ABSTRACT TITLE, Number, Presenting Author & Institution

Abstract Title*:	**The association between Maternity Adiposity and offspring Neonatal Jaundice requiring Phototherapy, and the impact of this Exposure on Offspring Adiposity and Metabolic Health**
Abstract Reference No.:	OP-1
Presenting Author:	Bay Jia Wei
Institution:	NUS Yong Loo Lin School of Medicine

Abstract Title*:	**Paediatric Case Series on Short Term Peripheral Intravenous Catheter-Associated Bacteraemia**
Abstract Reference No.:	OP-2
Presenting Author:	Tan Wei Ern, Jonathan
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Risk-specific Glucose Profiles of Healthy Infants At-risk of Hypoglycemia in Singapore: The GLEAN Study**
Abstract Reference No.:	OP-3
Presenting Author:	Ma Eric
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Quantitative Analysis Of Left Ventricular Energetic Performance By Vector flow Mapping In Children Receiving Anthracycline Chemotherapy**
Abstract Reference No.:	OP-4
Presenting Author:	Tan Varen
Institution:	NUS Yong Loo Lin School of Medicine

Abstract Title*:	**Do not miss the Multisystem Inflammatory Syndrome in Neonates (MIS-N): a systematic review**
Abstract Reference No.:	OP-6
Presenting Author:	Muthiah Divya
Institution:	National University Hospital

Abstract Title*:	**Emotional journey of Asian mothers of premature infants who received pasteurised donor human milk: a qualitative study**
Abstract Reference No.:	OP-7
Presenting Author:	Loh Hui Fang
Institution:	National University Hospital

Abstract Title*:	**Gut dysbiosis in mothers with gestational diabetes mellitus impacts early life microbiome of neonates**
Abstract Reference No.:	OP-8
Presenting Author:	Gupta Abhishek
Institution:	National University of Singapore

Abstract Title*:	**Reactogenicity of mRNA and non-mRNA based COVID-19 Vaccines among lactating mother and child dyads**
Abstract Reference No.:	OP-9
Presenting Author:	Low Jia Ming
Institution:	National University Hospital

Abstract Title*:	**Feasibility of naso-oropharyngeal saliva sampling for Coronavirus Disease 2019 testing in school-aged children**
Abstract Reference No.:	P-01
Presenting Author:	Koh Chee Teck
Institution:	National University Hospital

Abstract Title*:	**Botulinum Toxin Type A Therapy in Non-Cerebral Palsy Paediatric Patients: A Single Centre Experience**
Abstract Reference No.:	P-02
Presenting Author:	Huang Huixin
Institution:	National University Hospital

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Abstract Title*:	**The Incidence, risk factors and respiratory outcome in Bronchopulmonary Dysplasia associated pulmonary hypertension in extreme premature infants.**
Abstract Reference No.:	P-03
Presenting Author:	Khoo Joyce May Lyn
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Quality of Life of Patients and Caregivers Affected by Bronchopulmonary Dysplasia: A Systematic Review**
Abstract Reference No.:	P-04
Presenting Author:	Lee Deborah
Institution:	Lee Kong Chian School of Medicine

Abstract Title*:	**Experiences of Healthcare Personnel with Death in the Neonatal Intensive Care Unit: A Systematic Review of Qualitative Studies**
Abstract Reference No.:	P-05
Presenting Author:	Ng Yvonne Peng Mei
Institution:	National University Hospital

Abstract Title*:	**Identifying the Best Discriminating Signs of Autism Spectrum Disorder (ASD) in High-Risk Siblings in Singapore**
Abstract Reference No.:	P-06
Presenting Author:	Wong Chui Mae
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Developing a blended-learning orientation programme for new medical officers in the department of Neonatology**
Abstract Reference No.:	P-07
Presenting Author:	Tong Wing Yee
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Prevalence and Associated Risk Factors of Psychological Distress in Adult Childhood Cancer Survivors in Singapore**
Abstract Reference No.:	P-08
Presenting Author:	Wong Bryan
Institution:	NUS Yong Loo Lin School of Medicine

Abstract Title*:	**Birth anthropometry among three Asian ethnic groups in Singapore – new growth charts**
Abstract Reference No.:	P-09
Presenting Author:	Kader Khadijah
Institution:	National University Hospital

Abstract Title*:	**Placental Histopathology Changes do not Predict the Risk of Bronchopulmonary Dysplasia- associated Pulmonary Hypertension**
Abstract Reference No.:	P-10
Presenting Author:	Tan Hui Shan, Valerie
Institution:	Lee Kong Chian School of Medicine

Abstract Title*:	**Post-partum lifestyle RCT of GDM women with wearables – Anthropometric changes of initial participants**
Abstract Reference No.:	P-11
Presenting Author:	Nagajothi Rubanandhini
Institution:	Lee Kong Chian School of Medicine

Abstract Title*:	**Movement behaviours across six countries in the Asia Pacific**
Abstract Reference No.:	P-12
Presenting Author:	Quah Phaik Ling
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Paediatric Invasive Meningococcal Disease in Singapore**
Abstract Reference No.:	P-13
Presenting Author:	Shetty Shanti Shridhar
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Knowledge, Attitudes and Practices of Healthcare Professionals on neonatal ankyloglossia: A cross-sectional study**
Abstract Reference No.:	P-14
Presenting Author:	Goh Li Ting
Institution:	National University Hospital

Abstract Title*:	**X-linked myotubular myopathy in a family of two infant siblings with a novel MTM1 mutation: A case report**
Abstract Reference No.:	P-15
Presenting Author:	Koe Amelia Suan-Lin
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Congenital Pulmonary Lymphangiectasia in infants:12 years' experience**
Abstract Reference No.:	P-16
Presenting Author:	Bajaj Japna Kaur
Institution:	KK Women's and Children's Hospital
Abstract Title*:	**Validation of a smartphone-based screening tool (Biliscan) for neonatal jaundice in a multi-ethnic neonatal population**
Abstract Reference No.:	P-17
Presenting Author:	Ngeow Alvin
Institution:	Singapore General Hospital

Abstract Title*:	**Congenital carnitine palmitoyltransferase II deficiency: A rare lethal form of inherited metabolic disorder**
Abstract Reference No.:	P-18
Presenting Author:	Tan Yee Yin
Institution:	KK Women's and Children's Hospital
Abstract Title*:	**Changes in patient-reported outcomes from pregnancy to six months post-delivery- a study involving first-time mothers in Singapore**
Abstract Reference No.:	P-19
Presenting Author:	Chay Oh Moh
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Echocardiographic findings in Bronchopulmonary Dysplasia Associated Pulmonary Hypertension and response to Sildenafil in Extreme Premature Infants. A single centre**
Abstract Reference No.:	P-20
Presenting Author:	Gopagondanahalli Krishna Revanna
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Review of knowledge, attitude and practices of delayed cord clamping in KK Hospital**
Abstract Reference No.:	P-21
Presenting Author:	Skanthakumar Abhirami
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**A Qualitative Study of Perinatal Drug Abuse in Singapore**
Abstract Reference No.:	P-22
Presenting Author:	Lee Wai Kheong Ryan
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Liver Transplantation in Maple Syrup Urine Disease: The Singapore Experience**
Abstract Reference No.:	P-23
Presenting Author:	Chua Chui Wei, Mae
Institution:	National University Hospital
Abstract Title*:	**Nurse providers' perspectives on the nurse-led inpatient paediatric care service in Singapore: enablers and challenges to implementation**
Abstract Reference No.:	P-24
Presenting Author:	Wang Cybil
Institution:	National University Hospital
Abstract Title*:	**Severe Bronchopulmonary dysplasia in very low birthweight infants- What could be done for prevention?**
Abstract Reference No.:	P-25
Presenting Author:	Tan Jaime Maria
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**HELPing NICU Babies Reach Home**
Abstract Reference No.:	P-26
Presenting Author:	Zhang Suhe
Institution:	National University Hospital

Abstract Title*:	**Clinical Efficacy of Early vs. Late Paracetamol Therapy for Hemodynamically Significant Patent Ductus Arteriosus in Very Low Birth Weight Infants**
Abstract Reference No.:	P-27
Presenting Author:	Khoo Joyce May Lyn
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Percutaneous Pigtail Catheters for Management of Neonatal Pneumothorax: A Better Alternative to Chest Tube Thoracostomy**
Abstract Reference No.:	P-28
Presenting Author:	Goh Marlene Samantha Sze Minn
Institution:	KK Women's and Children's Hospital
Abstract Title*:	**Acute Aortic Thrombus Following Umbilical Artery Catheterization in Extreme Low Birth Weight Infant - Walking the tight rope of management**
Abstract Reference No.:	P-29
Presenting Author:	Ooi Boon Siew
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Random Safety Audits in the Neonatal Unit**
Abstract Reference No.:	P-30
Presenting Author:	G Krishnan Sandhya
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Project GROFeeds: Gastric Residual volume Omission for Feeds in premature infants**
Abstract Reference No.:	P-31
Presenting Author:	Ng Tien Shu Sheena
Institution:	KK Women's and Children's Hospital
Abstract Title*:	**Diazoxide hypersensitivity in a hyperinsulinemic hypoglycemic neonate with a novel HNF1A-MODY gene mutation**
Abstract Reference No.:	P-32
Presenting Author:	Verma Deepti
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Drug abuse during pregnancy and its effects on the child - A literature review on commonly abused drugs**
Abstract Reference No.:	P-33
Presenting Author:	Leow Yumei Cynthia
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Recurrent hypoglycemia in preterm and small-for-gestational-age infants: "A transitional glycogen storage disorder," not hyperinsulinism**
Abstract Reference No.:	P-34
Presenting Author:	Skanthakumar Abhirami
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Preparation and consideration for establishment of an isolation maternity unit in a tertiary hospital during COVID-19 pandemic**
Abstract Reference No.:	P-35
Presenting Author:	Ngeow Alvin
Institution:	Singapore General Hospital

Abstract Title*:	**Congenital palatal teratoma leading to neonatal airway obstruction: A case report**
Abstract Reference No.:	P-36
Presenting Author:	Vora Shrenik Jitendrakumar
Institution:	KK Women's and Children's Hospital

Abstract Title*:	**Trends in Parenting Self-efficacy in First-Time Mothers in Singapore – Interim Analysis**
Abstract Reference No.:	P-37
Presenting Author:	Chay Oh Moh
Institution:	KK Women's and Children's Hospital

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	The association between Maternity Adiposity and offspring Neonatal Jaundice requiring Phototherapy, and the impact of this Exposure on Offspring Adiposity and Metabolic Health
Abstract Reference No.:	OP-1

AUTHORS DETAILS	
Presenting Author:	Bay Jia Wei
Institution:	NUS Yong Loo Lin School of Medicine

ABSTRACT DETAILS

Background

Neonatal jaundice (NNJ) is a common phenomenon with high prevalence in Asian children. Recent studies have highlighted the role of bilirubin in modulating chronic inflammation in obesity and metabolic syndrome. The U.S. Collaborative Perinatal Project (1959-1976) data suggested that NNJ was protective against childhood obesity at 7 years, but this has not been replicated. Additionally, the impact of maternal adiposity on NNJ risk remains unclear.

Aims

To evaluate the association between maternal adiposity and the risk of NNJ requiring phototherapy (NNJ-P) in offspring, and the association between NNJ-P and childhood adiposity-metabolic health.

Methods

Anthropometric data from 1129 mother-offspring dyads of the Singapore GUSTO cohort were analyzed against the main variable of NNJ-P. Multivariable linear and logistic regression analyses were performed.

Results

Univariate regression analyses on maternal factors showed that older maternal age, higher pre-pregnancy weight, maternal height and midarm circumference and diagnosis of gestational diabetes mellitus were significantly associated with NNJ-P. Higher peak bilirubin in offspring were also significant associated with maternal total gestational weight gain (GWG) (p=0.022) and rate of GWG (p=0.026). The child-factors associated with NNJ-P included lower gestational age, lower birth weight and assisted delivery or C-section. In the multivariate model developed using the stepwise variable selection, NNJ-P was associated with lower gestational age odds ratio (OR) 0.597 (95%CI 0.508-0.703), assisted delivery OR 2.596 (95%CI 1.309-5.148), C-section OR 1.744 (95CI 1.162-2.617), maternal height OR 1.038 (95CI 1.001-1.076), but not with maternal BMI, weight, GWG or other measures of adiposity. In terms of the impact of NNJ-P on subsequent child anthropometry, our study did not find significant associations on child BMI, weight, abdominal/midarm circumference, skinfold thicknesses, fat mass, blood pressure, fasting glucose between ages 1 to 8 years. NNJ-P was also not associated with rapid post-natal weight/ BMI gain.

Conclusion:

Maternal adiposity and GWG may have subtle effects on NNJ-P and peak bilirubin in offspring but NNJ-P did not have an impact on child adiposity and metabolic parameters.

