ARTICLES OF INTEREST – July, 2016

Recombinant human erythropoietin improves neurological outcomes in very preterm infants

This study examined the efficacy and safety of repeated low-dose human recombinant erythropoietin (rhEPO) in ≤32-week gestational age neonates who had been in an intensive care unit within 72 hours after birth. Compared to placebo, rhEPO reduced moderate/severe neurologic disability (RR = 0.4) at 18 months CGA. There were no adverse effects of rhEPO versus placebo.

Survival and major morbidity of extremely preterm infants: a population-based study

In order to assess the rates of mortality and major morbidity among extremely preterm infants, the authors retrospectively reviewed all California live births whose best-estimated gestational age at birth was 22 through 28 weeks. Improved survival was associated with increased birth weight, female sex, and cesarean delivery for resuscitated 22-, 23-, and 24-week infants. In this population-based study of extreme prematurity, infants ≤24 weeks' gestation were at highest risk of death or major morbidity.

Incidence and outcome of CPAP failure in preterm infants

Data from clinical trials support the use of continuous positive airway pressure (CPAP) for initial respiratory management in preterm infants, but there is concern regarding the potential failure of CPAP support. The authors examined the incidence and outcomes of CPAP failure in Australian and New Zealand Neonatal Network data from 2007 to 2013. CPAP failure in preterm infants was associated with increased risk of mortality and major morbidities, including BPD. Strategies to promote successful CPAP application should be pursued.

Early versus delayed human milk fortification in very low birth weight infants-a randomized controlled trial

In this study, 100 very low birth weight infants were randomized to early fortification of enteral feeding, at a feeding volume of 20 mL/kg/d, or delayed fortification at a feeding volume of 100 mL/kg/day. Infants randomized to early fortification had a higher median daily protein intake at 1, 2 and 3 weeks of age as well as a higher cumulative protein intake in the first 4 weeks of life. There was no difference in days to reach full feeding volumes, episodes of feeding intolerance or necrotizing enterocolitis.
Intratracheal atomized surfactant provides similar outcomes as bolus surfactant in preterm lambs with respiratory distress syndrome

In a preterm lamb model of respiratory distress syndrome, intratracheal atomized surfactant administration, given over 60 minutes using a novel atomizer, resulted in similar gas exchange and mechanics as bolus administration. This study thus suggests evaluation of supraglottic atomization with this system for non-invasive ventilation.

Enteral feeding during indomethacin treatment for patent ductus arteriosus: association with gastrointestinal outcomes

This retrospective cohort study from a single NICU evaluated 415 infants over a 5-year period who were treated with indomethacin for PDA closure. The infants were divided into three groups based on enteral feed volume during treatment: those whose feeds were held [n=229], those whose feeds were ≤60 ml/kg/day [n=142], and those whose feeds were >60 ml/kg/day [n=44]. The authors found no significant difference in incidence of NEC (≥stage IIa) and noted that a preemptive reduction in enteral feeds was associated with a significantly longer time to reach full feeds.

Symptomatic postnatal cytomegalovirus testing among very low-birth-weight infants: indications and outcomes

In this single-center retrospective cohort study, a total of 2,132 very low birth weight infants born from 1999 to 2013 were evaluated. Of 145 infants evaluated for postnatal cytomegalovirus (CMV) infection, 27 infants were found to be infected (18.6% of those tested, 1.3% of all infants). Respiratory decompensation and thrombocytopenia were the most common factors associated with infection and those infants with postnatal CMV infection had a higher associated risk of BPD (odds ratio 4.0; 95% CI 1.3-12.4).

**OTHER NOTEWORTHY PUBLICATIONS – July, 2016**

*Pediatrics*
Trends in congenital heart defects in infants with Down syndrome

Validity of newborn clinical assessment to determine gestational age in Bangladesh

BMI-for-age and weight-for-length in children 0 to 2 years

Influence of the WIC program on loss to follow-up for newborn hearing screening

Breast milk consumption in preterm neonates and cardiac shape in adulthood

Down syndrome: changing cardiac phenotype?

What matters most for the survival of small newborns in resource-limited settings?

