ARTICLES OF INTEREST – October 2018

**Neuroprotective exendin-4 enhances hypothermia therapy in a model of hypoxic-ischaemic encephalopathy**

The authors hypothesized that Exendin-4, a drug used to treat type 2 diabetes mellitus that has also demonstrated neuroprotective properties would protect newborn mice from HIE. Exendin-4 started at 0h resulted in significant neuroprotection, impacting tissue infarction, cell death, astrogliosis, microglial and endothelial activation. Exendin-4 also resulted in significant neuroprotection alone, and enhanced the cerebroprotective effect of therapeutic hypothermia. Given the safety and tolerance of high dose therapy and its neuroprotective effect, exendin-4 may be a novel adjunctive medication for HIE.

**Thrombocytopenia is associated with severe retinopathy of prematurity**

In 202 preterm infants, the authors found that thrombocytopenia (<100 × 10⁹/l) at ≥30 weeks age was independently associated with severe ROP requiring treatment. In a mouse oxygen-induced retinopathy model of ROP, platelet counts were lower at peak of neovascularization compared to controls. Platelet transfusions suppressed neovascularization and decreased VEGF expression while platelet depletion had the opposite effects. These data suggest that platelet release has a local antiangiogenic effect on endothelial cells to exert a downstream suppression of VEGFA in neural retina.

**Childhood seizures after phototherapy**

In this retrospective review of 37,683 infants who received phototherapy, followed from 1995 – 2011, with a mean follow-up time of 8.1 years, there was a slightly higher risk of seizures, with an adjusted hazard ratio of 1.22 (95% CI: 1.05 to 1.42; P = .009). The risk was more significant in boys with a higher overall risk of seizures and higher hazard risk ratio for phototherapy.

**Monitoring cerebral oxygenation of the immature brain: a neuroprotective strategy?**
van Bel F & Mintzer JP. *Pediatr Res*.

This review article discusses the possible neuroprotective role of “pattern recognition” of NIRS-derived cerebral oxygenation. The authors discuss areas where monitoring cerebral oxygenation may help minimize severe IVH and hypoxia/hyperoxia-related white matter injury and include hypo/hypercapnia, hypotension, impaired cerebral autoregulation, hemodynamically significant PDA, anemia,
hypoglycemia, and post-hemorrhagic hydrocephalus. The article concludes with a call for international consensus and a brief discussion of legal implications.

**Vitamin D and associated perinatal-neonatal outcomes among extremely low-birth-weight infants**

In this prospective cohort study of 60 extremely low birth weight infants, circulating 25-OH Vitamin D concentrations were assessed in the first 3 days after birth. Among the enrolled infants, 22% were Vitamin D deficient (level <20 ng/mL), 25% were insufficient (level 20-30 ng/mL) and 53% had adequate 25-OH Vitamin D levels (> 30 ng/mL). Initial 25-OH Vitamin D concentrations were associated with fetal growth restriction and prolonged rupture of the membranes.

**Bronchopulmonary dysplasia appropriateness as a surrogate marker for long-term pulmonary outcomes: a systematic review**

Five studies were included in this systematic review of large, multi-centered blinded, randomized control trials to evaluate the use of BPD as a surrogate marker for long term pulmonary outcomes. Only one study found a consistent risk reduction in both BPD and pulmonary outcomes. Hence BPD was found to be an imperfect surrogate marker; furthermore, there was wide variation in the definitions of BPD and pulmonary outcomes measured.

**Anesthetic exposure and neurodevelopmental outcomes in the neonate**
Vinson AE & Houck CS. *NeoReviews.*

Children exposed to anesthetic agents before age 4 are at higher risk for behavioral and learning deficits, potentially resulting from anesthesia-related hemodynamic disturbances and/or hypocapnea. Ongoing research is exploring the preclinical dose-response relationship to neurotoxicity, comparisons of drugs that mitigate neurotoxicity and specific translatable biomarkers. Inflammation and inflammatory markers are also being explored.