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Enhancing Multidisciplinary Care of Mothers & Children through Collaborative Models & Innovations

ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Paediatric Case Series on Short Term Peripheral Intravenous Catheter-Associated Bacteraemia
Abstract Reference No.:	OP-2

AUTHORS DETAILS	
Presenting Author:	Tan Wei Ern, Jonathan
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Peripheral intravenous catheter-associated (PIVC-associated) bacteraemia is defined as concordant bacterial species grown in both bloodstream and pus and/or tissue surrounding the catheter site. While uncommon, it leads to significant morbidity and mortality. Risk factors and complications of PIVC bacteraemia have been documented in adult populations, but reports are limited in children.

Objectives

To identify risk factors and complications in patients with bacteraemia arising from short-term peripheral intravenous catheter (PIVC) in a tertiary paediatric hospital.

Methods

Patients with bacteraemia arising from PIVC admitted between January 2009 to March 2021 were identified from the KK Women's and Children's Hospital Infectious Disease registry. Demographic data, risk factors, pathogens, complications, and outcomes were collected.

Results

Six patients had bacteraemia associated with PIVC. The median age of the patients was 23.9 months (IQR=13.4-37.2 months). Indications for insertion of PIVC were intravenous hydration (n=4, 67%), anti-epileptic medication (n=1, 16.7%), and anticipation for resuscitation (n=1, 16.7%). The median duration of cannula in-situ was 4 days (IQR=2-7 days). Cannula anatomical location included dorsum of the foot (n=3, 50%), cubital fossa (n=2, 33.3%) and ankle (n=1, 16.7%). PIVC was inserted in the emergency department in 4 patients (67.7%). The most common sign of thrombophlebitis preceding PIVC removal was erythema (n=6, 100%) followed by soft tissue swelling (n=4, 67.7%). Blood cultures grew methicillin-sensitive Staphylococcus aureus (MSSA) (n=3, 50%), methicillin-resistant Staphylococcus aureus (n=2, 33.3%) and Pseudomonas aeruginosa (n=1, 16.7%). The most severe complication was MSSA infective endocarditis resulting in residual tricuspid regurgitation, right hip osteomyelitis. Four patients (67.7%) had PIVC site abscess requiring incision and drainage. All patients survived, and the median length of stay was 20 days (IQR=15-55 days).

Conclusions

PIVC-associated bacteraemia can cause significant morbidity. Regular monitoring of PIVC sites should be performed, and PIVCs should be removed immediately if unused or when signs of thrombophlebitis are detected.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Risk-specific Glucose Profiles of Healthy Infants At-risk of Hypoglycemia in Singapore: The GLEAN Study
Abstract Reference No.:	OP-3

AUTHORS DETAILS	
Presenting Author:	Ma Eric
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Normal glucose profiles among healthy babies are achieved by 24-48 hours of life. These norms do not apply to at-risk babies who are typically unable to mobilize blood ketones due to hyperinsulinism. Given the potential adverse impact of neonatal hypoglycaemia on neurocognitive development, clinical pathways are used to identify and treat hypoglycemia.

Objective

The purpose of the study was to determine the risk-specific glucose profiles of infants at-risk of hypoglycemia and the incidence of hypoglycemia for each at-risk infant group.

Methods

Data were collected from 2431 infants born 16 December 2019 to 16 March 2020, at KK Women's and Children's Hospital, Singapore. Of these, 795 infants were enrolled and 678 healthy infants with ⩾1 risk factor and 3390 glucose readings were analyzed. At-risk classification: (a) infants of diabetic mothers (IDM) - pre-existing or gestational diabetes, (b) small-for-gestational-age (SGA), (c) large-for-gestational-age (LGA), (d) preterm (PT) - 35 to 36+6 weeks gestation, (e) infants of obese mothers (IOM) - BMI>33kg/m2 or weight >85kg.

Results

There were 50.3% IDM, 26.1% SGA, 6.9% LGA, 16.8% PT and 23.0% IOM. Altogether, 545 babies had single risk factors (34.5% IDM, 18.6% SGA, 2.9% LGA, 12.1% PT and 12.2% IOM); while 133 babies had combined risk (> 1 risk factors). Mean glucose trajectories were similar among IDM, SGA, and PT babies, but significantly lower among LGA and IOM at 6- and 12-hours. Incidence of hypoglycemia per 100 healthy at-risk infants were 18.3, 15.7, 15.0, 13.4, 12.8 and 5.0 in SGA, IOM, combined risk, PT, IDM and LGA babies, respectively.

Conclusion

Glucose profiles and incidence of hypoglycemia differed among at-risk groups. Having combined risk factors did not increase hypoglycemia risk. IOM should be considered at-risk, given their lower glucose trajectory and higher hypoglycemia incidence than IDM. Stratification can improve understanding and consequently glucose management of at-risk babies.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Quantitative Analysis Of Left Ventricular Energetic Performance By Vector flow Mapping In Children Receiving Anthracycline Chemotherapy
Abstract Reference No.:	OP-4

AUTHORS DETAILS	
Presenting Author:	Tan Varen
Institution:	NUS Yong Loo Lin School of Medicine

ABSTRACT DETAILS

Background

Anthracycline-induced cardiotoxicity is the leading non-oncological cause of mortality in childhood cancer survivors (CCS). Vector flow mapping (VFM) is a novel echocardiographic modality which quantitatively assesses left ventricular (LV) energetic performance as markers of adverse cardiac remodelling and function.

Objectives

This study evaluated the performance of VFM against conventional 2-Dimensional (2D) echocardiographic parameters and cardiac biomarkers. It also observed disease progression of cardiotoxicity through the longitudinal evaluation for cardiac remodelling and dysfunction.

Methods

This was a single-centre, prospective quantitative serial study of 50 previously normal children [LV ejection fraction (EF) > 55%] whose planned chemotherapy regime involved anthracyclines at a tertiary paediatric oncology centre from 2019-2021. Echocardiographic parameters investigated from 269 echocardiograms included M-Mode, standard 2D, tissue Doppler imaging, and speckle-tracking echocardiography, with high sensitivity assay for troponin-T (hs-TnT) and N-terminal of pro-B-type natriuretic peptide (NT-proBNP) as biomarkers. VFM parameters included intracardiac vortex energetic parameters, energy loss (EL) and intraventricular pressure difference (IVPD). The mixed model for repeated measures was utilised for statistical analysis.

Results

20 (40.0%) patients developed cardiotoxicity (LVEF <53%) and 21 (42.0%) cardiac remodelling (>15% global longitudinal strain reduction from baseline) with a mean cumulative doxorubicin dose (CDD) of 152.29 mg/m2. The mortality rate was 6.0% (n=3/50). Persistence of cardiotoxicity after chemotherapy was observed through markers of LV systolic function (LVEF and LV GLS); and hsTnT demonstrated a positive correlation with CDD during treatment. Vortex circulation and area demonstrated a positive correlation with CDD during chemotherapy, whilst indexed EL was negatively related with CDD after treatment conclusion. Systolic and diastolic dysfunction were demonstrated through IVPD during ejection and isovolumic relaxation respectively during chemotherapy.

Conclusions

Our study reaffirms the presence of progressive LV dysfunction with increasing cumulative anthracycline doses even after treatment. Our findings suggest a potential role for the assessment of LV energetics and IVPD using VFM in paediatric anthracycline cardiotoxicity.

Keywords:

Energy Loss, Echocardiography, Cardio-oncology, Intraventricular Pressure Difference, Vortex, Relative Pressure Imaging

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Do not miss the Multisystem Inflammatory Syndrome in Neonates (MIS-N): a systematic review
Abstract Reference No.:	OP-6

AUTHORS DETAILS	
Presenting Author:	Muthiah Divya
Institution:	National University Hospital

ABSTRACT DETAILS

Background

With the global spread of severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) infection, there have been an increasing number of cases of Neonatal Multisystem Inflammatory Syndrome (MIS-N) secondary to maternal SARS-CoV-2 infection during pregnancy being reported worldwide. MIS-N is defined as an inflammatory syndrome following SARS-CoV-2 infection, with severe illness requiring hospitalisation and two or more organ system involvement, in the absence of alternative diagnoses. MIS-N is a phenomenon that is still relatively new and a more thorough understanding by collating and studying current literature would help improve outcomes in the future.

Objective

Summarise evidence on features and outcomes of neonates who develop MIS-N.

Methods

Systematic review of studies published from 1 December 2019 to 22 March 2022 without study design restrictions was done. Data were sourced from PubMed, MEDLINE, Embase, CNKI and WHO COVID-19 database. Search was also performed through reviewing references of selected articles, Google Scholar and preprint servers. Studies that summarised clinical outcomes of MIS-N in neonates were included.

Results

Individual participant data from 47 neonates (15 studies) were extracted and re-pooled. 85% (40/47) were Indian. The median age of presentation was 2 days (SD±2.21) and days from initial maternal infection was 43 (SD±8.46). 64% (30/47) presented with respiratory distress; 70% (33/47) had cardiac involvement such as ventricular dysfunction, coronary artery anomalies and atrioventricular blocks. 64% (30/47) stated critical care requirement; 55% (26/47) needed inotropes, 45% (21/47) required mechanical ventilation and 82% (41/47) received immunomodulatory therapy. Arrhythmias and thrombosis were reported in 28% (13/47). 91.5% (43/47) recovered; 8.5% (4/47) died.

Conclusion

MIS-N presents with varied clinical manifestations with multi-system involvement with about ⅔ presenting with cardiorespiratory dysfunction. MIS-N requires a strong degree of suspicion and should be considered in neonates presenting with 2 or more system involvement, in the presence of SARS-CoV-2 antibodies, once other common neonatal conditions have been excluded.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Emotional journey of Asian mothers of premature infants who received pasteurised donor human milk: a qualitative study
Abstract Reference No.:	OP-7

AUTHORS DETAILS	
Presenting Author:	Loh Hui Fang
Institution:	National University Hospital

ABSTRACT DETAILS

Background

Donor human milk (DHM) is recommended to improve the health outcomes of sick and premature infants, when milk from their biological mother is unavailable or insufficient. Singapore's first and only human milk bank was established since August 2017, but little is known about mothers' experiences using DHM.

Objective

To explore the emotional experience of multi-racial Asian mothers receiving DHM for their premature infants.

Methods

This qualitative descriptive study was conducted in the Neonatal Intensive Care Unit of a 1200-bed Academic Tertiary Hospital, involving mothers whose premature infants received DHM. Semi-structured individual interviews were audio-recorded, transcribed and analysed using Braun and Clarke's process of thematic analysis.

Results

Seventeen mothers described their experience using DHM for their premature infants as a journey of acceptance with three sequential themes. "Resistance to receiving somebody else's milk" was a process of overcoming initial hesitation and concerns. "Recognising maternal limitations and baby's needs" depicted the mothers' struggles in reconciling their infant's milk demand and their low milk supply. Finally, "Embracing benefits of donor milk and acceptance with gratitude" illustrated the mothers' joy and gratitude to milk donors as they embraced benefits of DHM usage. Although the participants had agreed to DHM usage after counselling, many mothers still harboured negative emotions of insecurity, self-blame, anxiety and guilt. Mothers of Muslim faith had additional concerns about milk kinship and religious permissibility of DHM.

Conclusion

Mothers undergo a spectrum of complex emotions from initial hesitation to acceptance with gratitude, when their infants received DHM. Some continue to struggle with negative emotions and require more positive reinforcement and support. Healthcare practitioners need to acknowledge the mother's emotions and cultural background during counselling for consent to use DHM. Clinicians can then provide targeted support for mothers with residual negative emotions about DHM use, in order to improve their breastfeeding journey.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Gut dysbiosis in mothers with gestational diabetes mellitus impacts early life microbiome of neonates
Abstract Reference No.:	OP-8

AUTHORS DETAILS	
Presenting Author:	Gupta Abhishek
Institution:	National University of Singapore

ABSTRACT DETAILS

Background

Gestational diabetes mellitus (GDM) is a transient state of glucose intolerance during pregnancy. Antenatal screening identified 12-21% of mothers with GDM, with differing prevalence in different ethnicities. Studies had identified a potential association of the gut microbiome modulating metabolic health and affect insulin resistance.

Objectives

To explore the associations among GDM, microbiome, and ethnicities as well as transfer of gut microbiome from mother to infant.

Methods

Fifty-three GDM mother-infant dyads with 16 healthy non-GDM mother-infant dyads from three ethnic groups (Chinese, Indian, and Malay) were recruited. 16S rRNA gene-based amplicon sequencing of faecal samples collected at two time points for both mother (3rd trimester and 1 month postpartum) and infants (meconium and after 1 month) were performed.

