ARTICLES OF INTEREST – August, 2017

Maternal administration of melatonin exerts short- and long-term neuroprotective effects on the offspring from lipopolysaccharide-treated mice

Since melatonin exerts neuroprotective effects in models of brain injury, the authors chose to investigate if the administration of melatonin prevents fetal brain damage in a mouse model of LPS-induced preterm labor. In the absence of melatonin, fetuses from LPS-treated mothers showed histological signs of brain damage. Antenatal administration of melatonin prevented LPS-induced fetal brain damage and long-term neurodevelopmental impairment. These findings suggest that melatonin may prevent fetal brain damage and its long-term consequences induced by maternal inflammation.

Spontaneous closure of patent ductus arteriosus in infants ≤1500 g

Management of PDA remains controversial. In this 2-European center retrospective cohort study of 280 VLBW infants, PDA closed spontaneously before discharge from NICU without treatment in 85% of the infants. Median time for ductal closure was inversely related to gestational age at birth, with 71 days in infants born < 26 weeks, compared to 8 days in infants born >30 weeks. Similar to previous studies, spontaneous closure rate is extremely high. Our focus should be in extremely preterm infants <26 weeks at birth in terms of PDA management strategy.

The frequency and severity of magnetic resonance imaging abnormalities in infants with mild neonatal encephalopathy

This single center retrospective cohort study evaluated 89 infants with brain MRI following therapeutic hypothermia. Basal ganglia/thalamic injury was more common in infants with severe encephalopathy (mild encephalopathy: 4%, moderate encephalopathy: 9%, severe encephalopathy: 34%; P = .03) while in contrast, watershed injury did not differ between encephalopathy grades (mild encephalopathy: 36%, moderate encephalopathy: 32%, severe encephalopathy: 50%; P = .3). The authors conclude that the grade of neonatal encephalopathy during the first hours of life may not discriminate adequately between infants with and without cerebral injury noted on MRI after therapeutic hypothermia.
Caffeine to improve breathing effort of preterm infants at birth: a randomized controlled trial

The authors sought to assess the effect of caffeine on respiratory effort in preterm infants at birth. Thirty infants 24-30 weeks gestation were randomized to receive caffeine in the delivery room or later in the NICU. Caffeine increased respiratory effort in preterm infants at birth, but the effect on clinical outcomes needs further investigation.

Sudden versus gradual pressure wean from nasal CPAP in preterm infants: a randomized controlled trial

In a randomized controlled trial performed in a level 3 NICU, 70 preterm neonates born between 26 and 32 weeks who required NCPAP for at least 48h were selected. 35 were randomized to sudden wean of NCPAP from settings of 0.21FiO2 and PEEP of 5 to Room Air and 33 were randomized to gradual wean of PEEP by 1 cm every 8h until a PEEP of 3 was reached. The gradual weaning method was more successful compared to the sudden weaning method in the initial trial off NCPAP. There was no difference in the PMA, weight at the time of successful wean, total days on NCPAP and length of stay between the two groups.

Randomized controlled trial comparing different single doses of intravenous paracetamol for placement of peripherally inserted central catheters in preterm infants (PDF)

In a blinded randomized controlled trial, the analgesic effects of 10-, 15- and 20-mg/kg single dose intravenous paracetamol (acetaminophen) before PICC placement were compared in neonates with a gestational age of < 32 weeks and compared to an age matched control group receiving oral sucrose. Pain was assessed with the premature infant pain profile (PIPP) and the COMFORTneo score. No analgesic benefit from IV paracetamol at the various single doses was found over sucrose for PICC placement in preterm infants.

Neurodevelopmental outcome at 2 years for preterm children born at 22 to 34 weeks' gestation in France in 2011: EPIPAGE-2 cohort study (PDF)
Pierrat V, Marchand-Martin L, Arnaud C, et al.  *BMJ.*

In this French population-based study of preterm infants 22-34 weeks’ gestation, the investigators estimated survival and survival without impairment and changes over time from 1997 to 2011. The study reported survival rates of 52%, 93% and 99% at 22-26, 27-31 and 32-34 weeks’ gestation, respectively. Survival without moderate to severe disability among live births increased between 1997 and 2011, from 46% to 62% for infants born at 25-26 weeks’ gestation, but not at 22-24 weeks’ gestation. Depending on gestational age, 36-50% of infants scored below the threshold of the Ages and Stages Questionnaire at 22 to 26 months corrected age. The study concluded that despite increases in both survival and survival without moderate to severe disability over time from 1997 to 2011, preterm infants born at 22-34 weeks’ gestation remain at high risk of developmental delay.