**Effects of myo-inositol on type 1 retinopathy of prematurity among preterm infants <28 weeks' gestational age: a randomized clinical trial**

This randomized clinical trial to test the adverse events and efficacy of myo-inositol to reduce type 1 ROP included 638 premature infants younger than 28 weeks' gestational age enrolled from 18 neonatal intensive care centers throughout the US. The trial was terminated early due to a statistically significantly higher mortality rate in the myo-inositol group. Among premature infants younger than 28 weeks' gestational age, treatment with myo-inositol for up to 10 weeks did not reduce the risk of type 1 ROP or death vs. placebo. These findings do not support the use of myo-inositol among premature infants; however, the early termination of the trial limits definitive conclusions.

**OTHER NOTEWORTHY PUBLICATIONS – October, 2018**

**Pediatrics**
Hyperbilirubinemia, phototherapy, and childhood asthma (PDF)  
http://pediatrics.aappublications.org/content/pediatrics/142/4/e20180662.full.pdf
Infant feeding and weight gain: separating breast milk from breastfeeding and formula from food 
Incidence of congenital hypothyroidism over 37 years in Ireland  
Modes of death within a children’s hospital
Infant walker–related injuries in the United States
Eye findings in infants with suspected or confirmed antenatal Zika virus exposure
Epigenetic programming by maternal behavior in the human infant (PDF)
The role of integrated care in a medical home for patients with a fetal alcohol spectrum disorder
Eliciting narratives to inform care for infants with trisomy 18

**Journal of Pediatrics**
Respiratory compliance in late preterm infants (34 0/7-34 6/7 weeks) after antenatal steroid therapy
Greater breastfeeding in early infancy is associated with slower weight gain among high birth weight infants
A randomized controlled trial of a barrier dressing to reduce nasal injury in preterm infants receiving binausal noninvasive respiratory support
Among children born extremely preterm a higher level of circulating neurotrophins is associated with lower risk of cognitive impairment at school age
The impact of being born preterm or small for gestational age on early vascular aging in adolescents
Preterm infant outcomes after randomization to initial resuscitation with FiO2 0.21 or 1.0
An assessment of public preferences for newborn screening using best–worst scaling
Pre-, perinatal, and parental predictors of body mass index trajectory milestones
Neonatal sepsis of early onset, and hospital-acquired and community-acquired late onset: a prospective population-based cohort study
Impact of blood donor sex on transfusion-related outcomes in preterm infants
Delayed cord clamping in infants with suspected intrauterine growth restriction
The effect of noninvasive high-frequency oscillatory ventilation on desaturations and bradycardia in very preterm infants: a randomized crossover trial
Association between video laryngoscopy and adverse tracheal intubation-associated events in the neonatal intensive care unit
Moving beyond race and ethnicity to understand the effect of inhaled nitric oxide on bronchopulmonary dysplasia prevention

**Pediatric Research**
Defining outcomes following congenital diaphragmatic hernia using standardized clinical assessment and management plan (SCAMP) methodology within the CDH EURO consortium
Prenatal, perinatal, and neonatal risk factors of autism spectrum disorder

Predictors of anemia and iron status at birth in neonates born to women carrying multiple fetuses

Extreme neonatal hyperbilirubinemia, acute bilirubin encephalopathy, and kernicterus spectrum disorder in children with galactosemia

Gastric fluid used to assess changes during the latency period in preterm prelabor rupture of membranes

Cerebral blood flow and serum neuron-specific enolase in early-onset neonatal sepsis

Altered metabolites in newborns with persistent pulmonary hypertension (PDF)
https://www.nature.com/articles/s41390-018-0023-y.pdf

Incidence of neonatal hypertension from a large multicenter study [Assessment of Worldwide Acute Kidney Injury Epidemiology in Neonates—AWAKEN]

Does prolonged severe hypercapnia interfere with normal cerebrovascular function in piglets?

**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**

N Improved pregnant women’s understanding of research information by an enhanced informed consent form: a randomised controlled study nested in neonatal research