*Journal of Pediatrics*
Breast feeding associated with reduced risk of bronchopulmonary dysplasia
Autism and antidepressant use in pregnancy
Vitamin D for extremely preterm infants
Glucose control and neurodevelopment
How to improve diet in infants
Documenting SIDS
The impact of neurodevelopmental and psychosocial outcomes on health-related quality of life in survivors of congenital heart disease
Can one predict resolution of neonatal hyperthyrotropinemia?
Postdischarge feeding interactions and neurodevelopmental outcome at 1-year corrected gestational age
Brain volumes at term-equivalent age are associated with 2-year neurodevelopment in moderate and late preterm children
Nonlinear relationship between birth weight and visceral fat in adolescents
Hydrocortisone dosing for hypotension in newborn infants: less is more
Neonatal histamine-2 receptor antagonist and proton pump inhibitor treatment at United States children's hospitals
Reportable bacterial infections among New York City-born infants, 2001-2009 (PDF)
Blood cytokine profiles associated with distinct patterns of bronchopulmonary dysplasia among extremely low birth weight infants
Death scene investigation and autopsy practices in sudden unexpected infant deaths
Magnetic resonance imaging abnormalities in advanced acute bilirubin encephalopathy highlight dentato-thalamo-cortical pathways
Early heart rate characteristics predict death and morbidities in preterm infants
Knowledge, attitudes, and risk for sudden unexpected infant death in children of adolescent mothers: a qualitative study
Randomized controlled trial of a primary care-based child obesity prevention intervention on infant feeding practices
Elevated diastolic closing margin is associated with intraventricular hemorrhage in premature infants
"Molar tooth sign" reveals the cause of apnea in a term neonate
Impact of tight glycemic control on neurodevelopmental outcomes at 1 year of age for children with congenital heart disease: a randomized controlled trial
Contemporary profile of seizures in neonates: a prospective cohort study
Pediatric Research
Fecal microbiota transplantation in children: a brief review
Maternal thyroid function in pregnancy may program offspring blood pressure, but not adiposity at 20 y of age
Estimations of dietary vitamin D requirements in black and white children
Clinical associations of immature breathing in preterm infants: part 1—central apnea
Clinical associations with immature breathing in preterm infants: part 2—periodic breathing
Visual tracking in very preterm infants at 4 mo predicts neurodevelopment at 3 y of age
Functional and structural connectivity of the visual system in infants with perinatal brain injury (PDF)
Influence of common genetic variants on childhood kidney outcomes
ROBO2 gene variants in children with primary nonsyndromic vesicoureteral reflux with or without renal hypoplasia/dysplasia
Altered gene expression and possible immunodeficiency in cases of sudden infant death syndrome
Optimizing lung aeration at birth using a sustained inflation and positive pressure ventilation in preterm rabbits (PDF)
Mechanisms of modulation of cytokine release by human cord blood monocytes exposed to high concentrations of caffeine
Modafinil improves monocrotaline-induced pulmonary hypertension rat model
Effects of neonatal dexamethasone administration on cardiac recovery ability under ischemia-reperfusion in 24-wk-old rats
Inhibition of β-catenin signaling protects against CTGF-induced alveolar and vascular pathology in neonatal mouse lung
CpG island shore methylation of ZFPM2 is identified in tetralogy of Fallot samples
Liganded retinoic acid X receptor α represses connexin 43 through a potential retinoic acid response element in the promoter region
Stabilisation of premature infants in the delivery room with nasal high flow
Retinopathy of prematurity screening criteria in Iran: new screening guidelines
Measurements from preterm infants to guide face mask size
Randomised comparison of two neonatal resuscitation bags in manikin ventilation
Evaluation of the use of a parent questionnaire to provide later health status data: the PANDA study
Pulmonary arterial response to hypoxia in survivors of chronic lung disease of prematurity
Differences in preductal and postductal arterial blood gas measurements in infants with severe congenital diaphragmatic hernia
Influence of pulmonary factors on pulse oximeter saturation in preterm infants
Heart rate characteristic index monitoring for bloodstream infection in an NICU: a 3-year experience
The SafeBoosC phase II clinical trial: an analysis of the interventions related with the oximeter readings
Elective caesarean delivery adversely affects preductal oxygen saturation during birth transition
Supporting ‘Baby Friendly’: a quality improvement initiative for the management of transitional neonatal hypoglycaemia

