxicity.

Despite the availability of clinical guidelines for risk assessment and treatment of jaundice, we believe there is wide variation in practice across the Republic of Ireland (ROI). We surveyed jaundice management practices across all maternity units in the ROI, and audited our own management in the Rotunda Hospital (RH).

Methods:

We designed a questionnaire to assess local jaundice management practices in each maternity unit. Questions were based on clinically relevant aspects of the NICE and American Academy of Paediatrics guidelines for neonatal jaundice.

We assessed the efficacy of our own jaundice management practices in RH by auditing levels of severe hyperbilirubinaemia in near term infants. We conducted a retrospective audit on all infants >/= 35 weeks and >/= 2.5kg who had at least 1 SBR measurement in the years 2020 and 2021.

Results:

All 19 units responded to our clinical questionnaire. Early discharge (<48 hours) occurs in 12 units (63%). 6 units universally screen all babies with TCB (32%) while 12 units only do so if clinically jaundiced (83%). 12 units follow up <5% of their babies for jaundice monitoring after discharge (67%), lower than would have been expected for optimal jaundice management.

An audit of our SBR measurements show our jaundice management practices are identifying the vast majority of at risk infants before 24 hours of life.

Conclusion:

Our survey responses show a high degree of variability in jaundice management practices around the country. In particular, as maternity units trend towards early discharge, we need to develop systems to risk stratify and monitor jaundice in the out-patient setting.

Poster No 26

ANTENATAL COUNSELLING IN PREMATURITY; PARENT AND PRACTITIONER PERSPECTIVES'

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Background: In the setting of preterm birth, antenatal counselling (ANC) is provided to parents by neonatologists. The content of ANC and training doctors receive may vary. We aimed to understand parental and healthcare practitioners' (HCPs) perception of ANC and the information they each deem important.

Methods: An anonymous cross-sectional survey was carried out over a 12-month period. Parents of preterm infants (delivered <33 weeks gestation) and neonatal HCPs were invited to participate.

Results: Sixty survey responses were obtained (27 parents and 33 HCPs).
16 (59%) parents had received ANC but 44% reported receiving too little information. All wanted their partner present for ANC and 26 (96%) wanted written information to accompany the consult (46% leaflet, 15% link to website, 38% both). 16 (59%) would have liked to visit NICU before delivery. 10 (37%) parents searched Google for information on prematurity. Parents requested that brief information on preterm birth be provided during antenatal classes or a leaflet early in pregnancy. Only 4 (17%) received antenatal breastfeeding support, although all would have liked it. Mothers ranked an individual session with a lactation consultant highest, followed by a group session for mothers of preterm infants, and an information video. Practical breastfeeding support on postnatal Day 1 was most commonly provided by midwives in delivery suite and postnatal wards, followed by lactation consultants and family members.
No HCP had received formal ANC training; 24 (73%) learned by shadowing senior clinicians. More experienced HCPs had greater confidence providing ANC to extremely preterm infants ($p<0.01$). For survival and neuro-disability outcomes, several data sources were used, although most HCPs do not give exact figures (53-57%). 31 (97%) HCPs would avail of ANC training, if provided.
Parents and practitioners rated the importance of survival, disability and breast feeding information similarly. However, parents rated practical information (infant clothing, holding baby, visiting policies and breast milk alternatives) more highly than HCPs.

Conclusion: We should strive to provide ANC to both parents, supported by additional written information. To optimise the availability of breast milk, mothers must be supported ante- and postnatally. Practitioners should receive training in ANC, informed by current neonatal outcome data and parental perspectives.