Analysis of unsuccessful intubations in neonates using videolaryngoscopy recordings
Trainees success rates with intubation to suction meconium at birth
Respiratory adaptation in term infants following elective caesarean section
Care bundles to reduce central line-associated bloodstream infections in the neonatal unit: a systematic review and meta-analysis
Effect of a smaller target range on the compliance in targeting and distribution of oxygen saturation in preterm infants
Sensory exposure of neonates in single-room environments (SENSE): an observational study of light
Always a burden? Healthcare providers' perspectives on moral distress
Outcomes of oxygen saturation targeting during delivery room stabilisation of preterm infants
Chest compression during sustained inflation versus 3:1 chest compression:ventilation ratio during neonatal cardiopulmonary resuscitation: a randomised feasibility trial
One-year outcomes following surgery for necrotising enterocolitis: a UK-wide cohort study
Tobacco, alcohol and illicit drugs during pregnancy and risk of neuroblastoma: systematic review
Antimicrobial resistance in UK neonatal units: neonIN infection surveillance network
Validity of neurodevelopmental outcomes of children born very preterm assessed during routine clinical follow-up in England
Retrospective cohort analysis on pancreatic enzyme substitution in very low birthweight infants with postnatal growth failure
Comparison of infant heart rate assessment by auscultation, ECG and oximetry in the delivery room
Case of membranous oesophageal atresia
Clinical aspects of incorporating cord clamping into stabilisation of preterm infants

Journal of Perinatology
Lenticulostriate vasculopathy in preterm infants: a new classification, clinical associations and neurodevelopmental outcome
Stress during pregnancy, gestational weight gain, and body mass index
Whole-exome sequencing in fetuses with central nervous system abnormalities
Calprotectin and necrotizing enterocolitis: it's not the assay, it's the definition
Use of car beds for infant travel: a review of the literature
Use and perceived safety of stylets for neonatal endotracheal intubation: a national survey
Sucrose vs. skin to skin care for preterm neonatal pain control-a randomized control
Flipping the classroom: a national pilot curriculum for physiology in neonatal-perinatal medicine

Racial/ethnic differences in necrotizing enterocolitis incidence and outcomes in premature very low birth weight infants

Comparison of neurodevelopmental outcomes between monochorionic and dichorionic twins with birth weight ≤ 1500 g in Japan: a register-based cohort study

Systematic ultrasound examinations in neonates admitted to NICU: evolution of portal vein thrombosis

Decreasing use of autopsy for stillbirths and infant deaths: missed opportunity

Higher intake of coagulase-negative staphylococci from maternal milk promotes gut colonization with mecA-negative Staphylococcus epidermidis in preterm neonates

Integrated evaluation of hemodynamics: a novel approach for the assessment and management of preterm infants with compromised systemic circulation

Risk factors for neonatal group B streptococcus vertical transmission: a prospective cohort study of 1815 mother-baby pairs

Thyroid gland volumes in premature infants using serial ultrasounds

Prediction of long-term neurodevelopmental outcome in preterm infants using trajectories of general movement assessments

Standard care with plastic bag or portable thermal nest to prevent hypothermia at birth: a three-armed randomized controlled trial

Preterm infants are less likely to have a family-centered medical home than term-born peers

Prethreshold retinopathy of prematurity: VEGF inhibition without VEGF inhibitors

Selenium and neonatal outcomes

Reference intervals for stool calprotectin in preterm neonates and their utility for the diagnosis of necrotizing enterocolitis

Neonatology

Head ultrasound in neonatal hypoxic-ischemic injury and its mimickers for clinicians: a review of the patterns of injury and the evolution of findings over time

Cardiac valve annulus diameters in extremely preterm infants: a cross-sectional echocardiographic study (PDF)

Reduced prevalence of severe intraventricular hemorrhage in very preterm infants delivered after maternal preeclampsia

