ARTICLES OF INTEREST – November 2018

Randomized trial of platelet-transfusion thresholds in neonates

In a multicenter trial of 660 infants <34 weeks’ gestation, infants randomized to a platelet transfusion threshold of 50 x 10^9/L (high), compared to 25 x 10^9/L (low), were assessed for the primary outcome of death or major new bleeding within 28 days after randomization. Death or new major bleeding was more common among infants randomized to the high platelet threshold group, compared to the low group (26% vs. 19%; OR 1.57; 95% CI 1.06-2.32, P=0.02).

Corticosteroids for the prevention of bronchopulmonary dysplasia in preterm infants: a network meta-analysis

A Bayesian network meta-analysis and subgroup analyses was performed analyzing 47 RCT’s and 6747 participants, looking at comparative efficacy and safety of corticosteroids in the prevention of bronchopulmonary dysplasia (BPD) in preterm infants. The use of dexamethasone at either high dose or low dose decreased the risk of BPD. Aggressive initiation was found to be beneficial. High dose and long term use was associated with higher risk of CP. Budesonide was associated with a decreased risk of BPD in extremely preterm and low birthweight infants.

Preterm neuroimaging and neurodevelopmental outcome: a focus on intraventricular hemorrhage, post-hemorrhagic hydrocephalus, and associated brain injury

The goal of this review is to describe the distinct and often overlapping types of brain injury in the preterm neonate, with a focus on neonatal hydrocephalus, and to connect injury on imaging to neurodevelopmental outcome risk. Intraventricular hemorrhage in the setting of prematurity remains the most common cause of acquired hydrocephalus. Neonates with progressive post-hemorrhagic hydrocephalus are at risk for adverse neurodevelopmental outcomes.

Melatonin acts in synergy with hypothermia to reduce oxygen-glucose deprivation-induced cell death in rat hippocampus organotypic slice cultures

In this study hypoxia-ischemia was simulated by transient oxygen-glucose deprivation (OGD) in organotypic hippocampal slice cultures derived from neonatal rats. Melatonin reduced OGD-induced
cell death in a concentration-dependent manner. When submaximal effective concentrations of melatonin were combined with 6 h of hypothermia, nearly full protection (73 and 78%, respectively; p < 0.05 and p < 0.01) was observed. This information, coupled with pharmacokinetic data, will help to define the therapeutic dosage of melatonin in vivo and, ultimately, in patients.

Ventilation prior to umbilical cord clamping improves cardiovascular stability and oxygenation in preterm lambs after exposure to intrauterine inflammation

Delaying umbilical cord clamping until after aeration of the lung (physiological-based cord clamping; PBCC) was found to maintain cardiac output and prevent a fall in cerebral oxygen delivery at birth, when compared to immediate cord clamping (ICC) in preterm lambs exposed antenatally to 7 days of intrauterine inflammation. PBCC lambs had lower respiratory compliance and higher respiratory requirements throughout the study which needs further investigation.

Improved outcomes in preterm infants fed a non-acidified liquid human milk fortifier: a prospective randomized clinical trial

This multicenter prospective study randomized 164 infants (≤32 weeks of gestation, birth weight 700-1500 g) to receive either an acidified or a nonacidified human milk fortifier. The authors found that infants fed an acidified liquid human milk fortifier had higher rates of metabolic acidosis and poor feeding tolerance compared with infants fed a nonacidified liquid human milk fortifier.

Adding paracetamol to ibuprofen for the treatment of patent ductus arteriosus in preterm infants: a double-blind, randomized, placebo-controlled pilot study

This single-center, double-blind pilot study randomized 24 infants (24 to 316/7 weeks postmenstrual age) to receive either ibuprofen + paracetamol or ibuprofen + placebo. The authors found that there was a trend toward higher hemodynamically significant PDA closure in the paracetamol group in comparison to the placebo group (83 vs. 42%, p = 0.08). No adverse effects, clinical or laboratory, were associated with adding paracetamol.