Poster No 27

DIAGNOSTIC UTILITY OF FULL BLOOD COUNT SCREENING IN NEONATES BORN TO MOTHERS WITH MODERATE-SEVERE THROMBOCYTOPENIA

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Aim: Thrombocytopenia during pregnancy is a relatively common issue however how it relates to neonatal thrombocytopenia is poorly described to date.
The study performed focuses on the screening of neonates born to thrombocytopenic mothers (<100 X 10^9/L) to establish which neonates warrant early FBC (Full blood count) screening for thrombocytopenia

Methods: For this research we identified 557 maternity records who had thrombocytopenia identified by FBC as well as the 337 associated newborns charts from 2018 to 2022.
The inclusion criteria consisted of a maternal platelet count <100 X 10^9/L prior to delivery and during present gestation.
The exclusion criteria consisted of any thrombocytopenia that occurred outside of pregnancy or in the post-partum period.
Receiver operator characteristic (ROC) curves were generated using the 'pROC' statistical package on R and Area under the Curve (AUC) examined. Coordinates of the "best" fit model were examined using the 'pROC' statistical package.

Results: 16 neonates were identified with clinically significant thrombocytopenia (Platelet count <100X10^9/L). A total of 550 FBCs were taken in neonates of mothers with thrombocytopenia with a total of 78 tests to identify infants requiring treatment and a total of 183 tests for clinically significant hemorrhage.
The coordinates of the best platelet count threshold for this dataset were then derived from the ROC curve and determined that a threshold of 78 x10^9/L maternal platelets offered the best sensitivity (74%) and specificity (68%) in this cohort.

Conclusion:
Screening FBCs based on maternal platelet counts <100X10^9/L have a poor diagnostic yield and accuracy.

Poster No 28

THYROID DYSFUNCTION OF PRETERM NEONATES: A SYSTEMATIC REVIEW OF SCREENING AND MANAGEMENT

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Background: Preterm infants are at high risk of thyroid dysfunction and its detrimental sequelae. Despite available guidelines, timing of screening and optimal treatment of premature neonates remains controversial. Thus, the aim of this paper was to review the literature of thyroid dysfunction in preterm neonates related to current screening and management.
Method: In a systematic review in accordance with the PRISMA statement the following keywords were searched: ("thyroid dysfunction" OR "hypothyroidism" OR "congenital hypothyroidism" OR "cretinism" or "thyroid disease") AND ("preterm neonates" OR " preterm infants'' OR "premature") AND ("screening" OR "investigation" OR "testing") AND ("therapy" OR "medication" OR "replacement" OR "treatment" OR "levothyroxine" OR "management") in international electronic databases Medline OVID, Embase, Cochrane and PubMed. All eligible studies were read in full, and the suitability of each study was assessed. The resulting dataset related exclusively to the screening or management of thyroid dysfunction in preterm neonates.
Results: In this review, 848 studies were initially found from the 4 international electronic databases. Of the 163 studies screened for eligibility, 34 were included [20 studies related to screening; 14 studies related to management]. From the reviewed articles pertaining to screening, a minimum repeat screen at 2 weeks after birth was supported, with some studies calling for repeat screening at 2 weeks, 4 weeks, discharge and/or when neonatal weight exceeds 1500g. Thyroid Stimulating Hormone (TSH) and Thyroxine (T4) [and/or free T4] in combination are recommended to test for thyroid dysfunction to improve diagnostic specificity. Management with levothyroxine is recommended for the treatment of congenital hypothyroidism. However, inconsistencies persist across current practice in relation to dosing, timing and duration of treatment with levothyroxine.
Conclusion: There is a requirement for further research in this area with potential to develop standardised screening and management guidelines for thyroid dysfunction in preterm neonates.

Poster No 29

PREVELANCE OF HYPOGLYCAEMIA IN NEWBORNS AND ADHERENCE TO NEONATAL HYPOGLYCAEMIA MANAGEMENT GUIDELINES AT WEXFORD GENERAL HOSPITAL IN 2022

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Aim: Neonatal hypoglycemia is regarded as the most common metabolic problem in neonates, affecting 15% of infants. Despite the high incidence, there is no international consensus and limited evidence on the diagnosis and management of neonatal hypoglycemia. The aim of this study is to assess the adherence of the staff in special care baby unit to the agreed upon unit's protocol in the management of the neonatal hypoglycemia.

Method: This is the first cycle of cross sectional quality improvement study conducted in August 2022.The unit's protocol was followed for the management of asymptomatic as well as symptomatic hypoglycemia in 21 neonates.