The so-called “protective effect” of preeclampsia on perinatal brain damage

Gestational age and the cord blood lipidomic profile in late preterm and term infants
Hemolysis and glucose-6-phosphate dehydrogenase deficiency-related neonatal hyperbilirubinemia
Maternal intrapartum antibiotic administration and infantile colic: is there a connection?
Assessing the surgical experience to identify risk factors associated with severe retinopathy of prematurity and laser intervention
Neonatal phototherapy: a novel therapy to prevent allergic skin disease for at least 5 years
Survival of immunoglobulins from human milk to preterm infant gastric samples at 1, 2, and 3 h postprandial
MRI changes in the thalamus and basal ganglia of full-term neonates with perinatal asphyxia (PDF)
Language exposure of preterm infants in the neonatal unit: a systematic review
Risk factors for necrotizing enterocolitis: a prospective multicenter case-control study (PDF)
American Journal of Perinatology
Neonatal outcomes associated with noncephalic presentation at delivery in preterm birth
Reevaluation of protein intake for preterm infants
The impact of hypoxemia on the development of retinopathy of prematurity in infants less than 29 weeks of gestation
Optimal timing of delivery in women with higher order cesareans: a cohort study
Clinician perceptions of the NICU infant experience: is the NICU hospitalization traumatic?
Couples facing the birth of a newborn with a congenital anomaly: PTSD symptoms in the first year
Peripartum morbidity after cesarean delivery for arrest of dilation at 4 to 5 cm compared with 6 to 10 cm
Decreased circulating insulin-like growth factor 1 levels are associated with cardiac diastolic dysfunction in small for gestational age infants
Development of a neuroNICU with a broader focus on all newborns at risk of brain injury: the first 2 years
Acute post-tracheostomy clinical decompensations in infants—are there predictive markers?
Neonatal morbidities among moderately preterm infants with and without exposure to antenatal corticosteroids
Lung ultrasound findings in congenital pulmonary airway malformation
Journal of Neonatal-Perinatal Medicine
A rare case of fetal extensive intracranial hemorrhage and whole-cerebral hypoplasia due to latent maternal vitamin K deficiency
Occult large epidural hemorrhage in a newborn infant after in-hospital fall
Successful exchange transfusion in extremely preterm infant after symptomatic lipid overdose
Unusual complication of fulminant congenital cytomegalovirus infection
Coexistence of Kasabach–Merritt Syndrome and placental chorioangioma in a premature infant
Mounting evidence favoring single-family room neonatal intensive care
Risk factors of stillbirth in Yemen
Correlation of maternal A1c with glucose infusion rate requirements in the newborn
Distribution, antimicrobial resistance and predictors of mortality in neonatal sepsis
Decreasing NICU admissions of asymptomatic infants of women with pregestational diabetes mellitus improves breastfeeding initiation rates
Effect of probiotics on C-reactive protein levels in preterm infants: Secondary analysis of a randomized controlled trial
Impact of a neuro-intensive care service for newborns
Perinatal asphyxia in a rural Nigerian hospital: Incidence and determinants of early outcome
Severity of hypoxic ischemic encephalopathy correlates with increased expression of angiogenin in neonates
Medico-legal implications of hypothermic neuroprotection in the newborn
Cerebral glucose deficiency versus oxygen deficiency in neonatal encephalopathy

Maternal Health, Neonatology and Perinatology
A retrospective analysis of adverse obstetric and perinatal outcomes in adolescent pregnancy: the case of Luapula Province, Zambia (PDF)
Magnitude and associated factors of postpartum morbidity in public health institutions of Debre Markos town, North West Ethiopia (PDF)

Neoreviews
Educational perspectives: Advanced technology and high sensibility in providing safe neonatal care in intensive care units
http://neoreviews.aappublications.org/content/neoreviews/19/10/e569.full.pdf
Diagnosing and managing Hirschsprung disease in the newborn
http://neoreviews.aappublications.org/content/neoreviews/19/10/e577.full.pdf
Radiologic approach to the diagnosis of bowel emergencies in neonates
Case 1: Periorbital swelling and conjunctivitis in a preterm infant

Case 2: Metabolic alkalosis in a neonate 12 hours after birth

Case 3: A term newborn with intrauterine growth restriction and severe fetal brain anomalies

Strip of the Month: Term oligohydramnios and prolonged decelerations

Newborn with neck lesion

JAMA Pediatrics
Association between temporal changes in neonatal mortality and spontaneous and clinician-initiated deliveries in the United States, 2006-2013

Association of prenatal maternal depression and anxiety symptoms with infant white matter microstructure

BMC Pediatrics
Adherence to the neonatal resuscitation algorithm for preterm infants in a tertiary hospital in Spain (PDF)

Neurodevelopmental and emotional-behavioral outcomes in late-preterm infants: an observational descriptive case study (PDF)

Agreement test of transcutaneous bilirubin and bilistick with serum bilirubin in preterm infants receiving phototherapy (PDF)

Pediatric Critical Care Medicine
Accurate prediction of congenital heart surgical length of stay incorporating a procedure-based categorical variable

Population pharmacokinetics of vancomycin in pediatric extracorporeal membrane oxygenation

New England Journal of Medicine
The name of the dog

Lancet
Congenital syphilis in the USA

Global epidemiology of use of and disparities in caesarean sections

Short-term and long-term effects of caesarean section on the health of women and children