OTHER NOTEWORTHY PUBLICATIONS – August, 2017

**Pediatrics**

Imaging strategies for suspected acute cranial shunt failure: a cost-effectiveness analysis  

Behavioral risk assessment from newborn to preschool: the value of older siblings  

In-hospital quality-of-care measures for pediatric sepsis syndrome
Variation in preoperative testing and antireflux surgery in infants

Early hearing detection and vocabulary of children with hearing loss

Beverage intake during pregnancy and childhood adiposity

Congenital diaphragmatic hernia and growth to 12 years

Comparison of recruitment strategy outcomes in the National Children's Study

Hey, doctor, leave the PDA alone

Guiding principles for team-based pediatric care

A new approach to the investigation of sudden unexpected death

Parental management of discharge instructions: a systematic review

Pulmonary alveolar proteinosis: a comprehensive clinical perspective

Research priorities in sudden unexpected infant death: an international consensus

Inpatient-derived vital sign parameters implementation: an initiative to decrease alarm burden

Controlling phlebotomy volume diminishes picu transfusion: implementation processes and impact

Benign neonatal shudders, shivers, jitteriness, or tremors: early signs of vitamin D deficiency

Electrographic seizures during the early postnatal period in preterm infants

Amplitude-integrated electroencephalography improves the identification of infants with encephalopathy for therapeutic hypothermia and predicts neurodevelopmental outcomes at 2 years of age

Neurocognitive outcomes at 10 years of age in extremely preterm newborns with late-onset bacteremia

The relationship of maternal prepregnancy body mass index and pregnancy weight gain to neurocognitive function at age 10 years among children born extremely preterm

Associations of newborn brain magnetic resonance imaging with long-term neurodevelopmental impairments in very preterm children

Carbon dioxide fluctuations are associated with changes in cerebral oxygenation and electrical activity in infants born preterm

Stability of developmental problems after school entry of moderately-late preterm and early preterm-born children

Regional volume characteristics of the preterm infant receiving first intention continuous positive airway pressure
Bronchopulmonary dysplasia and perinatal characteristics predict 1-year respiratory outcomes in newborns born at extremely low gestational age: a prospective cohort study

Histologic chorioamnionitis and bronchopulmonary dysplasia in preterm infants: the epidemiologic study on low gestational ages 2 cohort

Impact of periconceptional folic acid supplementation on low birth weight and small-for-gestational-age infants in China: a large prospective cohort study

Trajectories of externalizing and internalizing behaviors in preterm children admitted to a neonatal intensive care unit

Prophylactic indomethacin compared with delayed conservative management of the patent ductus arteriosus in extremely preterm infants: effects on neonatal outcomes

Low and high birth weights are risk factors for nonalcoholic fatty liver disease in children

Maternal obesity, 25-hydroxy vitamin D concentration, and bone density in breastfeeding dyads

Epidemiology of live born infants with nonimmune hydrops fetalis—insights from a population-based dataset

First trimester influenza vaccination and risks for major structural birth defects in offspring

Fertility treatment Is associated with stay in the neonatal intensive care unit and respiratory support in late preterm infants

Delayed cord clamping in newborns born at term at risk for resuscitation: a feasibility randomized clinical trial

Pediatric Research

Growth and development in late-preterm infants: what can public policy do?

Detection and assessment of brain injury in the growth-restricted fetus and neonate

Neonatal resuscitation in global health settings: an examination of the past to prepare for the future

Pentoxifylline modulates LPS-induced hyperinflammation in monocytes of preterm infants in vitro

Metabolism-related microRNAs in maternal breast milk are influenced by premature delivery

Development of tandem mass spectrometry-based creatinine measurement using dried blood spot for newborn mass screening

Beyond the uterine environment: a nonhuman primate model to investigate maternal-fetal and neonatal outcomes following chronic intrauterine infection

Prepubertal children born large for gestational age have lower serum DHEAS concentrations than those with a lower birth weight

Neonatal outcomes of moderately preterm infants compared to extremely preterm infants
Body composition at birth and its relationship with neonatal anthropometric ratios: the newborn body composition study of the INTERGROWTH-21st project

Growth pattern and final height of very preterm vs. very low birth weight infants

Factors affecting the cognitive profile of 11-year-old children born very preterm

Low birth weight is associated with impaired murine kidney development and function

Natriuretic peptide C receptor in the developing sheep lung: role in perinatal transition

Gestational hyperglycemia reprograms cardiac gene expression in rat offspring

Timing of developmental reduction in epithelial glutathione redox potential is associated with increased epithelial proliferation in the immature murine intestine

Archives of Disease in Childhood - Fetal & Neonatal Edition

Evaluation of a digital stethoscope in transitioning term infants after birth

The suprasternal notch: a surface landmark for endotracheal tube tip position in newborns?