OTHER NOTEWORTHY PUBLICATIONS – November, 2018

Pediatrics
Experiences with medical exemptions after a change in vaccine exemption policy in California
Shortened IV antibiotic course for uncomplicated, late-onset group b streptococcal bacteremia
Variation in use by NICU types in the United States
Pediatricians’ participation in quality improvement at the time of enrollment in MOC
Antecedents of obesity among children born extremely preterm
Gestational age, health, and educational outcomes in adolescents
Uncomplicated late-onset group b streptococcal bacteremia: can we do less than 10 days IV?
Making MOC quality improvement participation meaningful
Antibiotic shortages in pediatrics

Partnering with parents to create a research advisory board in a pediatric research network

The clinical COACH: how to enable your learners to own their learning

Neurodevelopmental consequences of preterm isolated cerebellar hemorrhage: a systematic review

Ultrasound guidance for pediatric central venous catheterization: a meta-analysis

Should foreigners get costly lifesaving treatments in the United States?

Journal of Pediatrics

Predictors of prolonged breast milk provision to very low birth weight infants

Improved outcomes in preterm infants fed a non-acidified liquid human milk fortifier: a prospective randomized clinical trial

Energy and protein intake during the transition from parenteral to enteral nutrition in infants of very low birth weight

Assessing positive child health among individuals born extremely preterm

Relationship of patent ductus arteriosus size to echocardiographic markers of shunt volume

Association of atrial septal defects and bronchopulmonary dysplasia in premature infants

The oxygen load supplied during delivery room stabilization of preterm infants modifies the DNA methylation profile

The placenta in neonatal encephalopathy: a case–control study

Language trajectories of children born very preterm and full term from early to late childhood

Long-term academic functioning following cogmed working memory training for children born extremely preterm: a randomized controlled trial

Amplitude-integrated electroencephalography for early recognition of brain injury in neonates with critical congenital heart disease

Use of acid suppressive medications and antibiotics in young infants is associated with development of allergic disease

Pediatric Research

Defining outcomes following congenital diaphragmatic hernia using standardized clinical assessment and management plan (SCAMP) methodology within the CDH EURO consortium
Neonatologist Performed Echocardiography (NPE) Special Edition
Education, training, and accreditation of neonatologist performed echocardiography in Europe—framework for practice

Introduction to neonatologist-performed echocardiography

The role of neonatologist performed echocardiography in the assessment and management of neonatal shock

Tissue doppler velocity imaging and event timings in neonates: a guide to image acquisition, measurement, interpretation, and reference values

Application of neonatologist performed echocardiography in the assessment and management of persistent pulmonary hypertension of the newborn

Deformation imaging and rotational mechanics in neonates: a guide to image acquisition, measurement, interpretation, and reference values

Application of NPE in the assessment of a patent ductus arteriosus

Application of neonatologist performed echocardiography in the assessment and management of neonatal heart failure unrelated to congenital heart disease

Role of neonatologist-performed echocardiography in the assessment and management of patent ductus arteriosus physiology in the newborn


Archives of Disease in Childhood - Fetal & Neonatal Edition
Postnatal steroids: still a dilemma for neonatologists and parents?