Results

Microbiome profile of GDM mothers revealed the dominance of phylum Firmicutes followed by Bacteroidota, Actinobacteriota, and Proteobacteria. Interestingly, in comparison to healthy mothers, increased abundance of Actinobacteriota was observed in GDM mothers while inverse trend was noted for Proteobacteria. These changes might be associated with increase inflammatory responses, glucose level, and insulin resistance in GDM mothers than non-GDM mothers. However, no significant difference ($p>0.05$, pairwise PERMANOVA) was observed in the microbiome profile of GDM mothers based on ethnicity. Meconium microbiome from neonates was dominated by the Phylum Proteobacteria. However, after 4 weeks, the microbiome of stool samples of the infant changed significantly with predominance of Actinobacteriota. Furthermore, transmission of microbes from GDM mothers to infants varied (6 to 302 ASVs) among the dyad pairing and also responsible for seeding of the proinflammatory microbial groups which might increase the risk of various metabolic disorder in infants.

Conclusions

This study provides an insight into the role of the gut microbiome in GDM and vertical transmission of microbes from mother to infant which could be useful in designing an integrated strategy for its prevention and therapeutics.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Reactogenicity of mRNA and non-mRNA based COVID-19 Vaccines among lactating mother and child dyads
Abstract Reference No.:	OP-9

AUTHORS DETAILS	
Presenting Author:	Low Jia Ming
Institution:	National University Hospital

ABSTRACT DETAILS

Background

In contrast to mRNA vaccines, there is a severe paucity of cross-sectional studies with adequate participants comparing the reactogenicity of different non-mRNA COVID-19 vaccines for breastfeeding mother-child dyads.

Objectives

The aims of the study are: a) Describe the reactogenicity of WHO-approved two mRNA (Pfizer-BioNTech, Moderna) and two non-RNA vaccines (Oxford-AstraZeneca, Sinovac) among lactating mother and baby pairs; and b) compare and contrast the reactogenicity between mRNA and non-mRNA vaccines.

Methods

A cross-sectional, self-reported survey was conducted amongst 1784 lactating women who received COVID-19 vaccinations in Malaysia and Singapore.

Results

The most common maternal adverse reaction was a local reaction at the injection site; the largest minority of respondents, 49.6% (780/1571), reported experiencing worse symptoms when receiving the second dose compared to the first dose. Respondents reported no major adverse effects or behavioural changes in the breastfed children for the duration of the study period. Among respondents who received nonmRNA COVID-19 vaccinations, a majority reported no change in lactation, but those who did more commonly reported changes in the quantity of milk supply and pain in the breast. The more commonly reported lactation changes (fluctuations in breastmilk supply quantity and pain in the breast) for the non-mRNA vaccines were similar to that of respondents who received mRNA vaccines.

Conclusion

Our study, with a large, racially diverse cohort, further augments earlier reported findings that the COVID-19 vaccines tested in this study did not cause any serious adverse events in our population for the duration of the study in which participants were surveyed, although long-term effects have yet to be studied.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Feasibility of naso-oropharyngeal saliva sampling for Coronavirus Disease 2019 testing in school-aged children
Abstract Reference No.:	P-01

AUTHORS DETAILS	
Presenting Author:	Koh Chee Teck
Institution:	National University Hospital

ABSTRACT DETAILS

Backgrounds

Active coronavirus disease-2019 (COVID-19) is currently diagnosed by nasopharyngeal swab (NPS) via reverse transcription-polymerase chain reaction (RT-PCR). Ease of sampling and compliance can significantly affect implementation of widespread testing in children. Recent studies have shown that saliva is an alternative reliable specimen for diagnostic evaluation or serial monitoring.

Objectives

Our study aimed to determine the feasibility and acceptability of parent/guardian guided naso-oropharyngeal (NOP) saliva collection in children with suspected or confirmed COVID-19 in Singapore.

Methods

From 26th August 2020 to 1st October 2020, we recruited children aged 6 to 16 years who received NPS sampling for suspected or confirmed COVID-19 infection at 2 tertiary public hospital pediatric units. Children underwent concurrent NPS and NOP saliva sampling via a structured protocol. Afterwards , an anonymous self-administered online survey was conducted to determine the feasibility and acceptability of NOP saliva collection.

Results

Thirty children were recruited with a median age of 11 years (range 6 to 15.9 years). Most respondents agreed or strongly agreed that their child could understand and follow the video instructions to produce sufficient NOP saliva (25/30; 83.3% and 26/30; 86.6% respectively), similarly high in younger children <7 years old. Twenty-three respondents (76.7%) felt that NOP saliva collection was more comfortable while 1 respondent (3.3%) disagreed. Twenty-one respondents (70.0%) agreed or strongly agreed that they would choose NOP saliva collection over a NPS, all young children <7 years old were agreeable with this.

Conclusions

NOP saliva collection was feasible, acceptable, and preferable to NPS, in school-aged children.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Botulinum Toxin Type A Therapy in Non-Cerebral Palsy Paediatric Patients: A Single Centre Experience
Abstract Reference No.:	P-02

AUTHORS DETAILS	
Presenting Author:	Huang Huixin
Institution:	National University Hospital

ABSTRACT DETAILS

Background

Intra-muscular botulinum toxin A (BtA) therapy is widely used for the treatment of spasticity in cerebral palsy (CP). However, literature describing its use in paediatric non-CP spasticity remain scarce.

Objectives

This study aims to describe our centre's experience regarding the use of BtA in the treatment of paediatric non-CP spasticity.

Methods

This is a retrospective review of 6 non-CP paediatric patients (5 boys, 1 girl; 2-13 years old) who received BtA treatment from 1 January 2018 to 31 Dec 2021 at the National University Hospital (NUH) Singapore. Although patient diagnoses varied, the treatment indication was dynamic spasticity resulting in abnormal ankle equinus or forefoot varus. To assess treatment efficacy, we employed the Modified Tardieu Scale and used the following measurements: (1) R1 = Spasticity angle, (2) R2 = Maximum passive range of motion, and (3) R2 – R1 = Dynamic tone component. Each angle was measured using a goniometer, taking 2 identical values. If the 2 measurements were dissimilar, a 3rd measurement was taken, and 2 similar values taken as the final measurement. We also included caregivers' perspectives of the treatment.

Results

BtA dosages used range from 2-6 units/kg/dose depending on muscle group injected (gastrocnemius or posterior tibialis), and the average treatment duration was 6 months. 4 out of 6 patients had improvements in both R1 and R2. The average improvement in spasticity angle was 11.7 degrees for ankle equinus. The average improvement in passive range of motion was 6.25 degrees for ankle equinus and 24 degrees for forefoot varus. For 5 out of 6 patients, caregivers report greater ease of care and improved functional mobility.

Conclusion

This limited cohort study suggests that BtA can be a viable treatment strategy for paediatric non-CP spasticity. Subsequent studies are needed to confirm its efficacy in treating children with non-CP spastic neurological conditions.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	The Incidence, risk factors and respiratory outcome in Bronchopulmonary Dysplasia associated pulmonary hypertension in extreme premature infants.
Abstract Reference No.:	P-03

AUTHORS DETAILS	
Presenting Author:	Khoo Joyce May Lyn
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Bronchopulmonary dysplasia (BPD) is the commonest respiratory morbidity in surviving extreme premature infants. Pulmonary hypertension (PH) often complicates the outcome of BPD infants in terms of morbidity and mortality. The true incidence of BPD pulmonary hypertension (BPD-PH) is underestimated due to lack of uniformity in diagnosis.

Objective

To ascertain the incidence of BPD-PH, associated risk factors and respiratory outcome in extremely low gestational age infants (ELGA, <28 weeks' gestation) in a tertiary neonatal intensive care unit (NICU) in Singapore.

Study design

This is a single centre, retrospective cohort study of ELGA infants born from 2018-2019. BPD-PH was diagnosed with predetermined echocardiographic parameters after the first 28 days of life.

Results

A total of 83 infants were included. The mean birth weight was 795±125 grams and mean gestation was 26.5±1.6 weeks. 57 infants required oxygen/respiratory support at 36 weeks' gestation. The incidence of BPD-PH in this cohort was 27% (22/83). BPD-PH infants were smaller (736±127g vs 891±170g) and more premature, median GA 25.2 (22-27) vs 26.7 (23.7-27.8) weeks. 90% of them had received invasive ventilator support compared to 59% in control group (P<0.001 for all). Infants with BPD-PH had received a significantly longer duration of mechanical ventilation (33.9±30.4 vs 5.95±11.7 d), oxygen therapy (98.1±53.2 vs 38.7±44.6 d) and had a higher incidence of hemodynamically significant patent ductus arteriosus requiring treatment (82% Vs 33%) (p<0.001 for all). BPD-PH group had longer NICU stay (106±37.7 vs 64.2±32 d), with 18 (81%) discharged on home oxygen vs 17 (27%) in the control group (P <0.001). 6 infants died during the study period (one with BPD-PH). There was no significant difference in the incidence of maternal chorioamnionitis and CPAP duration.

Conclusions

About 25% of ELGA with severe BPD has associated PH and this is associated with worse respiratory outcomes and prolonged hospital stay.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Quality of Life of Patients and Caregivers Affected by Bronchopulmonary Dysplasia: A Systematic Review
Abstract Reference No.:	P-04

AUTHORS DETAILS	
Presenting Author:	Lee Deborah
Institution:	Lee Kong Chian School of Medicine

ABSTRACT DETAILS

Background

Bronchopulmonary dysplasia (BPD), defined as a requirement for oxygen or respiratory support after postmenstrual age of 36 weeks, is the most prevalent chronic complication of prematurity.

Objective

To evaluate the impact of BPD on Quality of Life (QoL) and determine factors affecting QoL from three perspectives: (i) caregivers' QoL; (ii) caregiver's perception of patient's QoL; and, (iii) patient self-reported QoL.

Methods

A systematic literature search of 6 databases (PubMed, Embase, World of Science, CINAHL, PsycINFO, CNKI) for quantitative studies from inception to 31st March 2022 was performed. Populations of interest were caregivers with preterm babies with BPD, or children/adults born prematurely diagnosed with BPD. Main outcome measures were total and subdomain QoL scores, and factors affecting QoL. PROSPERO registration ID: CRD42021292253.

Results

1078 articles were found; 10 were eligible for analysis, which included resulting in 247 caregivers and 1632 patients with BPD. The quality of 90% (9/10) of the studies was satisfactory or better. QoL of patients differed by domains - some were poorer or similar, but none of the QoL domains was better than QoL of healthy controls. Poor sleep and acute care needs of BPD patients negatively affected caregiver's QoL, while increasing illness acuity negatively affected QoL of BPD patients. QoL of BPD patients and their caregivers was most adversely affected during the immediate post-discharge period, and tended to improve with time. Physical QoL of BPD patients was similar to that of preterm babies without BPD when assessed during late childhood and early adulthood. Severe BPD has a significant negative impact on QoL of patients. In a child with severe BPD, each neonatal morbidity has an additive effect on physical and psychosocial QoL

Conclusion

QoL assessment should be performed as an outcome measure and incorporated in the care plan for BPD patients and their caregivers.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Experiences of Healthcare Personnel with Death in the Neonatal Intensive Care Unit: A Systematic Review of Qualitative Studies
Abstract Reference No.:	P-05

AUTHORS DETAILS	
Presenting Author:	Ng Yvonne Peng Mei
Institution:	National University Hospital

ABSTRACT DETAILS

Background

Deaths in the Neonatal intensive care unit (NICU) can occur unexpectedly in seemingly well babies, or be protracted, marred by overaggressive treatment for lethal conditions. Existing literature on experiences of NICU healthcare personnel (HCP) on NICU deaths mainly focussed their needs, tasks performed and challenges faced.

Objectives

To synthesise qualitative studies on experiences of HCP in NICU caring for dying neonates; to provide a holistic unifying view, addressing both negative and positive aspects.

Methods

The review was conducted according to Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA), registered on PROSPERO ID: CRD42021250015. PubMed, Embase, PsycINFO and CINAHL were searched from inception to 31st December 2021 using MeSH terms and related keywords. Data were analysed using inductive thematic synthesis. Quality assessment of included studies was performed.

Results

Thirty-two articles with 775 participants were included in this review, majority (92.6%) were nurses and doctors. Quality of studies was variable. The narratives of HCP coalesced into a journey with three themes: Frailty, Endurance and Fortitude. Frailty, defined as HCP's vulnerability, resulted from discomfort with neonatal deaths, poor communication among HCP and with family; lack of support (from organisations, peers, and loved ones); and negative emotional responses (guilt, helplessness, and compassion fatigue). Endurance, defined as a state of acceptance, calmness, and composure during challenging situations, emerged through better coping by setting emotional boundaries, support from colleagues, clear communication and compassionate care; and well-designed end-of-life protocols. Fortitude, a state of moral reckoning, is driven by altruism and introspection. Fortitude is achieved by finding meaning in death, building deeper relationship with patients' families, and embracing purpose and pride in work.