Eight principles for patient-centred and family-centred care for newborns in the neonatal intensive care unit

Management and investigation of neonatal encephalopathy: 2017 update

The role of prenatal steroids at 34-36 weeks of gestation

A randomised cross-over study of methods of acquiring ECG heart rate in newborns

Anaesthetic considerations for surgery in newborns

Oral sucrose for acute pain studied in more than 7000 neonates, but many questions remain

Skin-to-skin care in preterm infants receiving respiratory support does not lead to physiological instability

Can Ambu self-inflating bag and Neopuff infant resuscitator provide adequate and safe manual inflations for infants up to 10 kg weight?

High flow nasal cannula versus NCPAP, duration to full oral feeds in preterm infants: a randomised controlled trial

Haemoglobin discordances in twins: due to differences in timing of cord clamping?

Resuscitation of infants with congenital diaphragmatic hernia

Is it micropenis? Does size matter?

Effect of body position and ventilation on umbilical artery and venous blood flows during delayed umbilical cord clamping in preterm lambs
Diaphragmatic activity during weaning from respiratory support in preterm infants

Hyperglycaemia in infants with hypoxic-ischaemic encephalopathy is associated with improved outcomes after therapeutic hypothermia: a post hoc analysis of the CoolCap Study

Research ethics committee decision-making in relation to an efficient neonatal trial

Post-term pregnancy is an independent risk factor for neonatal morbidity even in low-risk singleton pregnancies

Skin care practices in newborn nurseries and mother–baby units in Maryland

Beyond the avoidance of waste: the ethical imperative to focus on value in the NICU

Antenatal late preterm steroids (ALPS): are we ready to accept it?

The contributions of red blood cell transfusion and severe anemia in necrotizing enterocolitis: causes or confounders?

Maternal serum markers of lipid metabolism in relation to neonatal anthropometry

Association of in utero magnesium exposure and spontaneous intestinal perforations in extremely low birth weight infants

Surfactant reduced the mortality of neonates with birth weight 1500 g and hypoxemic respiratory failure: a survey from an emerging NICU network (PDF)

Patent ductus arteriosus in premature infants: to treat or not to treat?

Defining the limitations of transcutaneous bilirubin measurement in late preterm newborns

Inflammatory cytokine response and reduced heart rate variability in newborns with hypoxic-ischemic encephalopathy

Maternal/neonatal vitamin D deficiency: a new risk factor for necrotizing enterocolitis in preterm infants?

The effect of therapeutic hypothermia on heart rate variability

Predictive value of amplitude-integrated EEG (aEEG) after rescue hypothermic neuroprotection for hypoxic ischemic encephalopathy: a meta-analysis

Zinc protoporphyrin/heme ratio as parameter of iron status in moderately preterm infants: natural course and associations in the first 4 months

Essential fatty acid deficiency during parenteral soybean oil lipid minimization

Counting unplanned extubations: marked variation among neonatologists

Network analysis: a novel method for mapping neonatal acute transport patterns in California
Dynamic outcome prediction in a socio-demographically diverse population-based cohort of extremely preterm neonates

Greater brain response to emotional expressions of their own children in mothers of preterm infants: an fMRI study

Inter-center variation in death or tracheostomy placement in infants with severe bronchopulmonary dysplasia

Field testing of decision coaching with a decision aid for parents facing extreme prematurity

The quest for sustained multiple morbidity reduction in very low-birth-weight infants: the antifragility project (PDF)

Neonatology

Blood pressure during the immediate neonatal transition: is the mean arterial blood pressure relevant for the cerebral regional oxygenation?

Heating of newborn infants due to blue light-emitting diode fibreoptic phototherapy pads

Inhaled glucocorticoids and pneumonia in preterm infants: post hoc results from the neurosis trial

Low plasma protein levels at birth are associated with poor cardiovascular adaptation and serious adverse outcome in infants with gestational age <32 weeks: the prohémie study

Fetal and postnatal head circumference growth: synergetic factors for neurodevelopmental outcome at 2 years of age for preterm infants

Screening tool for early postnatal prediction of retinopathy of prematurity in preterm newborns (STEP-ROP)

Direct measurement of tissue oxygenation in neonates via resonance raman spectroscopy: a pilot study

High-dose cannabidiol induced hypotension after global hypoxia-ischemia in piglets