Results: the major causes of neonatal hypoglycemia were maternal diabetes (IDM) which constituted 66.7% of cases , followed by poor feeding in 38.1% of the newborns. The commonest symptom of hypoglycemia was the poor feeding, seen in 42.9%, followed by jitteriness and being asymptomatic in 38% each. 90.5% of hypoglycemic neonates received formula feed initially, Furthermore temperature was checked in 95.2% of those neonate. For neonate with persistent hypoglycemia I.V access and D10% bolus (2ml/kg) was given in 100% of those babies. Maintenance D10% was continued in 84% of babies who received the bolus. However, GIR was calculated only in 15% of infants record.

Conclusion: the highest risk group for hypoglycemia are infant of diabetic mothers. Our compliance levels with local guideline was found to be satisfactory. However more improvement can be done through workshops and seminars.

Poster No 30

BENIGN MULTIFOCAL CONGENITAL CUTANEOUS HEMANGIOMA INITIALLY THOUGHT TO BE MALIGNANT BLUEBERRY MUFFIN LESION : A CASE REPORT

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Background:

Blueberry muffin lesions are commonly associated with multiple conditions including toxoplasmosis, cytomegalovirus, and rubella. In this case, a term male neonate presented with multiple blueberry muffin lesions, largest on the right foot. A diagnosis of multifocal congenital hemangiomas was revealed after multiple investigations in a tertiary paediatrics hospital. Multifocal congenital hemangioma is described as a rare vascular tumor which appears during neonatal period and usually present at birth.

Case Report:

A term male neonate was noticed to have multiple purplish to black raised lesions throughout the body including a large right foot lesion after delivery in a secondary hospital. There was no dysmorphism and other systemic examination was normal. A mixed solid/cystic avascular mass was seen on the right foot antenatally and mother was reviewed in a tertiary maternity hospital and was advised to be delivered locally.

At birth, initial impression of lesions both locally and tertiary care was of untreatable malignant lesion. The baby was admitted to tertiary hospital on day two of life for six weeks and multiple investigations were performed which revealed diagnosis of benign multifocal congenital hemangiomas. He had lesions on the lungs, pancreas and brain which are presumed to be congenital hemangioma. Multiple specialities were involved in the care and have decided to continue observing the lesions clinically as some of them were involuting. Follow up plan is for a repeat Chest X ray and CT scan in 3-6 months. Currently, he is thriving well and there are no new lesions.

Conclusion:

Prompt recognition and diagnosis of these blueberry muffin lesions are important to prevent potential complications. This report shows the importance of a detailed neonatal examination and importance of multidisciplinary management of patients with these rare and complex conditions.

Poster No 31

PARENTAL PERCEPTIONS OF NEONATAL CLINICAL RESEARCH: A SYSTEMATIC REVIEW

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Preferred presentation type; Oral presentation
Category; Neonatology

Abstract

Background: Clinical research is integral to developing new therapies for the vulnerable neonatal population. There is an extensive range of factors influencing parental perceptions of neonatal clinical research. An appraisal of these factors may aid researchers to better recruit participants. This systematic review aimed to explore parental attitudes and opinions of conduction of clinical research in their neonates.

Methods: A search strategy was generated in collaboration with an experienced medical librarian. This strategy was subsequently applied to the Embase, MedLine, Web of Science, and CINAHL databases. Data was extracted and screened according to
PRISMA guidelines.

Results: Our search yielded 21 papers from over 1250 parents across multiple geographic areas. Three primary themes of parental perceptions towards clinical research were identified, namely outcomes of research, parental expectations, and barriers/difficulties. The key motivators of parental participation included perceived personal gain, contribution to scientific knowledge, altruism, and increased family support from the healthcare team. We also identified some major barriers to research involvement, such as overwhelming participation burden, high levels of emotional distress, poorly timed enrolment discussions, and poor comprehension and retention of pertinent information.

Conclusion: A variety of factors exist which influence parental perceptions of paediatric research, ranging from personal concerns and clinician influences, to circumstantial difficulties and societal impacts. The continued acknowledgement of these parental concerns, and the empowerment of families to make informed decisions, can only serve to improve clinical research outcomes.