Conclusion

HCP's many challenges dealing with death in the NICU are surmountable through systematic support systems. HCP can provide better end-of-life care by journeying through Frailty to Endurance and Fortitude.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Identifying the Best Discriminating Signs of Autism Spectrum Disorder (ASD) in High-Risk Siblings in Singapore
Abstract Reference No.:	P-06

AUTHORS DETAILS	
Presenting Author:	Wong Chui Mae
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

The estimated prevalence of ASD in Singapore is 1%, and although nationwide developmental surveillance is conducted for young children, there is no standardised ASD-specific screening. Koh (2014) previously found that the Modified Checklist for Autism in Toddlers (M-CHAT) Critical 6 and Best 7 scoring methods were accurate (sensitivity >0.75) in detecting ASD in 18-30-month-old Singaporean children referred with developmental concerns. However, studies from other Asian countries have reported lower M-CHAT sensitivity, and that discriminating items may vary by race/culture.

Objectives

To determine the accuracy of the M-CHAT-R/F as a Level Two screener in a population of siblings at high-risk for ASD in Singapore, and to identify the best discriminating signs of ASD.

Methods

Siblings aged 12-30-months of children with confirmed ASD underwent a structured screening programme which involved parents completing the M-CHAT-R/F at 12, 18 and 30-months old. The siblings then underwent an Autism Diagnostic Observation Schedule – Second Edition (ADOS-2) assessment at 36-48-months old. Sensitivity, specificity, positive predictive and negative predictive values for the M-CHAT-R/F were computed, and Fisher's exact test was used to determine higher-discriminating items.

Results

189 siblings underwent screening. 27 withdrew and 127 have completed the ADOS-2 to date. 21 were diagnosed ASD. Results on the 127 indicated overall low sensitivity but high specificity of the M-CHATR/F at all age groups, even with using Critical 6 scoring. Discriminating items differed to those reported elsewhere.

Conclusions

The performance of tools developed for low-risk ASD screening should also be examined in higher-risk populations. The poorer performance of the M-CHAT-R/F could due to high-risk siblings having more subtle features of ASD which are missed by screening but picked up on ADOS, or biased parental reporting if their older child had more obvious signs of ASD. Higher-discriminating items appear to be different from those defined in the US population.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Developing a blended-learning orientation programme for new medical officers in the department of Neonatology
Abstract Reference No.:	P-07

AUTHORS DETAILS	
Presenting Author:	Tong Wing Yee
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Neonatology is a paediatric subspecialty in which rotating junior doctors may face various challenges, including having to acquire basic knowledge on a range of neonatal conditions, and gain proficiency in procedural skills over a short period of time.

Online learning is increasingly being used as a tool for medical education, and we aim to integrate this into our current orientation programme.

Objectives

To design and evaluate the efficacy of a blended-learning curriculum as a mode of orientating junior doctors rotating through the Neonatology department in a tertiary hospital.

Methods

A 24-item pre-test multiple choice questionnaire (MCQ) was administered to the new junior doctors in the first week of their posting in the department in July 2022. Each item was scored at 2 points, with a maximum of 48 points.

A series of online learning materials on clinical topics were developed after evaluation of the learning needs of the junior doctors. The blended-learning orientation programme consisting of e-learning modules and face-to-face sessions was conducted over a span of 4 weeks. A post-test MCQ with a similar set of questions and a survey form evaluating the efficacy of the orientation module was administered at the end.

Results

A total of 15 junior doctors completed the pre-test and 11 completed the post-test MCQ. There was an improvement in the average score of pre-test and post-test MCQ from 32.6 to 39.8 (out of 48 points), a 15 percentage-point improvement.

Free-form feedback from the junior doctors about the blended of learning was generally positive. All the respondents agreed that the content was relevant for their level of knowledge, allowed learning at their own pace, and helped doctors to better manage their time between work responsibilities and learning. 50% of the doctors preferred for a larger proportion of the programme to be converted into online learning modules.

Conclusions

A blended learning curriculum is an effective mode of learning for junior doctors to facilitate learning for better patient care. The introduction of an online learning component allows learners the flexibility to navigate course content at their own pace and cover more in-depth knowledge. Meanwhile, the face-to-face component remains useful especially when hands-on learning is required, such as for procedural skills.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Prevalence and Associated Risk Factors of Psychological Distress in Adult Childhood Cancer Survivors in Singapore
Abstract Reference No.:	P-08

AUTHORS DETAILS	
Presenting Author:	Wong Bryan
Institution:	NUS Yong Loo Lin School of Medicine

ABSTRACT DETAILS

Introduction

Childhood cancer survivors (CCS) may develop significant health complications years after completion of their therapy. These late effects present a pertinent health issue as childhood cancer survival rates have significantly improved over the past decades. Few studies have addressed the adverse mental health late effects of CCS in Asia. Thus, this study seeks to evaluate the prevalence and associated risk factors of psychological distress among CCS in Singapore.

Methods

Adult CCS above 18 years old attending survivorship clinics in KK Women's and Children's Hospital, who were in remission for at least 5 years and treatment free for at least 2 years were recruited to complete the Brief Symptom Inventory (BSI-18) questionnaire from September 2021 to July 2022. Demographics, diagnosis and treatment history were obtained from the case records. Univariate analysis was used to determine associated risk factors.

Results

A total of 143 CCS completed the BSI-18 questionnaire. Overall, 35 patients (24.5%) reported significant psychological distress. There were 32 (22.4%), 23 (16.1%) and 19 (13.3%) patients who reported significant symptoms in the depression, anxiety and somatization domains respectively.

Associated risk factors of significant psychological distress were existing psychiatric illness (OR 18.3; 95% CI 3.7 - 90.1) and being affected by the ongoing COVID pandemic (OR 3.0; 95% CI 1.4 - 6.6).

Conclusion

A significant number of adult CCS report psychological distress. Routine screenings, coupled with a comprehensive, risk factor-centric follow-up programme should be continued to help detect early signs of mental distress and mitigate further complications.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Birth anthropometry among three Asian ethnic groups in Singapore – new growth charts
Abstract Reference No.:	P-09

AUTHORS DETAILS	
Presenting Author:	Kader Khadijah
Institution:	National University Hospital

ABSTRACT DETAILS

Background
Fenton growth charts are widely used in our birth cohort. However, intrauterine and postnatal growth of Asian babies are different from Caucasian babies. We provide Asian growth charts with data from 52 000 babies to accurately reflect growth for our population.

Objective
We analyse birth anthropometry of Asian babies and its socioeconomic exposures, develop gestational age and gender-specific birth anthropometry charts and compare to the widely used Fenton chart.

Design
Retrospective observational study.

Setting
Department of Neonatology at the National University Hospital in Singapore.
Population or sample
We report data from 52 220 Chinese, Indian and Malay infants, born from 1991-1997 and from 2010-2017 in Singapore.

Methods
The BW, length and head circumference are each modelled with maternal exposures using general additive model. Anthropometry charts are built using smoothed centile curve and compared with Fenton charts using binomial test.
Main outcome measures
BW, head circumference, crown-heel length.

Results
In contrast to the marked differences in birth anthropometry among these ethnic populations, when exposed to a uniform socioeconomic environment, their intrauterine growth and birth anthropometry were almost identical. From the gestational age specific anthropometric charts, until about late prematurity, Asian growth curves, as derived from our cohort, mirrored that of Fenton's; thereafter, Asian babies showed a marked reduction in growth velocity.

Conclusions
These findings suggest comparative slowing of intrauterine growth among Asian babies towards term gestation. This phenomenon may be explained by two possible postulations, firstly, restrictive effects of a smaller uterus of shorter Asian women towards term and secondly, early maturation and senescence of fetoplacental unit among Asians. In clinical practice the new birth anthropometry charts will more accurately identify true fetal growth restriction as well as true postnatal growth failure in preterm infants when applied to the appropriate population.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Placental Histopathology Changes do not Predict the Risk of Bronchopulmonary Dysplasia-associated Pulmonary Hypertension
Abstract Reference No.:	P-10

AUTHORS DETAILS	
Presenting Author:	Tan Hui Shan, Valerie
Institution:	Lee Kong Chian School of Medicine

ABSTRACT DETAILS

Background

Approximately 25% of extremely low birth weight (ELBW) infants with moderate/severe bronchopulmonary dysplasia (BPD) develop BPD-pulmonary hypertension (BPD-PH), which is associated with long-term morbidity and mortality. Previous studies have indicated placental histopathologic findings as predictive factors of BPD and BPD-PH.

Objectives

This study aims to investigate the association between 4 patterns of placental histopathology and BPD/BPD-PH: maternal and fetal vascular malperfusion (MVM, FVM), acute and chronic placental inflammation.

Methods

This is a retrospective cohort study of ELBW infants treated at a tertiary neonatal unit, between 2019-2021. BPD-PH was defined with echocardiographic criteria. Demographic, clinical factors, echocardiographic and placental histopathology reports were analyzed. Clinical risk factors and placental histopathology changes were compared between BPD-PH and non BPD-PH groups.

Results

Of 171 ELBW infants included in the study, 69% had moderate/severe BPD and 23% developed BPD-PH. Gestational age, birthweight, patent ductus arteriosus, and sepsis were identified as significant risk factors for BPD. Histopathological chorioamnionitis and fetal inflammatory response (FIR) changes were present in 37% (vs 19%, p-value=0.017) and 34% (vs 19%, p=0.030) of moderate/severe BPD infants respectively. On univariate analysis, histopathologic chorioamnionitis and FIR increased relative risk of moderate/severe BPD by 2.56 (95% CI 1.169-5.593, P=0.019) and 2.36 (95% CI 1.071-5.185, P=0.033) respectively. 42% of no/mild BPD patients had MVM (vs 19%, p-value=0.002). Notably, MVM was inversely associated with severity of BPD (OR = 0.341, 95% CI 0.168-0.695, P = 0.003). On multivariate analysis, MVM, histopathologic chorioamnionitis and FIR were insignificant after adjusting for other risk factors. None of the placental histopathologic findings were predictive of BPD-PH in this cohort.

Conclusion

Placental histopathologic findings are not predictive of BPD and BPD-PH, while clinical risk factors remain important for risk prediction.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Post-partum lifestyle RCT of GDM women with wearables – Anthropometric changes of initial participants
Abstract Reference No.:	P-11

AUTHORS DETAILS	
Presenting Author:	Nagajothi Rubanandhini
Institution:	Lee Kong Chian School of Medicine

ABSTRACT DETAILS

Background

Gestational diabetes (GDM) is associated with an increased risk of developing type 2 diabetes mellitus (T2DM) in later life. A novel intervention programme involving personalized lifestyle interventions targeting reductions in body mass index (BMI), body fat and waist circumference measures may help reduce risk for T2DM conversion in women with a history of GDM.

Objective

To compare the effectiveness of personalized lifestyle interventions (diet and exercise) including the use of wearable devices versus standard care in reducing anthropometric measures in early postpartum women with a history of GDM.

Methods

This is a 2-arm randomized control trial which is planned to run for 3 years. The intervention arm will follow a program with the use of wearable devices to monitor glucose and physical activity levels (Wearable Care - WC) while the control arm will follow scheduled medical care (Scheduled Care - SC). In this on-going trial, 42 patients have been recruited and 20 have finished their 6-month follow-up. Pre- and post-intervention (6 months) mean differences in BMI, body fat and waist circumference were compared between the two study arms using independent T-tests and Wilcoxon-rank-sum tests. $p<0.1$ is reported as a trend.

Results

Among the 20 initial participants, mean [SD] baseline BMI was 26.15kg/m2 [3.70]. Results from our intervention programme showed that in the first 6 months, participants in the WC group had a mean[SD] BMI loss of -0.06 kg/m2[0.98] compared to the SC group which had a mean[SD] BMI gain of 5.05kg/m2[13.3] (p=0.06). There were no significant differences in body fat and waist circumference.

Conclusion

There was a trend of weight maintenance in the WC group as opposed to weight gain in the SC group. This can be beneficial in future prevention of T2DM in GDM women.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Movement behaviours across six countries in the Asia Pacific
Abstract Reference No.:	P-12

AUTHORS DETAILS	
Presenting Author:	Quah Phaik Ling
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Movement behaviours which consists of sufficient physical activity (PA), sleep duration, coupled with low recreational screen viewing time (SVT) and sedentary behaviour are beneficial for the wholistic health of children globally. Currently, there are little to no data describing and comparing these movement behaviours among children in the Asia Pacific.

Objectives

We aim to describe the movement behaviours across six different countries in the Asia Pacific.

Methods

Movement behaviors (physical activity, sedentary behavior, screen time viewing and sleep duration) of children aged 5-18 years old were assessed through a parent proxy-reported online questionnaire from 6 participating countries in the Asia Pacific (Singapore, Hong Kong, Japan, India, Sri Lanka and Vietnam) between June 2021- June 2022. The one-way ANOVA were used to assess differences in the movement behaviours across countries.