Interventions to reduce unnecessary caesarean sections in healthy women and babies
**JAMA**
Effect of immediate vs delayed pushing on rates of spontaneous vaginal delivery among nulliparous women receiving neuraxial analgesia: a randomized clinical trial
Immediate vs delayed pushing during the second stage of labor
Breastfeeding report card

**BMJ**
Pre-eclampsia and risk of dementia later in life: nationwide cohort study
https://www.ncbi.nlm.nih.gov/pubmed/30333106

**Pediatric Infectious Disease Journal**
Decline of seroprevalence and incidence of congenital toxoplasmosis despite changing prevention policy—three decades of cord-blood screening in north-western Switzerland
Maternal carriage of group B streptococcus and escherichia coli in a district hospital in Mozambique
Invasive fungal infections in neonates in Canada: epidemiology and outcomes
Two overlapping clusters of group B streptococcus late-onset disease in a neonatal intensive care unit
Antifungal treatment and outcome in very low birth weight infants: a population-based observational study of the German Neonatal Network

**Pediatric Cardiology**
Catheter, MRI and CT imaging in newborns with pulmonary atresia with ventricular septal defect and aortopulmonary collaterals: quantifying the risks of radiation dose and anaesthetic time
Neonatal outcomes in total anomalous pulmonary venous return: the role of prenatal diagnosis and pulmonary venous obstruction
Primary draining vein stenting for obstructive total anomalous pulmonary venous connection in neonates with right atrial isomerism and functional single ventricle improves outcome
Survival and associated risk factors for mortality among infants with critical congenital heart disease in a developing country

**Pediatric Neurology**
Xenon combined with hypothermia in perinatal hypoxic-ischemic encephalopathy: a noble gas, a noble mission
Outcomes after acute symptomatic seizures in children admitted to a neonatal neurocritical care service

**Obstetrics and Gynecology**
Marijuana use in pregnancy and while breastfeeding
American Journal of Obstetrics & Gynecology
Systematic screening and treatment of toxoplasmosis during pregnancy: is the glass half full or half empty?
Progestogens in singleton gestations with preterm prelabor rupture of membranes: a systematic review and metaanalysis of randomized controlled trials
Prenatal therapy with pyrimethamine + sulfadiazine vs spiramycin to reduce placental transmission of toxoplasmosis: a multicenter, randomized trial
Esomeprazole to treat women with preterm preclampsia: a randomized placebo controlled trial
Maternal age and risk for adverse outcomes
Predicting anti-Kell-mediated hemolytic disease of the fetus and newborn: diagnostic accuracy of laboratory management
Low-dose aspirin is associated with reduced spontaneous preterm birth in nulliparous women
Timing of gestational exposure to Zika virus is associated with postnatal growth restriction in a murine model
SMFM Consult Series #46: Evaluation and management of polyhydramnios

BASIC SCIENCE SELECTIONS
Intratracheal transplantation of mesenchymal stem cells attenuates hyperoxia-induced lung injury by down-regulating, but not direct inhibiting formyl peptide receptor 1 in the newborn mice

Repetitive neonatal pain and reduced maternal care alter brain neurochemistry
Mooney-Leber SM, Spielmann SS, & Brummelte S. Dev Psychobiol.

Glycogen synthase kinase-3beta inhibition enhances myelination in preterm newborns with intraventricular hemorrhage, but not recombinant Wnt3A

Neonatal hyperoxia promotes asthma-like features through IL-33-dependent ILC2 responses

Local injection of endothelin-1 in the early neonatal rat brain models ischemic damage associated with motor impairment and diffuse loss in brain volume

The receptor for hyaluronan-mediated motility (RHAMM) expression in neonatal bronchiolar epithelium correlates negatively with lung air content
ADDITIONAL JOURNAL SELECTIONS

Association of antenatal steroid and risk of retinopathy of prematurity: a systematic review and meta-analysis

The association between whole blood concentrations of heavy metals in pregnant women and premature births: the Japan Environment and Children's Study (JECS)

Lung function in adults born preterm

Lung function in a cohort of 5-year-old children born very preterm

Effect of docosahexaenoic acid supplementation vs placebo on developmental outcomes of toddlers born preterm: a randomized clinical trial

Sustained lung inflation at birth via short binasal prong in very low birth weight preterm infants: a retrospective study