Journal of Perinatology
Which breast pump for which mother: an evidence-based approach to individualizing breast pump technology
Commentary: Growth failure among preterm infants due to insufficient protein is not innocuous and must be prevented
Shared decision making for infants born at the threshold of viability: a prognosis-based guideline
Factors associated with high-risk rural women giving birth in non-NICU hospital settings
Variation in preterm birth rate and the role of short cervical length across two populations: a comparative cohort study
Do maternal characteristics influence maternal–fetal medicine physicians’ willingness to intervene when managing perivable deliveries?
Health professionals’ perspectives on bereavement following loss from a twin pregnancy: a qualitative study
Clinical trial of tin mesoporphyrin to prevent neonatal hyperbilirubinemia
Body temperature mapping in critically ill newborn infants nursed under radiant warmers during intensive care
The effect of between-breast differences on human milk macronutrients content
Sonographic screening for developmental dysplasia of the hip in preterm breech infants: do current guidelines address the specific needs of premature infants?

Risk factors associated with post-hemorrhagic hydrocephalus among very low birth weight infants of 24–28 weeks gestation

Systemic arterial stiffness in infants with bronchopulmonary dysplasia: potential cause of systemic hypertension

Neonatal–perinatal medicine fellow procedural experience and competency determination: results of a national survey

Neonatology
The effect of maternal antihypertensive drugs on the cerebral, renal and splanchnic tissue oxygen extraction of preterm neonates (PDF)

Neonatal jaundice in low- and middle-income countries: lessons and future directions from the 2015 Don Ostrow Trieste Yellow Retreat

Long-term outcomes of pulmonary hypertension in preterm infants with bronchopulmonary dysplasia

Infants operated on for necrotizing enterocolitis: towards evidence-based pain guidelines (PDF)

Lung ultrasound as a predictor of mechanical ventilation in neonates older than 32 weeks

Heated humidified high-flow nasal cannula for weaning from continuous positive airway pressure in preterm infants: a randomized controlled trial

Newborn resuscitation training programmes reduce early neonatal mortality

Downregulation of insulin-like growth factor-1 via nitric oxide production in a hypergalactosemic model of neonate skin fibroblast cultures

Normal newborn heart rate in the first five minutes of life assessed by dry-electrode electrocardiography

Hampered lung maturation in methimazole-induced hypothyroidism in fetal chicken: morphological and molecular correlates to human fetal development

The Akt/mTOR/p70S6K pathway is involved in the neuroprotective effect of erythropoietin on hypoxic/ischemic brain injury in a neonatal rat model

Prenatal and postnatal management of congenital pulmonary airway malformation

Impact and challenges of early continuous positive airway pressure therapy for very low birth weight neonates in a developing country

Volume guarantee ventilation: effect on preterm infants with frequent hypoxemia episodes

Oxygen monitoring reduces the risk for retinopathy of prematurity in a Mexican population
A hemodynamically significant patent ductus arteriosus does not affect cerebral or renal tissue oxygenation in preterm infants (PDF)
http://www.karger.com/Article/Pdf/445101
Surgical necrotizing enterocolitis versus spontaneous intestinal perforation in white matter injury on brain magnetic resonance imaging
Ventilation-induced brain injury in preterm neonates: a review of potential therapies

American Journal of Perinatology
Characteristics of recurrent large-for-gestational-age infants in obese women
Temporal profile of early pulmonary hypertension in preterm infants
Online calculator to improve counseling of short-term neonatal morbidity and mortality outcomes at extremely low gestational age (23-28 weeks)
Feeding during blood transfusions and the association with necrotizing enterocolitis
Perinatal outcomes after short versus prolonged indomethacin for tocolysis in women with preterm labor
Impact of gestational weight gain on perinatal outcomes in obese women
Clinical indicators of late-onset sepsis workup in very low-birth-weight infants in the neonatal intensive care unit
Bedside neonatal intensive care unit correction of congenital diaphragmatic hernia: is repair without compromise?