Results

Our final sample of n=1162 consisted of participants from Singapore (n=241), Hong Kong (n=192), Japan (n=110), India (n=126), Sri Lanka (n=470) and Vietnam (n=23). The lowest level of vigorous PA and moderate PA were in children from Vietnam [median 0(IQR :0)hrs/day and 0.05(0.5)hrs/day, respectively], and for light PA were children from Japan and Vietnam [0.1(0)hrs/day and 0.1(0.9)hrs/day, respectively], compared to other countries ($p<0.05$). Sedentary behaviour was the highest in Singaporean children [7.1(4.0) hrs/day], compared to other countries ($p<0.05$). SVT was found to be the highest in Vietnam 5.0(3.7) hrs/day, Singapore 2.3(1.2)hrs/day, Japan 2.3(2.3)hrs/day and India 2.1(2)hrs/day with a median of more than 2 hours of SVT per day compared to other countries, $p<0.05$. Sleep duration was the lowest in Singapore [8.6(1.8)], Sri Lanka [8.6(1.3], and India [8.7(2.1)] compared to the other countries ($p<0.05$).

Conclusions

The preliminary analysis of this dataset has shown differences in the movement behaviours across these six countries in the Asia Pacific. Policies, programs and guidelines are essential strategies to explore in effort to improve movement behaviours in these populations.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Paediatric Invasive Meningococcal Disease in Singapore
Abstract Reference No.:	P-13

AUTHORS DETAILS	
Presenting Author:	Shetty Shanti Shridhar
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Invasive meningococcal disease (IMD) has known high morbidity and mortality. In Singapore, meningococcal vaccinations are not part of the routine childhood immunization schedule, given the historical low local occurrence of IMD.

Objectives

We sought to understand demographics, risk factors and clinical course of children with IMD in our institution.

Methods

We included all children who were referred to Infectious Disease Service, KK Women's and Children's Hospital in Singapore, for diagnosis of IMD, over 13 years (2009-2021). Diagnosis was made via isolation of Neisseria meningitidis and/or detection of N. meningitidis DNA sequences via nucleic acid testing in a normally sterile site (such as blood, cerebrospinal fluid).

Results

Fourteen patients were included.

Median age at diagnosis was 5.0 (interquartile range [IQR] 4.3 - 20.5) months. Median time from onset of symptoms to diagnosis was 2.0 (IQR 1.0 - 2.0) days. Fever was the most common presenting symptom in 92.9% (n=13).

N. meningitidis serotype B was the most common (n=10, 70.4%) followed by serotype W-135 (n=1, 7.1%) and the rest had unknown serotype (n=3, 21.4%). 28.6% (n=4) had recent travel, to countries such as Malaysia, Bangladesh and Saudi Arabia.

The child infected with serotype W-135, had travelled to Saudi Arabia, accompanying his family for Hajj pilgrimage and was unvaccinated against N. meningitidis. Median time from travel to onset of symptoms was 5.0 (IQR 3.5 - 5.0) days.

7.1% (n=1) had prior vaccination with quadrivalent conjugate vaccine against serotype A, C, W-135 and Y. However, he was infected with N. meningitidis serotype B. 71.4% (n=10) required admission to higher acuity care. No mortalities were encountered. 42.0% (n=6) had neurological complications including that of subdural effusions, empyema, hydrocephalus.

Conclusion

Although IMD in Singapore is sporadic, there is high morbidity. Serotype B IMD should be continually monitored to determine inclusion of vaccination against serotype B into national immunization schedule.

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10TH SINGAPORE PAEDIATRIC & PERINATAL ANNUAL CONGRESS (SiPPAC) 2022

Enhancing Multidisciplinary Care of Mothers & Children through Collaborative Models & Innovations

ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Knowledge, Attitudes and Practices of Healthcare Professionals on neonatal ankyloglossia: A cross-sectional study
Abstract Reference No.:	P-14

AUTHORS DETAILS	
Presenting Author:	Goh Li Ting
Institution:	National University Hospital

ABSTRACT DETAILS

Background

Ankyloglossia (tongue tie) is characterised by a thick, short, or tight lingual frenulum that limits tongue mobility, and may lead to difficulties in latching, maternal nipple pain, poor infant weight gain, and possible early breastfeeding cessation. However, opinions vary amongst healthcare professionals (HCPs) regarding the diagnosis, significance, and management of ankyloglossia.

Objective

To assess our institution's HCPs' attitudes towards, training and knowledge regarding the diagnosis, consequences, and management of neonatal ankyloglossia; to determine gaps in practice and optimise future management of neonatal ankyloglossia.

Methods

A cross-sectional survey of HCPs managing neonates in a tertiary hospital assessed participants' knowledge of ankyloglossia; attitudes toward breastfeeding, ankyloglossia and frenotomy; referral practices upon diagnosing ankyloglossia. Descriptive statistics were used to summarise participants' demographic and survey responses. Unpaired t-test was used to examine subgroup differences.

Results

Response rate was 77% (225 respondents), comprising mostly nurses, followed by doctors and lactation consultants. Knowledge of HCPs in diagnosing and grading severity of ankyloglossia (based on 4 photographs) is poor. Majority of respondents did not routinely examine newborns for ankyloglossia due to lack of training and had limited experience diagnosing ankyloglossia. Many were also unaware of assessment tools for identification and severity grading of ankyloglossia. Participants recognised the association of ankyloglossia with breastfeeding and bottle-feeding difficulties, poor neonatal weight gain, and possible speech difficulties. Most respondents agreed that frenotomy improves latching, however, there were varied opinions on the need for referral for lactation support and frenotomy, including the optimal time for frenotomy.

Conclusion

There are gaps in knowledge and care practices of neonatal ankyloglossia which can be addressed by educating both HCPs and parents. Developing a clinical guideline for management (early diagnosis, accurate severity grading, optimising breastfeeding support and parent-HCP shared decision on frenotomy) will reduce variation in practices and improve management of neonatal ankyloglossia.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	X-linked myotubular myopathy in a family of two infant siblings with a novel MTM1 mutation: A case report
Abstract Reference No.:	P-15

AUTHORS DETAILS	
Presenting Author:	Koe Amelia Suan-Lin
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

X-linked myotubular myopathy (XLMTM) is a severe congenital skeletal muscle disorder caused by mutations in the MTM1 gene that encodes protein myotubularin. Affecting approximately 1:50000 male newborns, it presents as profound generalized muscle weakness, severe hypotonia and progressive respiratory and swallowing difficulties at birth. Patients with XLMTM carry poor prognosis, with high rates of hospitalization, interventional therapies and mortality by early infancy.

Clinical Case Summary

Our case report describes the occurrence of XLMTM in a family affecting two male half-siblings. Both infants were born with overt dysmorphic features, generalized hypotonia and failure to establish spontaneous respiratory effort at birth, requiring intubation. After remaining ventilated on prolonged palliative tracheostomy, the first child passed away at nine-weeks of age. The second child continues to be bedridden with non-invasive ventilatory support and nasogastric tube feeding at 14-months of age. Muscle biopsy findings in the first infant confirmed the diagnosis of XLMTM, with extended genetic studies revealing a novel c.343-1G>A (Splice acceptor) mutation in intron-5 of the MTM1 gene in the younger child, as well as in the carrier-mother.

Learning Points Discussion

This report highlights the importance of early suspicion and monitoring in mothers of previous children with XLMTM and the need for extensive prenatal planning and genetic counselling. Undeniably, families with positive XLMTM history must be offered the invitae comprehensive myopathy panel antenatally and pregnancy should be closely monitored for reduced fetal movements and polyhydramnios. Furthermore, these cases should receive close attention at the time of delivery, with anticipation for birth asphyxia, prolonged resuscitation and need for extensive respiratory support. Those who survive infancy may require life-long respiratory and feeding support in the form of tracheostomy, gastrostomy and ventilation therapy. We underscore the need for early supportive and disease-modifying therapies in anticipation for rapid progression and high mortality among patients with XLMTM.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Congenital Pulmonary Lymphangiectasia in infants:12 years' experience
Abstract Reference No.:	P-16

AUTHORS DETAILS	
Presenting Author:	Bajaj Japna Kaur
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Congenital pulmonary lymphangiectasia(CPL) is a rare fatal congenital lymphatic developmental disorder.

Objectives

To study the clinical presentation, course and outcome of infants with CPL over a 12-year period at a tertiary care centre.

Methods

A retrospective audit of CPL cases in KKH from 2009 to 2021. Infants whose diagnosis was not confirmed by histopathology were excluded. Data collected included patient demographics, antenatal scan findings, birthweight(BW), gestational age(GA), clinical course, ventilator support, management, survival and method of diagnosis(biopsy or postmortem examination).

Results

There were 9 infants, of which 6(67%) had primary and 3(33%) had secondary CPL, associated with total anomalous pulmonary venous drainage(TAPVD). Three(33%) were preterm births(23-35 weeks) and 6(67%) term infants. Mean GA was 34.8 weeks and mean BW 2421g. Karyotype was normal in all apart from 2(22%) who had Trisomy 21. All infants presented with respiratory distress with onset ranging from birth to day 5 of life. One infant had non-immune hydrops fetalis and another developed a chylous effusion on day12 of life. The clinical course in the primary CPL cases was refractory respiratory failure(RF) complicated by persistent pulmonary hypertension(PPHN). One infant with primary and two infants with secondary CPL required extracorporeal membrane oxygenation. 8 of 9 infants (89%) died, and the median age of death was 61days of life. One surviving infant with infracardiac TAPVD is on follow-up, last reviewed at 5years of age. Diagnosis was confirmed by lung biopsy in 4(44%) infants and post-mortem examination in the rest.

Conclusions

Infants with CPL have grave prognosis with high mortality (89%). Presentation may mimic severe bronchopulmonary dysplasia in very preterm infants. We recommend lung biopsy for early diagnosis in any infant with refractory RF and PPHN. TAPVD can also be associated with CPL. Early assessment may help with guiding postnatal management.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Validation of a smartphone-based screening tool (Biliscan) for neonatal jaundice in a multi-ethnic neonatal population
Abstract Reference No.:	P-17

AUTHORS DETAILS	
Presenting Author:	Ngeow Alvin
Institution:	Singapore General Hospital

ABSTRACT DETAILS

Aim

Neonatal jaundice is an important and prevalent condition that can cause kernicterus and mortality. This study validated a smartphone-based screening application (Biliscan) in detecting neonatal jaundice.

Methods

A cross-sectional prospective study was conducted at the neonatal unit in a tertiary teaching hospital between August 2020 and October 2021. Stable term and late preterm babies, of Chinese, Malay, Indian and other ethnic origin, and born at gestation of 35 weeks and above with clinical jaundice or are recommended for screening of jaundice within 21 days of postnatal age were recruited. Using Biliscan, images of the babies' skin over the sternum were taken against a standard colour card for purpose of colour balancing. By means of feature extraction and machine learning regression, Biliscan would estimate Bilirubin levels (BsB). The validity of Biliscan as a screening tool for neonatal jaundice was assessed first by assessing the agreement of BsB readings with total serum bilirubin(TSB) and transcutaneous bilirubin(TcB), assayed within two hours of each other, followed by assessing its diagnostic accuracy through receiver operating characteristic analysis.

Results

61 paired TSB-BsB measurements were obtained from 61 babies. 85 paired TcB-BsB measurements were obtained from 85 babies. Bland Altman plot for the whole population showed that 46% (28/61) of the pairs of TSB and BsB readings and 34% (29/85) of the pairs of TcB and BsB readings exceed the maximum clinically acceptable difference of 35□mol/L. The sensitivity and specificity for Biliscan as a screening tool for neonatal jaundice are 76.92% and 70.83% respectively. The positive predictive value (PPV) ranged from 79.80% (disease prevalence=60%) to 93.30% (disease prevalence=84%); and the negative predictive value (NPV) ranged from 36.90% (disease prevalence=84%) to 67.20% (disease prevalence =60%). There was moderate positive correlation of BsB and TSB readings with Pearson's r=0.54, p<0.001 for the whole population, and 0.65 (p<0.001) for Chinese babies. The Pearson's r for Bs

Conclusion

Biliscan estimates have mediocre agreement when compared against TSB and TcB.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Congenital carnitine palmitoyltransferase II deficiency: A rare lethal form of inherited metabolic disorder
Abstract Reference No.:	P-18

AUTHORS DETAILS	
Presenting Author:	Tan Yee Yin
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Congenital carnitine palmitoyltransferase II (CPT II) deficiency is a rare form of inborn errors of metabolism (IEM) presenting in perinatal, infantile, and adult forms; the former is the most severe and fatal disease. IEM screening of newborn infants has revolutionized the early diagnosis of fatty acid oxidation disorders. An increasing number of mutations are identified in the CPT II gene with a distinct genotype-phenotype correlation. We report the first case of a perinatal form of CPT II deficiency, diagnosed by Tandem mass spectrometry screening.