Little and large: the effects of twin growth discordance
Challenge of determining true outcome of congenital diaphragmatic hernia
Corticosteroids for the prevention of bronchopulmonary dysplasia in preterm infants: a network meta-analysis
Cognitive outcome in childhood of birth weight discordant monochorionic twins: the long-term effects of fetal growth restriction
Early population-based outcomes of infants born with congenital diaphragmatic hernia
High versus standard dose caffeine for apnoea: a systematic review
Physiologically based cord clamping stabilises cardiac output and reduces cerebrovascular injury in asphyxiated near-term lambs
Haemodynamic effects of umbilical cord milking in premature sheep during the neonatal transition
Epidemiology of UK neonatal infections: the neonIN infection surveillance network
Persistent pulmonary hypertension of the newborn in extremely preterm infants: a Japanese cohort study
Neonatal mannequin comparison of the upright self-inflating bag and snap-fit mask versus standard resuscitators and masks: leak, applied load and tidal volumes
Dose-dependent relationship between acidosis at birth and likelihood of death or cerebral palsy
Referrals to a perinatal specialist palliative care consult service in Ireland, 2012–2015
Updated birth weight centiles for England and Wales
Stem cell-based therapies in neonatology: a new hope
Fetal surgery for spina bifida aperta
Perforated necrotising enterocolitis presenting as a rapidly expanding abdominal mass in a preterm neonate
Ischaemic limb lesion in monochorionic twin infant
Oesophageal atresia with tracheo-oesophageal fistula: an unusual radiological presentation
Journal of Perinatology
Preterm neuroimaging and neurodevelopmental outcome: a focus on intraventricular hemorrhage, post-hemorrhagic hydrocephalus, and associated brain injury
Utility of prenatal MRI in the evaluation and management of fetal ventriculomegaly
In-utero idiopathic ductal constriction: a prenatal manifestation of Alagille and Williams syndrome arteriopathy
Length of stay and cost of birth hospitalization: effects of subfertility and ART
Antenatal steroids and thyroid hormone function in preterm infants
Initial hematocrit values after birth and peri/intraventricular hemorrhage in extremely low birth weight infants
Neonatal Resuscitation and Adaptation Score vs Apgar: newborn assessment and predictive ability
High-sensitivity troponin T in preterm infants with a hemodynamically significant patent ductus arteriosus
Thyroid function in neonates of women with subclinical hypothyroidism or hypothyroxinemia
Prevalence and safety of diazoxide in the neonatal intensive care unit
Genetic relatedness of Gram-negative bacteria colonizing gut and skin of neonates and mother’s own milk
Does fluid restriction improve outcomes in infants with hypoxic ischemic encephalopathy? A pilot randomized controlled trial
Early neonatal morbidities and neurological functioning of preterm infants 2 weeks after birth
Ductus arteriosus outcome with focus on the initially patent but hemodynamically insignificant ductus in preterm neonates
Transcutaneous bilirubinometer use and practices surrounding jaundice in 150 California newborn intensive care units
Effect of reading to preterm infants on measures of cardiorespiratory stability in the neonatal intensive care unit
Respiratory morbidities in late preterm and term infants with myelomeningocele
Outcomes of extremely premature infants with twin–twin transfusion syndrome treated by laser therapy
Impact of respiratory viruses in the neonatal intensive care unit
Efficacy of daily supplementation of 800 IU vitamin D on vitamin D status at 6 months of age in term healthy Indian infants
Suspected or known neonatal sepsis and neurodevelopmental delay by 5 years
Implementation of the sepsis risk score for chorioamnionitis-exposed newborns

Factors associated with retinopathy of prematurity ophthalmology workload

**Neonatology**

Catch-up growth, rapid weight growth, and continuous growth from birth to 6 years of age in very-preterm-born children

Effect of a low-dose/high-frequency training on real-life neonatal resuscitation in a low-resource setting

Elimination of ABO blood group incompatible fetal red blood cells in the maternal circulation: relevance to the diagnosis of fetal-maternal hemorrhage

Biomarker discovery by mass spectrometry in cerebrospinal fluid and plasma after global hypoxia-ischemia in newborn piglets

Perinatal anemia is associated with neonatal and neurodevelopmental outcomes in infants with moderate to severe perinatal asphyxia

Variations in oxygen saturation targeting, and retinopathy of prematurity screening and treatment criteria in neonatal intensive care units: an international survey

Vertical transmission of mycoplasma pneumoniae infection

Non-immune hydrops, hypotonia, encephalopathy, and liver failure with novel compound heterozygous AHCY mutations

Predictive value of thompson-score for long-term neurological and cognitive outcome in term newborns with perinatal asphyxia and hypoxic-ischemic encephalopathy undergoing controlled hypothermia treatment

Optimal thermal control with sufficient nutrition may reduce the incidence of neonatal jaundice by preventing body-weight loss among non-low birth weight infants not admitted to neonatal intensive care unit