Successful liver transplantation for transient abnormal myelopoiesis-associated liver failure

Optimising intravenous volume resuscitation of the newborn in the delivery room: practical considerations and gaps in knowledge

Restricted ventilation associated with reduced neurodevelopmental impairment in preterm infants (PDF)

Perinatal factors affecting serum hepcidin levels in low-birth-weight infants

Electrical grounding improves vagal tone in preterm infants

American Journal of Perinatology
Maternal, labor, delivery, and perinatal outcomes associated with placental abruption: a systematic review
Using a state birth registry as a quality improvement tool
https://www.ncbi.nlm.nih.gov/pubmed/28605825
Effect of an educational presentation about extremely preterm infants on knowledge and attitudes of health care providers
Changing management of the patent ductus arteriosus: effect on neonatal outcomes and resource utilization
Association of nursing overtime, nurse staffing, and unit occupancy with health care–associated infections in the NICU
Maternal income during pregnancy is associated with chronic placental inflammation at birth
The impact of integrated evaluation of hemodynamics on management of preterm infants with late-onset compromised systemic circulation
The alteration and significance of erythropoietin serum levels in preterm infants with retinopathy of prematurity
Temporal artery temperature measurement in the neonate
Teamwork in the NICU setting and its association with health care–associated infections in very low-birth-weight infants

Journal of Neonatal-Perinatal Medicine
Readmission for neonatal hyperbilirubinemia in an area with a high prevalence of glucose-6-phosphate dehydrogenase deficiency: a hospital-based retrospective study
The question of whether or not to perform therapeutic hypothermia: a case of neonatal spinal cord injury
Delivery room continuous positive airway pressure and early pneumothorax in term newborn infants
Influence of central hemodynamics on VV ECMO oxygen delivery in neonatal animal model
Improving neonatal intubation safety: a journey of a thousand miles
Standardized slow enteral feeding protocol reduces necrotizing enterocolitis in micropremies
Serum cytokine concentrations, chorioamnionitis and the onset of bronchopulmonary dysplasia in premature infants
The clinical utility of anthropometric measures to assess adiposity in a cohort of prematurely born infants: correlations with MRI fat quantification
Short term cost of care for the surviving periviable neonate
Early appearance of tuberous sclerosis complex on cerebral ultrasound in extremely preterm infant
Early extubation failure in very low birth weight infants: clinical outcomes and predictive factors

Maternal Health, Neonatology and Perinatology
The use of non-invasive fetal electrocardiography in diagnosing second-degree fetal atrioventricular block (PDF)

Neoreviews
Vasopressin and hemodynamic effects on the neonate
Tracheoesophageal fistula
Neonatal short bowel syndrome
The icteric infant 12 hours after birth
Newborn with seizures, renal failure, and weight loss
Two-week-old male infant with progressive emesis
Strip of the Month: Fetal bradycardia during a trial of labor after cesarean delivery
Abdominal distension with rapidly progressing erythema and edema of the left flank in a preterm infant

JAMA Pediatrics
Educational performance of children born prematurely
Association between prenatal alcohol exposure and craniofacial shape of children at 12 months of age

BMC Pediatrics
Emerging (val)ganciclovir resistance during treatment of congenital CMV infection: a case report and review of the literature
Gestational age at birth and behavioral problems from four to 11 years of age: birth cohort study

Pediatric Critical Care Medicine
Moral distress in PICU and neonatal ICU practitioners: a cross-sectional evaluation
Hydrogen sulfide in exhaled gases from ventilated septic neonates and children: a preliminary report
Continuous chest compressions during sustained inflations in a perinatal asphyxial cardiac arrest lamb model
New England Journal of Medicine
Pediatric intestinal failure
Saying goodbye to lectures in medical school - paradigm shift or passing fad?
NAD deficiency, congenital malformations, and niacin supplementation
Evidence for health decision making - beyond randomized, controlled trials
Noninvasive ventilation in the premature newborn - is less always more?
Ventilation in extremely preterm infants and respiratory function at 8 years

Lancet
Evolution, human-microbe interactions, and life history plasticity
Human reproduction and health: an evolutionary perspective
Continuing debate about method of delivery and pregnancy outcomes: a 2010 Lancet article
Breastfeeding: a missed opportunity for global health
Charlie Gard and the limits of medicine

JAMA
The Nuremberg code 70 years later
Vaccines protect fetus from Zika
The effect of nursing quality improvement and mobile health interventions on infant sleep practices: a randomized clinical trial