Journal of Neonatal-Perinatal Medicine (Volume 9, Number 2)
Use of Doppler velocimetry in diagnosis and prognosis of intrauterine growth restriction (IUGR): a review
PIVKA-II correlates with INR but not protein C or protein S concentrations in cord blood among newborns
Endothelin-1 levels and renal function in newborns of various gestational ages
Effects of parenteral phosphorus dose restriction in preterm infants
The antecedents and correlates of necrotizing enterocolitis and spontaneous intestinal perforation among infants born before the 28th week of gestation
Routine fecal occult blood testing does not predict necrotizing enterocolitis in very low birth weight neonates
Therapeutic hypothermia for infants with hypoxic ischemic encephalopathy: a five years’ single center experience in Kuwait
Chronic lung disease in very low birth weight infants: persistence and improvement of a quality improvement process in a tertiary level neonatal intensive care unit
Perinatal outcome comparing triplets and singleton births at a reference maternity hospital

Noninvasive inhaled nitric oxide for persistent pulmonary hypertension of the newborn: a single center experience

Prenatal diagnosis of sub-microscopic partial trisomy 10q using chromosomal microarray analysis in a phenotypically abnormal fetus with normal karyotype

Severe laryngeal stenosis in newly born twins with 22q11.2 deletion syndrome: a case report

Pulmonary interstitial glycogenosis in a patient with trisomy 21

Maternal Health, Neonatology and Perinatology
Motherside care of the term neonate at birth

JAMA Pediatrics
Donor breast milk

Newborn screening

Survival among infants born at 22 or 23 weeks' gestation following active prenatal and postnatal care

Inhaled nitric oxide use in the neonatal intensive care unit: rising costs and the need for a new research paradigm

Platelet transfusion practices among very-low-birth-weight infants

Health, wealth, social integration, and sexuality of extremely low-birth-weight prematurely born adults in the fourth decade of life

Association between artificially sweetened beverage consumption during pregnancy and infant body mass index

Expression of circulating muscarinic receptors in infants with severe idiopathic life-threatening events

Maternal consumption of artificially sweetened beverages and infant weight gain: causal or casual?

Effect of donor milk on severe infections and mortality in very low-birth-weight infants: the early nutrition study randomized clinical trial

BMC Pediatrics (July 2016)
Incidence and determinants of medication errors and adverse drug events among hospitalized children in West Ethiopia

Comparison of early onset sepsis and community-acquired late onset sepsis in infants less than 3 months of age

Pharmacokinetics of ranitidine in preterm and term neonates with gastroesophageal reflux
Differences and similarities between mothers and fathers of premature children: a qualitative study of parents’ coping experiences in a neonatal intensive care unit

Seasonal variation in the international normalized ratio of neonates and its relationship with ambient temperature

Comparison of sodium ion levels between an arterial blood gas analyzer and an autoanalyzer in preterm infants admitted to the neonatal intensive care unit: a retrospective study (PDF)

**Pediatric Critical Care Medicine**

Severe acute kidney injury following stage 1 Norwood palliation: effect on outcomes and risk of severe acute kidney injury at subsequent surgical stages

Procalcitonin in the early course post pediatric cardiac surgery

Learning from experience: improving early tracheal extubation success after congenital cardiac surgery

Association of hospital structure and complications with mortality after pediatric extracorporeal membrane oxygenation

Acute kidney injury has a long-term impact on survival after stage 1 palliation of univentricular hearts—it’s not just one and done

Early extubation: unintended consequences and missed opportunities?

Severe hyperbilirubinemia in exchange transfusion: less indication and lower mortality

**New England Journal of Medicine**

Zika and the risk of microcephaly

**Lancet**

Caesarean section surgical techniques: 3 year follow-up of the CORONIS fractional, factorial, unmasked, randomised controlled trial

**JAMA**

Temporal trends in late preterm and early term birth rates in 6 high-income countries in North America and Europe and association with clinician-initiated obstetric interventions

Survival and surgical interventions for children with trisomy 13 and 18

**Pediatric Infectious Disease Journal**

Association between updated guideline-based palivizumab administration and hospitalizations for respiratory syncytial virus infections