Case Report

A term small-for-gestational-age female infant was born to a first-degree consanguineous couple by vaginal delivery. The fetal scan detected enlarged echogenic kidneys and cardiomegaly. Postnatally, on day 2, she had recurrent hypoglycemia requiring dextrose infusion. On day 3, she had seizures while normoglycemic and was noted to be hyperkalemic. She needed ventilatory support and control of seizures with phenobarbitone. Soon she went into circulatory collapse with pulseless ventricular tachycardia (VT). Cardioversion and aggressive treatment for hyperkalemia resulted in the return of circulation and sinus rhythm. Postnatal imaging confirmed cardiomyopathy and bilateral polycystic kidney disease, seen in CPT II deficiency. On day 5, the baby developed pulmonary hypertension needing nitric oxide therapy. IEM screen confirmed CPT II deficiency. She developed recurrent VT requiring cardioversion, anti-arrhythmic agents, and inotropes. All supportive measures failed, and ECMO was initiated. Cranial US scan detected bilateral intraventricular hemorrhage, grade 4. Levocarnitine supplements aggravated VT leading to abrupt discontinuation. On day 14, the baby passed away.

Conclusion

Despite the advances in neonatal care, the perinatal form of CPT II remains fatal. In consanguineous parents, fetal renal and cardiac anomalies should raise the suspicion of CPT II deficiency. Early confirmation of the diagnosis could facilitate early multi-disciplinary intervention and parental counseling.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Changes in patient-reported outcomes from pregnancy to six months post-delivery- a study involving first-time mothers in Singapore
Abstract Reference No.:	P-19

AUTHORS DETAILS	
Presenting Author:	Chay Oh Moh
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

The Community enabled Readiness for first 1000-Days Learning Ecosystem (CRADLE) programme aims to establish a self-learning eco-community of first time mothers, from pregnancy to early childhood, to improve parenting self-efficacy (PSE) and health outcomes for first-time mothers.

Objectives

The randomised controlled trial recruited 548 pregnant women from KK Women's and Children's Hospital. Participants are randomly assigned to receive (1) routine care; (2) regular behavioural nudges through short text messages and engagement via social media; or (3) continuity care involving one-to-one engagement with midwives from pregnancy until six-months post-delivery. Participants are followed-up from recruitment until child turns two years of age, through the measurement of health and nutrition domains and patient-reported outcome measures. All participants are invited to biannual education webinars. At the end of the study, effects of the interventions across all arms will be evaluated.

Methods

Patient-Reported Outcomes Measurement Information System (PROMIS) measures were administered to participants. 181 participants had completed 3 measurements: at antenatal stage (⩽28 weeks and ⩾29 weeks), and six-months post-delivery. The questionnaire included four questions for each of two domains on physical and mental health, including areas such as pain and fatigue, mood, ability to think as well as satisfaction with social activities and relationship. This is a preliminary analysis of the 181 participants.

Results

Participants' responses for each domain were scored on a T-score metric with a mean of 50 and a standard deviation of 10 based on the original PROMIS reference sample of US adults. Participants' physical health at ⩽28 weeks' pregnancy is noted to be 46.9, compared to a lower score of 45.4 in the third trimester. An increase of 3 points was seen at the six-month post-delivery time-point (T-score 48.4, p-value 0.0001). Mental health scores were 48.9 at ⩽28 weeks gestation and 48.8 in the third trimester. However, it was noted that the mental health worsened at 6 months post-delivery, with a significantly lower score of 47.4.

Conclusions

There is an improvement in physical health during the postpartum period, while a downward trend in mental health is observed from <28 weeks to six-months post-delivery. The study team will continue to monitor the responses to include more data for a conclusive result.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Echocardiographic findings in Bronchopulmonary Dysplasia Associated Pulmonary Hypertension and response to Sildenafil in Extreme Premature Infants. A single centre
Abstract Reference No.:	P-20

AUTHORS DETAILS	
Presenting Author:	Gopagondanahalli Krishna Revanna
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Bronchopulmonary dysplasia associated pulmonary hypertension (BPD-PH) in extreme premature infants is known to worsen respiratory outcomes. The diagnosis is made by transthoracic 2D echocardiography but the optimal screening time and echocardiographic parameters are still unclear. Sildenafil is commonly used for BPD-PH.

Objective

To evaluate the 2D-Echo findings in BPD-PH after 28 days of life and assess the clinical and echocardiographic response of sildenafil in its management.

Study design

This is a single centre, retrospective cohort study of infants born less than 28 weeks of gestation with BPD and pulmonary hypertension(PH) from 2018-2019. Pulmonary hypertension was defined with predetermined echocardiographic markers. Response to Sildenafil was evaluated by clinical and echocardiographic findings (first 2 week of initiation of therapy).

Results

22 infants with BPD-PH were analysed with a mean gestation of 25.5±1.15 weeks. The incidence of PH was 26% (22/83) with the median age at diagnosis of 72 (IQR 33-178) days. LV eccentricity index (>1.15) was the most common abnormal echo parameter in the cohort 73% (16/22). Only 64% had measurable TR (tricuspid regurgitation) jet (Vmax>2.8m/sec). Ventricular septal flattening was noted in 12/22(55%) while pulmonary regurgitation >2m/sec and bidirectional PDA was seen in 2 and 3 infants respectively. Oral sildenafil was started in 13(59%) infants. 7/13(54%) of these infants showed significant clinical improvement within the first two weeks of therapy. The median duration of improvement of PH on echocardiogram was 45 days (IQR 12-149) with complete resolution of PH by 118 days (IQR 23-548) in all surviving infants. 18 infants survived in our cohort with 16 infants requiring home respiratory/oxygen support.

Conclusions

LV eccentricity index is a useful marker of PH in the absence of TR jet on Echocardiography. In our study, majority of the infants showed a good clinical and echocardiographic response to sildenafil observed within 2 weeks of therapy.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Review of knowledge, attitude and practices of delayed cord clamping in KK Hospital
Abstract Reference No.:	P-21

AUTHORS DETAILS	
Presenting Author:	Skanthakumar Abhirami
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Introduction

The study aimed to understand the current knowledge, attitude and practices of delayed cord clamping (DCC) in the department of Obstetrics (KK Hospital).

Methods

A cross sectional survey was conducted among nurses and doctors in the department of Obstetrics in September 2021 via a secure online platform. There were 10 questions which evaluated the current practices of DCC, perceived benefits and hindrances.

Results

A total of 96 participants volunteered to do the survey, which included 21% doctors, 41% midwives and 38% nurses. 82% of doctors and 57% of nurses/midwives were able to correctly identify the ideal timing for DCC as 1-3 minutes. Only 20% of doctors and 36% of nurses/midwives responded that DCC is not related to post-delivery oxytocin administration. While all of the doctors and 52% of nursing staff were aware that DCC can be done for preterm infant, only 5% of doctors and 7% of nursing staff believed DCC can be done for infants born <28weeks. Three-quarter of doctors feel that well babies receive DCC most of the time while 82% of nursing staff agreed to this. Main hindrance to perform delayed cord clamping was unwell baby requiring resuscitation as per nearly all respondents. More than 80% of respondents anticipated that DCC may result in delayed resuscitation of newborn. 75% of nurses/midwives and 40% doctors believed that hypothermia can be a problem. Majority (>80%) of participants felt that further teaching and guidelines would help in enhancing DCC practice.

Conclusion

Although doctors and nurses/midwives were aware of benefits of delayed cord clamping in term infants, only few were aware of benefits in preterm cohort. There were differences in attitudes and practices between nurses and doctors. More staff engagement and teaching programs should be provided to both groups to increase awareness and knowledge.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	A Qualitative Study of Perinatal Drug Abuse in Singapore
Abstract Reference No.:	P-22

AUTHORS DETAILS	
Presenting Author:	Lee Wai Kheong Ryan
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

There is currently limited information available on the prevalence and risks factors of drug abuse in pregnant women in Singapore.

Objectives

The objectives of this qualitative study are to establish the (1) prevalence of drug abuse (2) risk factors for drug abuse during pregnancy.

Methods

A perinatal audit and review of management of cases of substances abuse in pregnancy from 2010 to 2020 was performed. Case records of substance abuse (excluding alcohol and tobacco) over the last 10 years from 2010 - 2020 were sourced via ICD 10 Diagnosis extracted from the medical records. Essential demographic data were subsequently collected.

Results

There was a total of 20 women with perinatal drug abuse between 2010 and 2020. Three of the 20 women engaged in drug abuse for 2 of their pregnancies each, making 23 pregnancies affected by substance abuse during this period. The prevalence was 0.018% (23/128576) or 1 in 5,590 pregnant women. The commonly substance abuse were heroin with 11 cases (55.0%) and amphetamines/methamphetamines with 9 cases (45.0%). High-risk factors for the pregnant substance abuser were younger age < 30 years old, Malay or Indian ethnicity and history of smoking. In general, pregnant drug abusers booked late in their pregnancy, tend to have little or no proper prenatal care and to default on their pregnancy follow-ups. Audit showed general fulfillment of standard of care with 80% (16/20) being provided comprehensive assessment and individualized care, despite the tendency for patients to default care.

Conclusion

Prevalence of drug abuse among pregnant women is lower than a similar study done in 1994-6 with prevalence of 0.25%. The need for a multidisciplinary approach for prevention and management of substance abuse in pregnancy is key.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Liver Transplantation in Maple Syrup Urine Disease: The Singapore Experience
Abstract Reference No.:	P-23

AUTHORS DETAILS	
Presenting Author:	Chua Chui Wei, Mae
Institution:	National University Hospital

ABSTRACT DETAILS

Introduction

Maple Syrup Urine Disease (MSUD) is a rare autosomal-recessive inherited metabolic disorder caused by a deficiency of branched-chain alpha-ketoacid dehydrogenase complex (BCKDC). It is associated with permanent neurological deficits and poor cognitive outcomes, if left untreated. Liver transplantation is a definitive treatment option in patients with poor metabolic control despite dietary therapy and helps optimise neurocognitive outcomes and improve overall quality of life.

Method

Retrospective case note review of two children

Description

Patient 1: A baby boy presented at day 12 of life with decreased consciousness and a high anion gap metabolic acidosis. Investigations led to the diagnosis of MSUD and was he started on titrated isoleucine/ leucine diet. Despite strict compliance, his leucine levels fluctuated wildly and he had multiple admissions for intercurrent illnesses to mitigate the risk of leucine toxicity and metabolic decompensation. He underwent living related liver transplant at 3 years of age, and a re-transplantation 6 months later due to hepatic artery thrombosis and biliary strictures. While he had mild global developmental delay secondary to MSUD, he is currently almost 17-years-old and will be taking his N-levels this year.
Patient 2: A 14-day-old baby girl presented initially with poor oral intake, lethargy and jitteriness. She was eventually diagnosed with MSUD and started on a leucine-restricted diet. She had several episodes of hyperleucinemia triggered by intercurrent illnesses. She was subsequently assessed and then underwent successful living donor liver transplant at 3 years of age. She was discharged home with no clinical concern and is on a conventional diet now.

Conclusion

Although MSUD is associated with severe neurological outcomes and poor quality of life despite conventional treatment, liver transplantation offers us a definitive curative option as our experience has shown.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Nurse providers' perspectives on the nurse-led inpatient paediatric care service in Singapore: enablers and challenges to implementation.
Abstract Reference No.:	P-24

AUTHORS DETAILS	
Presenting Author:	Wang Cybil
Institution:	National University Hospital

ABSTRACT DETAILS

Background

In line with Ministry of Health(MOH)'s strategy to provide value and right-sited care, our department received an MOH grant to develop a nurse-led inpatient paediatric care program to reduce unnecessary reliance on high-cost tertiary and specialist resources. This program commenced in 2021 and serves to transit medically stable long-term inpatient patients (e.g. neuro-rehabilitation patients) back to the community.

Objectives

We aimed to explore the perspectives of the nurse providers specifically the enabling factors and challenges in implementing this program in its first year.

Methods

Semi-structured interviews were conducted with two nurse providers implementing the service. The interviews were audio-recorded, transcribed and analysed.

Results

There were two enabling factors identified. First was the development of formal protocols and guidelines including recruitment criteria, deterioration plan and referral process. This streamlined processes by reducing delays in communications and improving collaborations with the multi-disciplinary team, patients and their families. Second enabling factor comprised of professional competencies of the nurse providers. Having the relevant knowledge, skill competencies, good interpersonal skills and teamwork were essential in formulating holistic care plans, allowing smoother navigation in the patient/family journey despite multiple challenges.

One common challenge faced by the nurse providers was the parental expectations of greater physician involvement in their child's care which will often be mitigated once parents realize the value of the nurse providers. Another challenge was unexpected delays in transition from hospital to the community. The timely clinical assessments, interventions, updates and communications between the nurse providers, patient/family often aid in allaying their anxieties in these situations.