BMJ
Estimates of burden and consequences of infants born small for gestational age in low and middle income countries with INTERGROWTH-21st standard: analysis of CHERG datasets (PDF)
http://www.bmj.com/content/bmj/358/bmj.j3677.full.pdf
Developmental follow-up of children and young people born preterm: summary of NICE guidance
Risk of neonatal drug withdrawal after intrauterine co-exposure to opioids and psychotropic medications: cohort study

Pediatric Infectious Disease Journal
Late-onset sepsis in extremely premature infants: 2000-2011
Effectiveness of palivizumab in high-risk infants and children: a propensity score weighted regression analysis (PDF)
Clinical profiles of respiratory syncytial virus subtypes A and B among children hospitalized with bronchiolitis
Mycobacterium fortuitum bloodstream infection in a very low birth weight preterm neonate
Serologic responses after hepatitis B vaccination in preterm infants born to hepatitis B surface antigen-positive mothers: Singapore experience
https://www.ncbi.nlm.nih.gov/pubmed/28198787
Chikungunya infection in hospitalized febrile infants younger than 3 months of age
Risk factors associated with bordetella pertussis among infants ≤4 months of age in the pre-Tdap era: United States, 2002-2005

**Pediatric Cardiology**
Cognitive development of school-age hypoplastic left heart syndrome survivors: a single center study
Development of pulmonary hypertension during treatment with diazoxide: a case series and literature review

**Pediatric Neurology**
Cumulative incidence of seizures and epilepsy in ten-year-old children born before 28 weeks' gestation
Early imaging and adverse neurodevelopmental outcome in asphyxiated newborns treated with hypothermia
Changes in cerebral oxygenation in preterm infants with progressive posthemorrhagic ventricular dilatation

**Obstetrics and Gynecology**
Committee opinion no. 713: Antenatal corticosteroid therapy for fetal maturation
Committee opinion no. 712: Intrapartum management of intraamniotic infection
Committee opinion no. 711: Opioid use and opioid use disorder in pregnancy
Practice bulletin no. 181: Prevention of Rh D alloimmunization
Pregnancy-related mortality in the United States, 2011-2013
Transient fetal tachycardia after intravenous diphenhydramine administration
Estimating gestational age from ultrasound fetal biometrics

**American Journal of Obstetrics & Gynecology**
Prediction of neonatal respiratory morbidity by quantitative ultrasound lung texture analysis: a multicenter study
The clinical significance of an estimated fetal weight below the 10th percentile: a comparison of outcomes of <5th vs 5thâ€“9th percentile

Prospective association of fetal liver blood flow at 30 weeks gestation with newborn adiposity

Increased risk of peripartum perinatal mortality in unplanned births outside an institution: a retrospective population-based study

Tocolysis after preterm premature rupture of membranes and neonatal outcome: a propensity-score analysis

Pregestational type 2 diabetes mellitus indues cardiac hypertrophy in the murine embryo through cardiac remodeling and fibrosis

Conditional postnatal deletion of the neonatal murine hepatic circadian gene, Npas2, alters the gut microbiome following restricted feeding

The first-trimester fetal central nervous system: a novel ultrasonographic perspective

BASIC SCIENCE SELECTIONS
Human milk oligosaccharides exhibit antimicrobial and antibiofilm properties against Group B streptococcus
https://www.ncbi.nlm.nih.gov/pubmed/28570820

Does growth restriction increase the vulnerability to acute ventilation-induced brain injury in newborn lambs? Implications for future health and disease

The risk of necrotizing enterocolitis differs among preterm pigs fed formulas with either lactose or maltodextrin

MiR-29b supplementation decreases expression of matrix proteins and improves alveolarization in mice exposed to maternal inflammation and neonatal hyperoxia

Elevated levels of circulating cell-free DNA and neutrophil proteins are associated with neonatal sepsis and necrotizing enterocolitis in immature mice, pigs and infants

High prevalence of cytomegalovirus infection in surgical intestinal specimens from infants with necrotizing enterocolitis and spontaneous intestinal perforation: a retrospective observational study
Aberrant cGMP signaling persists during recovery in mice with oxygen-induced pulmonary hypertension  

Intratracheal LPS administration attenuates the acute hypoxic ventilatory response: role of brainstem IL-1beta receptors  

Treatment with geranylgeranylacetone induces heat shock protein 70 and attenuates neonatal hyperoxic lung injury in a model of bronchopulmonary dysplasia  

TUDCA: an agonist of the bile acid receptor GPBAR1/TGR5 with anti-inflammatory effects in microglial cells  

Caffeine preferentially protects against oxygen-induced retinopathy  