Maternal high-fat diet modifies the immature hippocampus vulnerability to perinatal asphyxia in rats

Navigating a mid-level gap in neonatal resuscitation

Melatonin acts in synergy with hypothermia to reduce oxygen-glucose deprivation-induced cell death in rat hippocampus organotypic slice cultures

**American Journal of Perinatology**

Effect of maternal body mass index and amniotic fluid index on the accuracy of sonographic estimation of fetal weight in late gestation

Past and present: a review of antenatal corticosteroids and recommendations for late preterm birth steroids
Effect of gestational and lactational exposure to DEHP, DINP, and DEP on intestinal morphology, disaccharidases, and alkaline phosphatase in rats during postnatal development

Antenatal vitamin D preserves placental vascular and fetal growth in experimental chorioamnionitis due to intra-amniotic endotoxin exposure

Factors associated with stillbirth autopsy in Georgia and Utah, 2010–2014: the importance of delivery location

The efficacy of neutral position beractant administration in neonates

Reducing alarm fatigue in two neonatal intensive care units through a quality improvement collaboration

Adding paracetamol to ibuprofen for the treatment of patent ductus arteriosus in preterm infants: a double-blind, randomized, placebo-controlled pilot study

Skin punctures in preterm infants in the first 2 weeks of life

Early pulse oximetry data improves prediction of death and adverse outcomes in a two-center cohort of very low birth weight infants

Journal of Neonatal-Perinatal Medicine
The relationship of cervical microbiota diversity with race and disparities in preterm birth

Maternal Health, Neonatology and Perinatology
Association between furosemide in premature infants and sensorineural hearing loss and nephrocalcinosis: a systematic review

Pregnancy gestation at delivery and breast milk production: a secondary analysis from the EMPOWER trial

Neoreviews
Historical perspectives: beyond the first breath: hyaline membrane disease and constructing the neonatal patient, 1959–1975
[http://neoreviews.aappublications.org/content/neoreviews/19/11/e636.full.pdf](http://neoreviews.aappublications.org/content/neoreviews/19/11/e636.full.pdf)

Enteral feeding of the preterm infant
[http://neoreviews.aappublications.org/content/19/11/e645.full-text.pdf](http://neoreviews.aappublications.org/content/19/11/e645.full-text.pdf)

Influences of feeding on necrotizing enterocolitis
[http://neoreviews.aappublications.org/content/19/11/e664.full-text.pdf](http://neoreviews.aappublications.org/content/19/11/e664.full-text.pdf)

Probiotics, prebiotics, and synbiotics for preterm neonates
[http://neoreviews.aappublications.org/content/19/11/e675.full-text.pdf](http://neoreviews.aappublications.org/content/19/11/e675.full-text.pdf)

The rapidity of advancement of feedings in premature infants: evidence basis and current recommendations
[http://neoreviews.aappublications.org/content/19/11/e680.full-text.pdf](http://neoreviews.aappublications.org/content/19/11/e680.full-text.pdf)

Case 1: Multiple fractures at birth
[http://neoreviews.aappublications.org/content/19/11/e682.full-text.pdf](http://neoreviews.aappublications.org/content/19/11/e682.full-text.pdf)
Case 2: Newborn with acute-onset central cyanosis
http://neoreviews.aappublications.org/content/19/11/e686.full-text.pdf
Case 3: Premature infant with anemia and high-output cardiac failure
http://neoreviews.aappublications.org/content/19/11/e690.full-text.pdf
Strip of the month: Complete heart block masquerading as a reactive nonstress test
http://neoreviews.aappublications.org/content/19/11/e698.full-text.pdf
Newborn with enlarged head, narrow thorax, and short limbs
http://neoreviews.aappublications.org/content/19/11/e707.full-text.pdf
Recomendaciones del VIII Consenso Clínico de SIBEN para la displasia broncopulmonar
http://neoreviews.aappublications.org/content/19/11/e712.full-text.pdf