Conclusion

In this program's first year, the nurse-led program was successfully implemented despite challenges faced by our nurse providers. As models of care shift away from specialist-led care, such programs can help provide quality and high value healthcare in line with MOH's vision.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Severe Bronchopulmonary dysplasia in very low birthweight infants- What could be done for prevention?
Abstract Reference No.:	P-25

AUTHORS DETAILS	
Presenting Author:	Tan Jaime Maria
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Despite improvement of survival in extreme premature infants, incidence and severity of bronchopulmonary dysplasia (BPD) remain high.

Objectives

We aim to prospectively audit and identify the predisposing factors for severe BPD (sBPD) in very low birth weight (VLBW) infant to target prevention strategies.

Methodology

VLBW infants (birth weight ⩽1500g) born between January 2019 and December 2020 with severe BPD were audited through prospectively collected data as part of a Quality Improvement initiative. This was compared against infants with no/mild/moderate BPD from data extracted from VLBW database. Data was then anonymised and analysed.

Results

Amongst the 311 VLBW infants admitted, 27(15%) had moderate and 36(12%) had severe BPD. The incidence of sBPD was highest in birth weight ⩽750g (42%) and gestational age 23-26 weeks (37%). 4 Infants with sBPD died mostly due to BPD-related morbidities. Univariate analysisshowed gestational age, premature rupture of membranes, birth outside hospital, vaginal delivery, intubation and need for surfactant administration as significant predictors for moderate and severe BPD. Infants with significant patent ductus arteriosus, pulmonary hypertension, pneumothorax and pneumonia also had increased risk of sBPD. On multivariate logistic regression analysis, gestational age and duration of mechanical ventilation were identified as significant risk factors for sBPD. Use of continuous positive airway pressure (CPAP) compared to intubation was protective in moderate BPD. Infants with moderate/severe BPD had higher incidence of retinopathy of prematurity, intraventricular haemorrhage, sepsis and necrotising enterocolitis, indicating common predisposing factors.

Conclusion

While many factors are unmodifiable, prospectively collected data helps to identify potentially best practices in targeting reduction of sBPD. Prospective data collection on additional risk factors such as delivery room intubation, severity of respiratory distress, ventilation parameters and fluid therapy in the first week of life, may help to target interventions more precisely.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	HELPing NICU Babies Reach Home
Abstract Reference No.:	P-26

AUTHORS DETAILS	
Presenting Author:	Zhang Suhe
Institution:	National University Hospital

ABSTRACT DETAILS

Background

Each year, there are about 10 high care infants who require medical equipment support for transiting to home from the Neonatal Intensive Care Unit. Not only does the expensive medical equipment puts added financial burden on families; the complex logistic in purchasing, training, and inadequate learning leads to delay in discharge and compromises patient safety.

Objectives

To establish a unique Home Equipment Loan Programme (HELP) to provide equipment free of charge and uphold patient safety.

Methods

HELP is modelled after a library. HELP obtained the seed funding from the NUH Innovation and Productivity Fund and additional funding from individual donors. Funding was used to purchase medical equipment with preventive maintenance service. HELP was established under NUH Clinical Governance framework. All medical equipment are maintained by Bioengineer Department according to hospital standards.

Results

HELP was initiated in December 2010. Currently, HELP has 6 ventilators, 4 oxygen concentrators, 6 pulse oximeters, 4 suction units, 2 feeding pumps and other related equipment. HELP has benefited 15 families since the program inception. There has been no patient safety concerns relating to equipment use or machine fault. Patients are discharged earlier, which translated into 2-3 weeks of Neonatal ICU/HD reduced hospital stay for each patient. Families were highly satisfied and grateful. HELP also improved staff morale and work satisfaction.

Conclusions

HELP is a unique programme. HELP embodies the concept of reduce, reuse, and recycle and conserves healthcare resources for higher healthcare productivity, patient safety, and family satisfaction. This is a model for healthcare innovation that allows the team to learn and exceed their limits, to serve families in need.

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Enhancing Multidisciplinary Care of Mothers & Children through Collaborative Models & Innovations

ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Clinical Efficacy of Early vs. Late Paracetamol Therapy for Hemodynamically Significant Patent Ductus Arteriosus in Very Low Birth Weight Infants
Abstract Reference No.:	P-27

AUTHORS DETAILS	
Presenting Author:	Khoo Joyce May Lyn
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

emodynamically significant Patent ductus arteriosus (hsPDA) may alter postnatal course in very low birth weight (VLBW) infants. Management of hsPDA in this population is associated with serious drug related adverse effects. Paracetamol is yet to be establish as an effective first line option compared to indomethacin or ibuprofen. We hypothesize that early paracetamol is more effective than late therapy (after 2 weeks of postnatal age).

Objective

To compare efficacy of early vs late paracetamol therapy in VLBW infants with hsPDA.

Study design

This is a single centre, prospective cohort study to ascertain the closure rate of hsPDA with paracetamol therapy. A total of 33 VLBW infants received paracetamol during two-year study period from April 2020-2022. Baseline demographics, echocardiographic parameters and adverse effects related to paracetamol were collected and analysed.

Results

Ten infants were treated with intravenous paracetamol within the first 2 weeks of life with no prior cyclooxygenase inhibitors. The mean GA of early vs late (26.7±1.7 vs 25.5±1.7weeks of gestation,P < 0.08) with the mean birth weight of (816±226grams vs 737±182 grams, P< 0.2). The mean PDA size between the groups was 2.72± 0.65mm vs 2.78±0.7mm (P <0.8). Mean age on treatment was 27.7 and 30.4weeks of gestation in the early and late group respectively. Post treatment, 60% of hsPDA in the early treatment group closed compared to 8.7% in late treatment group, P<0.02. Ductal constriction was induced in 4 infants in early therapy. The PDA systolic velocity (pre and post treatment) increased 1.23±0.42 m/s to 3.1± 0.7 m/s in early treatment group, whereas late therapy group showed marginal change in velocity (2.12±0.72m/s vs 2.65±0.8m/s). There were no adverse effects from paracetamol treatment in both groups.

Conclusions

Early paracetamol therapy is more efficacious with no significant adverse effects in VLBW infants in the management of hsPDA.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Percutaneous Pigtail Catheters for Management of Neonatal Pneumothorax: A Better Alternative to Chest Tube Thoracostomy
Abstract Reference No.:	P-28

AUTHORS DETAILS	
Presenting Author:	Goh Marlene Samantha Sze Minn
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Pneumothorax is potentially a life-threatening condition in neonates with little compensatory pulmonary reserve. Hemodynamically significant pneumothorax requires drainage with large-bore chest tubes, and more recently with small-calibre percutaneous pigtail catheters.

Objectives: This study aims to explicate the effectiveness and safety of both the drainage systems exploring ease of insertion, rates of air-leak resolution, recurrence rates as well as potential procedural complications.

Methods

This was a retrospective observational audit reviewing medical records of new-borns with symptomatic pneumothorax admitted to tertiary neonatal intensive care unit over 4-year duration, and treated with either chest tube or pigtail catheters as the initial treatment approach. Demographic data, details related to pneumothorax, drain related parameters as well as outcome and efficacy parameters were compared among these two methods of intervention.

Results

At our institution, the incidence of symptomatic pneumothorax was 0.3% among the live-born infants. Out of 51 drainage procedures, 27 infants underwent pigtail insertion compared to 24 infants requiring chest tube thoracostomy. Baseline demographic data (e.g. gestational age, birth weight, gender, delivery mode and resuscitation history) were similar in both groups. The time for radiological clearance and resolution of air leak, duration of drain in-situ, recurrence and complication rate, as well as hospitalization duration were also comparable. Group of infants who underwent pigtail insertion required significantly less sedation (51.9% vs 83.3%; p=0.021) and invasive ventilation (63% vs 95.8%; p=0.011) than chest tube insertion. Significantly smaller calibre (8.22±1.6Fr vs 9.08±1.44Fr; p<0.05) catheter was required for pneumothorax drainage with pigtail catheter. Pigtail catheter insertion was reported to be more operator friendly and requires significantly lesser operator's post-graduate experience (8±4years vs 13±8years; p=0.015) to achieve a successful drainage.

Conclusion

Pigtail catheters, in terms of efficacy and safety, are comparatively better alternatives to traditional chest tubes and should be considered initial treatment of choice in treating neonatal pneumothorax.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Acute Aortic Thrombus Following Umbilical Artery Catheterization in Extreme Low Birth Weight Infant - Walking the tight rope of management
Abstract Reference No.:	P-29

AUTHORS DETAILS	
Presenting Author:	Ooi Boon Siew
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Umbilical artery catheter (UAC) is commonly used device in the management of critically ill neonates. One of the dreaded complications of catheterization is aortic thrombus formation, with incidence rate of 9-32%, resulting in acute lower limbs ischemia leading to significant morbidity and mortality especially in smaller and sicker infants. Management is very challenging as the risk of bleeding from anticoagulation and thrombolysis therapy can be catastrophic in extreme premature infants.

Case Report Summary

A premature infant born at 32weeks of gestation and birth weight of 960gm, developed signs of acute lower limb ischemia 4hours following UAC cannulation. Ultrasound doppler confirmed a large lower aortic thrombus extending down to bilateral common iliac arteries. After consult with Haematologist, heparin infusion was started with clinical improvement in limb colour and perfusion over the next 16hours and significant reduction in clot size on ultrasound doppler on day3 of infusion. Heparin infusion was then switched to subcutaneous low molecular weight heparin.

Learning Point Discussion

UA catheterization can lead to significant life-threatening aortic thrombus. Early and cautious use of heparin infusion can prevent severe morbidity due to organ ischemia. However, management of aortic thrombus in extreme low birth weight infant is challenging with potential risk of significant intraventricular bleed. As discussed in our case, in the event of severe ischemic complication involving lower limb, intravenous heparin infusion can be lifesaving in such vulnerable neonates. Thrombolytic and surgical options must be reserved for sick infants unresponsive to first line therapy with anticoagulants. Literature review suggests consideration of thrombolytic therapy when there is no clinical improvement within 6hours of anticoagulation infusion. Input from haematologists and detailed communication with parents regarding treatment options are crucial in the holistic management of this complication. Adequate awareness and careful treatment option consideration forms the core in management of UAC thrombosis.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Random Safety Audits in the Neonatal Unit
Abstract Reference No.:	P-30

AUTHORS DETAILS	
Presenting Author:	G Krishnan Sandhya
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Random safety audits are a safety tool which are effective in improving standards of clinical practice in the NICU. They are process audits which are rapidly performed and immediate feedback is given to the medical and nursing teams.

Objectives

We aimed to conduct random safety audits in our unit to improve neonatal care.

Methods

We designed 20 simple data collection forms to audit the electronic medical records of babies in KKH NICU and also audited medical personnel and infant monitoring equipment. We prospectively audited routine care, nutrition, infection control and respiratory care standards. Two cycles of audit were performed, one in 2020 and one in 2021. An error rate of less than 30% was considered acceptable. Immediate feedback to the department was given. Findings were also shared at the department research meetings and suggestions discussed to improve outcomes.

Result

Across the 2 cycles of audit, there was good compliance to care standards such as regular updating of parents, updating of growth parameters on growth charts, review of antibiotic duration for babies with presumed sepsis and prompt management of hypocarbia in ventilated infants. There were some audits where improvement was noted, such as the compliance with avoidance of abbreviations in written documentation (error rate improved from 100% to 80%). There was also an improvement in the timely initiation of probiotics (error rate improved from 40% to 11%) and there was also better documentation of birth parameters in the admission note (error rate improved from 70% to 36%). The other audits had variable results.

Conclusion

Random safety audits are an effective way of identifying opportunities for improvement in the NICU to improve standards of care and improve outcomes, due to instant feedback to the department and continued emphasis on the various standards of care and improved teamwork to ensure better compliance.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Project GROFeeds: Gastric Residual volume Omission for Feeds in premature infants
Abstract Reference No.:	P-31

AUTHORS DETAILS	
Presenting Author:	Ng Tien Shu Sheena
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Gastric residual volume (GRV) monitoring to determine feeding tolerance in preterm infants is a practice driven by tradition. However, routine GRV monitoring prolongs duration to attainment of full enteral feeding, slower weight gain, and prolonged hospitalization from contemporary research.

Objectives

To reduce days taken to establish full enteral feeding (130ml/kg/day) in preterm infants by 30% in 6 months.

Methods

This was a quality improvement (QI) project involving preterm neonates with birth weight (BW) <1.8 kg, admitted to the Neonatal Intensive Care Unit. Infants were stratified into three BW groups: <1kg, 1-1.5kg and 1.501-1.8kg. Routine GRV monitoring before enteral feeds was discontinued. In-service trainings for nursing staff were conducted before initiating the trial in June 2021. The primary outcome measure was days to attaining full enteral feeding.

Results

The number of days to achieve full enteral feeding decreased by 18% (median of 17 to 14 days), 13% (median of 8 to 7 days) and 29%(median 7 to 5 days) in the BW groups <1kg, 1-1.5 kg and 1.501-1.8 kg respectively. There were three cases of NEC during this period, not contributed by the project interventions on further review. The project was sustainable as the median days to achieve full enteral feeding were 15 days, 8 days and 5 days in the BW groups <1kg, 1-1.5 kg and 1.501-1.8 kg respectively- i.e. it remained below the baseline 5 months after implementation.

Conclusions

The removal of routine GRV monitoring was effective in reducing time to attaining full feeds in preterm infants BW of <1.8kg, where sustainability was demonstrated. Further efforts could be explored to improve establishment of enteral feeds in the infants with lower weight groups.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Diazoxide hypersensitivity in a hyperinsulinemic hypoglycemic neonate with a novel HNF1A-MODY gene mutation
Abstract Reference No.:	P-32

AUTHORS DETAILS	
Presenting Author:	Verma Deepti
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Diazoxide is the drug of choice for treating hyperinsulinemic hypoglycemia (HH). The diazoxide-unresponsive forms of HH have been well reported, and associated genetic mutations well studied. However, ultraresponsiveness to diazoxide is extremely rare in HH, except for a case of HNF4A gene mutation.

Methods

We report a unique case of ultra-responsiveness to diazoxide in a male term appropriate for gestational age HH infant with a novel HNF1A mutation. This infant was born to a gestational diabetic mother. He presented with early onset severe hypoglycemia requiring a maximum glucose infusion rate of 22.4mg/kg/min, and further workup confirmed HH. He was initiated on a standard dose of diazoxide (5mg/kg/day), which resulted in severe hyperglycemia, requiring diazoxide discontinuation. He passed a safety fasting study to confirm the resolution of HH. However, he developed breakthrough hypoglycemic episodes after 48 hours. He was restarted on a lower dose (2.5mg/kg/day) of diazoxide, which was further reduced step-wise based on the blood glucose trend to 0.7 mg/kg/day, where a steady normoglycemia was achieved. He was discharged on home glucose monitoring and with a hypo/hyperglycemia homecare plan. He remained euglycemic on followup initially. He is now 10 months old and required a gradual step-up of diazoxide dose to 2.5mg/kg/day following occasional hypoglycemic episodes since 6 months of age. However, he did not manifest other known adverse reactions to diazoxide.

Results

Genetic testing confirmed a novel HNF1A mutation in the proband. His mother, who had gestational diabetes, was found to carry the same HNF1A mutation.

Conclusion

Hence, we hypothesized that a patient with HH due to HNF1A mutation may require only a low dose of diazoxide and should be closely monitored for hyperglycemia/hyperosmolar coma. On discharge, parents should also be educated on monitoring and managing both hyperglycemia and hypoglycemia since diazoxide responsiveness may change over time.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Drug abuse during pregnancy and its effects on the child - A literature review on commonly abused drugs
Abstract Reference No.:	P-33

AUTHORS DETAILS	
Presenting Author:	Leow Yumei Cynthia
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Singapore remains vulnerable to the development of the international drug abuse situation with the proportion of new drug abusers remained high at 38% in 2020. Of this, 62% of them are under 30 years of age. In addition, limited information exists about the effects of drug abuse on pregnant women and their children.

Objectives

To examine the short-term and long-term effects of drug abuse in pregnancy on the physical, psychological and behavioural functions of the mothers and their fetuses and/or newborns, including the later development of these children.

Methods

PubMed, Embase and Google Scholar were searched from inception to April 2021 using a prespecified search strategy for commonly abused drugs including methamphetamine / amphetamine, heroin, cannabis, cocaine, 3,4-Methylenedioxymethamphetamine (MDMA), substitution therapy drugs, and new psychoactive substances (NPS). Only randomized controlled trials and observational studies (cohort, case-control or cross-sectional) with full text available in the English language were included.

Results

We included 13 studies for heroin, 35 studies for methamphetamine/amphetamine, 53 studies for cannabis, 57 studies for cocaine and 8 studies for MDMA in our review. For substitution therapies, 4 cohort studies were included for naltrexone and 16 studies on methadone and buprenorphine. No eligible studies were identified for NPS. Adverse maternal, neonatal, and paediatric neurodevelopmental outcomes of varying nature and extent were noted from the studies included depending on the type of drug(s) involved. However, many of the published studies were often confounded by polysubstance abuse, poor lifestyle factors and poor maternal health and nutrition.

Conclusions

Drug abuse during pregnancy often results in various adverse maternal and child outcomes. Public and healthcare professional education with the aim to deter initiation and support cessation of drug abuse among women of childbearing age would be important to mitigate the potential risks associated with unplanned pregnancies in this group.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Recurrent hypoglycemia in preterm and small-for-gestational-age infants: "A transitional glycogen storage disorder," not hyperinsulinism
Abstract Reference No.:	P-34

AUTHORS DETAILS	
Presenting Author:	Skanthakumar Abhirami
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Severe hypoglycemia in newborn infants is of immediate clinical concern, as delayed diagnosis, and treatment lead to severe neurological sequelae. Preterm and small for gestational age infants are at-risk for hypoglycemia, with biochemical profiles characterized by hyperinsulinism, weak counter-regulatory hormonal responses, immature hepatic enzyme systems, and inadequate glycogen stores, the latter three are often overlooked, leading to an overemphasis on addressing hyperinsulinism.

Case Report

We describe two late-preterm infants with severe hypoglycemia from birth, necessitating high glucose infusion rates to maintain normoglycemia. In case 1, biochemical and metabolic testing ruled out hyperinsulinemic hypoglycemia (HH) and confirmed adrenal and growth hormone response adequacy. In case 2, initial critical blood samples were consistent with HH and normal counter-regulatory hormone response. Diazoxide was initiated but discontinued due to necrotizing enterocolitis (NEC). On recovery from NEC, the infant showed spontaneous resolution of HH. On days 33 and 34, respectively, these infants failed a safety-fasting study to document the normalization of glucose homeostasis. Weight gain was adequate with feeds of 180-200ml/kg/day. A glucagon stimulation test (0.5mg of glucagon intramuscular) in both infants showed an inadequate response (<1mmol/L of glucose rise at 1hour), suggesting glycogen storage disease (GSD). Genetic testing using the hypoglycemia panel did not reveal any pathogenic variants of GSD or HH. In both infants, the inability to release glucose from glycogen stores was attributed to hepatic enzyme immaturity. They responded well to 2hourly feeds while on home glucose monitoring and made a spontaneous recovery from glucose dysregulation over 8-12 weeks, keeping with the diagnosis of transitional hepatic enzyme immaturity.

Conclusion

Independent glucose regulation in newborns is mediated by complex enzyme interplays that maintain glucose homeostasis. A systematic approach to neonatal hypoglycemia is essential to avoid morbidity from delayed diagnosis, prolonged recurrent, and severe hypoglycemic episodes, and unnecessary diazoxide therapy.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Preparation and consideration for establishment of an isolation maternity unit in a tertiary hospital during COVID-19 pandemic
Abstract Reference No.:	P-35

AUTHORS DETAILS	
Presenting Author:	Ngeow Alvin
Institution:	Singapore General Hospital

ABSTRACT DETAILS

Background

The SARS-CoV-2 pandemic is rapidly evolving and remains a major health challenge worldwide.

Objectives

With an increase in pregnant women with COVID-19 infection, we recognized an urgent need to set up a multidisciplinary taskforce to provide safe and holistic care for this group of women.

Methods & Results

In this review of practice in a tertiary hospital in Singapore, we discuss the key considerations in setting up an isolation maternity unit and our strategies for peripartum and postpartum care.

Through teleconsultation, we involve these women and their families in the discussion of timing and mode of birth, disposition of babies after birth and safety of breastfeeding to enable them to make informed decisions and individualize their care.

Conclusions

A coordinated multidisciplinary care approach is critical in taking care of COVID-19 pregnant women who are at risk of COVID- 19 related complications while maintaining the safety of the healthcare team. Simulation activities are important to improve the workflow process, refine the protocols and identify latent gaps in the preparation process. Patients' autonomy should be respected through a shared decision-making process by providing them with the latest evidence on labour and postpartum care in the current pandemic.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Congenital palatal teratoma leading to neonatal airway obstruction: A case report
Abstract Reference No.:	P-36

AUTHORS DETAILS	
Presenting Author:	Vora Shrenik Jitendrakumar
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background

Congenital teratomas are rare, benign, female predominance tumours occurring primarily at sacrococcygeal region with only 2-9% occurrence rate in head and neck. Palatal teratomas often arise from the midline or lateral nasopharyngeal wall, where they may cause symptoms related to airway or esophageal obstruction such as respiratory distress, stridor and feeding difficulty.

Clinical Case Summary

A full-term female infant, with normal antenatal fetal scan, presented at birth with respiratory distress and stridor. Clinical examination revealed fleshy mass protruding from oral cavity, causing partial airway obstruction. Clinical examination and MRI confirmed multi-lobulated palatal teratoma arising from the right soft palate, with extension into the nasopharynx, oral cavity and laryngeal inlet. Infant underwent excision biopsy with partial debulking of tumour surrounding the airway. Histopathological examination showed a mixture of mature tissue from three germ cell layers including glandular epithelium, neuroglial tissue, choroid plexus, blood vessels and a fibrous stroma, consistent with diagnosis of mature teratoma.

Learning Points Discussion

Teratomas, an aberrant proliferation of pluripotent cells during embryogenesis, rising from mature well-differentiated germinal cell tissues, are usually benign. Nevertheless, they can be associated with high mortality incidence due to severe airway compromise, or from massive bleeding due to their vascularized nature. Elevated maternal alpha-fetoprotein, polyhydramnios, fetal ultrasound and MRI scan leads to diagnosis and delineation of tumour that may require emergency treatment in the delivery room to avoid shoulder dystocia, rupture of tumor and airway compromise. Postnatally, mainstay of treatment is surgical resection to provide airway clearance, which can also be curative, or at least minimizes the risk of malignant degeneration. Multidisciplinary follow-up with regular clinical, radiological and laboratory surveillance should continue throughout early life to identify recurrence, support feeding and speech development. Our case highlights the importance of early diagnosis, protection of airway and multidisciplinary approach in improving neonatal outcome.

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ABSTRACT SUMMARY	
Event Name:	10th Singapore Paediatric & Perinatal Annual Congress SiPPAC 2022 (Abstract)
Abstract Title*:	Trends in Parenting self-efficacy in First-Time Mothers in Singapore – and interim analysis
Abstract Reference No.:	P-37

AUTHORS DETAILS	
Presenting Author:	Chay Oh Moh
Institution:	KK Women's and Children's Hospital

ABSTRACT DETAILS

Background & Objectives

Improved parenting self-efficacy (PSE) contributes to positive health outcomes of parent and child. First-time mothers are usually apprehensive of their new role and are particularly need of support to improve their early PSE and experience. Presently in Singapore, there is a lack of effective and sustainable programmes to improve PSE for first-time parents. The Community enabled Readiness for first 1000-Days Learning Ecosystem (CRADLE) programme seeks to develop a self-learning eco-community from pregnancy to early childhood, to encourage PSE and improve health outcomes for first-time mothers. The randomised controlled trial recruited 548 pregnant women from KK Women's and Children's Hospital. Participants are randomly assigned to receive (1) standard routine care; (2) behavioural nudges through short text messages and engagement via social media; or (3) continuity care involving engagement with midwives from pregnancy until six-months post-delivery. All participants are invited to biannual education seminars. The primary outcome is PSE, while the secondary outcomes include health and birth experience. Participants are followed-up from recruitment until child turns two years old, through the measurement of health and nutrition domains using patient-reported outcome measures. At the end of the study, effects of the interventions across all arms will be evaluated.

Methods

Participants were requested to complete the Parenting Sense of Competence (PSOC), which is a 16-item scale that measures parental satisfaction (the extent to which parents are satisfied with their role as a parent) and parental self-efficacy (the extent to which parents perceive they are able to manage the role of being a parent). A higher score indicates a higher parenting sense of competency. The questionnaire was administered at 6-weeks, 6-months and 12-months post-delivery. 43 participants had completed all 3-point of the survey.

Results

A significant improvement in parenting self-efficacy was noted between 6-weeks post-delivery (64.4 points) and 6-months post-delivery (69.3 points, p-value = <.0001) and 12-months postpartum (68.9%, p-value = 0.0003).

Conclusions

Based on the interim results, an upward trend is observed in parenting self-efficacy over time, which may be attributed to the interventions provided by CRADLE. With more data, the results will be confirmed at the end of the trial in the next 2 years. However, these early data provide an encouraging indication that various methods of interventions conducted in the first 1000 days of life may lead to an improvement in parental self-efficacy.

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