JAMA Pediatrics
The Affordable Care Act, breastfeeding, and breast pump health insurance coverage
Need for reassessment of early transpyloric feeding in preterm infants
Association of race/ethnicity with very preterm neonatal morbidities
https://www.ncbi.nlm.nih.gov/pubmed/30208467
Potential benefits of inhaled nitric oxide in pulmonary hypoplasia in premature neonates

BMC Pediatrics
Neurodevelopmental outcome of late preterm infants in Johannesburg, South Africa (PDF)
Case report: Acute clinical presentation and neonatal management of primary hyperparathyroidism due to a novel CaSR mutation (PDF)
Effectiveness of weekly cell phone counselling calls and daily text messages to improve breastfeeding indicators (PDF)
Growth during the first year in infants affected by neonatal abstinence syndrome (PDF)
Growth patterns from birth to 24 months in Chinese children: a birth cohorts study across China (PDF)
Mode of delivery and short-term infant health outcomes: a prospective cohort study in a peri-urban Indian population (PDF)
Healthcare workers’ views on the use of continuous positive airway pressure (CPAP) in neonates: a qualitative study in Andhra Pradesh, India (PDF)
Hypertriglyceridaemia in extremely preterm infants receiving parenteral lipid emulsions (PDF)
Cultural adaptation and harmonization of four Nordic translations of the revised Premature Infant Pain Profile (PIPP-R) (PDF)
Isolated neonatal bilateral vocal cord paralysis revealing a unilateral medullary defect: a case report (PDF)
A retrospective study of neonatal case management and outcomes in rural Rwanda post implementation of a national neonatal care package for sick and small infants (PDF)
Sleep and its relationship to health in parents of preterm infants: a scoping review (PDF)

Burden and factors associated with clinical neonatal sepsis in urban Uganda: a community cohort study (PDF)

Can echocardiographic screening in the early days of life detect critical congenital heart disease among apparently healthy newborns? (PDF)

**Pediatric Critical Care Medicine**
Multicenter validation of the vasoactive-ventilation-renal score as a predictor of prolonged mechanical ventilation after neonatal cardiac surgery
An analysis of risk factors for hemolysis in children on extracorporeal membrane oxygenation
Hemolysis during pediatric extracorporeal membrane oxygenation: associations with circuitry, complications, and mortality
Oxygenator impact on ceftaroline in extracorporeal membrane oxygenation circuits

**New England Journal of Medicine**
Of tragedies and miracles - neonatal organ donation
Ethical problems in decision making in the neonatal ICU
Randomized trial of platelet-transfusion thresholds in neonates
What we can do about maternal mortality - and how to do it quickly
https://www.ncbi.nlm.nih.gov/pubmed/30380396
Postpartum care in the United States - new policies for a new paradigm

**Lancet**
Early clindamycin for bacterial vaginosis in pregnancy (PREMEVA): a multicentre, double-blind, randomised controlled trial
Quantifying the burden of stillbirths before 28 weeks of completed gestational age in high-income countries: a population-based study of 19 European countries
Stillbirths count, but it is now time to count them all
Awareness of fetal movements and care package to reduce fetal mortality (AFFIRM): a stepped wedge, cluster-randomised trial
Encouraging awareness of fetal movements is harmful
JAMA
Reducing maternal mortality in the United States

BMJ
Baby care: RCOG finds average of seven factors behind each stillbirth, neonatal death, and brain injury
Research waste is still a scandal—an essay by Paul Glasziou and Iain Chalmers

Pediatric Infectious Disease Journal
A 2-week-old neonate with progressive stridor
Safety of in utero and neonatal antiretroviral exposure: cognitive and academic outcomes in HIV-exposed, uninfected children 5-13 years of age
Vitamin D insufficiency in HIV-infected pregnant women receiving antiretroviral therapy is not associated with morbidity, mortality or growth impairment in their uninfected infants in Botswana
Clinical and laboratory characteristics of central nervous system herpes simplex virus infection in neonates and young infants
Micafungin in premature and non-premature infants: a systematic review of 9 clinical trials
Congenital cytomegalovirus-related hospitalizations in infants <1 year of age, United States, 1997-2009
Mechanism for prevention of infection in preterm neonates by topical emollients: a randomized, controlled clinical trial
Two cases of neonatal human parechovirus 3 encephalitis
Severe blastomycosis in infants

Pediatric Cardiology
Developmental origin of the cardiac conduction system: insight from lineage tracing (PDF)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6096846/pdf/246_2018_Article_1906.pdf
Fetal and postnatal echocardiographic diagnosis of Ebstein anomaly of the mitral valve
Characterization of the placenta in the newborn with congenital heart disease: distinctions based on type of cardiac malformation (PDF)
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6096845/pdf/246_2018_Article_1876.pdf
Impact of fetal somatic growth on pulmonary valve annulus z-scores during gestation and through birth in patients with tetralogy of Fallot
Mechanisms of trabecular formation and specification during cardiogenesis
The genetic landscape of hypoplastic left heart syndrome
**Pediatric Neurology**
The role of the pediatric neurologist in the care of children with neurodevelopmental disabilities

**Obstetrics and Gynecology**
Neonatal morbidity in the offspring of obese women without hypertension or diabetes
https://www.ncbi.nlm.nih.gov/pubmed/30130347
One-step approach to identifying gestational diabetes mellitus: association with perinatal outcomes
Association between gestational weight gain and perinatal outcomes
Intrapartum fetal heart rate tracing among small-for-gestational age compared with appropriate-for-gestational-age neonates

**American Journal of Obstetrics & Gynecology**
Early prognostic factors of outcomes in monochorionic twin pregnancy: systematic review and meta-analysis
Historical (retrospective) cohort studies and other epidemiologic study designs in perinatal research
Comparing the Hadlock fetal growth standard to the Eunice Kennedy Shriver National Institute of Child Health and Human Development racial/ethnic standard for the prediction of neonatal morbidity and small for gestational age
Comparison of the Hadlock and INTERGROWTH formulas for calculating estimated fetal weight in a preterm population in France

**BASIC SCIENCE SELECTIONS**
Ventilation prior to umbilical cord clamping improves cardiovascular stability and oxygenation in preterm lambs after exposure to intrauterine inflammation

Gene expression signatures point to a male sex-specific lung mesenchymal cell PDGF receptor signaling defect in infants developing bronchopulmonary dysplasia

Comparative effects of coenzyme Q10 or n-3 polyunsaturated fatty acid supplementation on retinal angiogenesis in a rat model of oxygen-induced retinopathy

Disulphide bridges in surfactant protein b analogues affect their activity in synthetic surfactant preparations
Human milk oligosaccharides increase mucin expression in experimental necrotizing enterocolitis
Wu RY, Li B, Koike Y et al. Mol Nutr Food Res.

A new high hydrostatic pressure process to assure the microbial safety of human milk while preserving the biological activity of its main components

Dose-dependent exacerbation of ventilation-induced lung injury by erythropoietin in preterm newborn lambs
Allison BJ, LaRosa DA, & Barton SK. J Appl Physiol.

ADDITIONAL JOURNAL SELECTIONS
Inguinal hernia in preterms in neonatal intensive care units: optimal timing of herniorrhaphy and necessity of contralateral exploration in unilateral presentation

Early red cell transfusion is associated with development of severe retinopathy of prematurity

Can functional polymorphisms in VEGF and MMP predict intraventricular hemorrhage in extremely preterm newborns?

Predictive role of urinary metabolic profile for abnormal MRI score in preterm neonates
Tataranno ML, Perrone S, Longini M. Dis Markers.

Modulators of inflammation in bronchopulmonary dysplasia
Savani RC. Semin Perinatol.

Recent advances in the pathogenesis of BPD
Morty RE. Semin Perinatol.

Connection between gut microbiome and brain development in preterm infants
Lu J & Claud EC. Dev Psychobiol.

Nanotherapies for micropreemies: stem cells and the secretome in bronchopulmonary dysplasia
Lesage F & Thébaud B. Semin Perinatol.