**Pediatric Cardiology**

Is pulse oximetry useful for screening neonates for critical congenital heart disease at high altitudes?
Results of a feeding protocol in patients undergoing the hybrid procedure
Hybrid palliation for ductal-dependent systemic circulation
Postnatal outcome of fetal left ventricular hypertaprabeculation/noncompaction
Perinatal decision making for preterm infants with congenital heart disease: determinable risk factors for mortality
Variation in antiarrhythmic management of infants hospitalized with supraventricular tachycardia: a multi-institutional analysis
Associations of NKX2-5 genetic polymorphisms with the risk of congenital heart disease: a meta-analysis
Pediatric Neurology
PEHO syndrome may represent phenotypic expansion at the severe end of the early-onset encephalopathies
Chorea in late-infantile neuronal ceroid lipofuscinosis: an atypical presentation
The Thompson encephalopathy score and short-term outcomes in asphyxiated newborns treated with therapeutic hypothermia
Advances and future directions for tuberous sclerosis complex research: recommendations from the 2015 strategic planning conference
A prospective case study of the safety and efficacy of lysine-restricted diet and arginine supplementation therapy in a patient with pyridoxine-dependent epilepsy caused by mutations in aldh7a1
Café-au-Lait macules and neurofibromatosis type 1: a review of the literature
Vertex rolandic spikes and central sleep apnea in a newborn
Obstetrics and Gynecology
Reduction in the cesarean delivery rate after obstetric care consensus guideline implementation
Evaluation and management of women and newborns with a maternal diagnosis of chorioamnionitis: summary of a workshop
Umbilical cord venous lactate for predicting arterial lactic acidemia and neonatal morbidity at term
American Journal of Obstetrics & Gynecology
Ultrasonographic approach to diagnosis of fetal inflammatory response syndrome: a tool for at-risk fetuses?
The “occiput–spine angle”: a new sonographic index of fetal head deflexion during the first stage of labor
Impact of surgeon annual volume on short-term maternal outcome in cesarean delivery

Competing risks model in screening for preeclampsia by maternal factors and biomarkers at 30–34 weeks’ gestation

Prenatal stress and newborn telomere length

Cytokines in noninvasively obtained amniotic fluid as predictors of fetal inflammatory response syndrome

Cerclage in twin pregnancy with dilated cervix between 16 to 24 weeks of gestation: retrospective cohort study

Cost-effectiveness of risk-based screening for cervical length to prevent preterm birth

Preterm neonatal morbidity and mortality by gestational age: a contemporary cohort

Relationship of trimester-specific smoking patterns and risk of preterm birth

Preterm birth and its associations with residence and ambient vehicular traffic exposure

Atypical twin-to-twin transfusion syndrome: prevalence in a population undergoing fetoscopic laser ablation of communicating placental vessels

**BASIC SCIENCE SELECTIONS**

Inhibition of RPTOR prevents hyperoxia-induced lung injury by enhancing autophagy and reducing apoptosis in neonatal mice

Epithelial-derived inflammation disrupts elastin assembly and alters saccular stage lung development

Impact of dietary tomato juice on changes in pulmonary oxidative stress, inflammation and structure induced by neonatal hyperoxia in mice (mus musculus)

Effect of betamethasone, surfactant and positive end-expiratory pressures on lung aeration at birth in preterm rabbits

Metabolomics in necrotizing enterocolitis: the state of the art"

The 78-kD glucose-regulated protein regulates endoplasmic reticulum homeostasis and distal epithelial cell survival during lung development
Antenatal steroid exposure in the late preterm period is associated with reduced cord blood neurotrophin-3

Alveolar formation is dysregulated by restricted nutrition but not excess sedation in preterm lambs managed by non-invasive support

Early injury of the neonatal lung contributes to premature lung aging: a hypothesis

NADPH oxidase 2 regulates LPS-induced inflammation and alveolar remodeling in the developing lung

Vitamin E in new-generation lipid emulsions protects against parenteral nutrition-associated liver disease in parenteral nutrition-fed preterm pigs

Preferential delivery of an opioid antagonist to the fetal brain in pregnant mice

Intranasal delivery of umbilical cord-derived mesenchymal stem cells preserves myelination in perinatal brain damage

Safety of histamine-2 receptor blockers in hospitalized VLBW infants

Inhibition of beta-catenin signaling protects against CTGF-induced alveolar and vascular pathology in neonatal mouse lung

Gene expression profiling identifies cell proliferation and inflammation as the predominant pathways regulated by aryl hydrocarbon receptor in primary human fetal lung cells exposed to hyperoxia

Epithelial Notch signaling regulates lung alveolar morphogenesis and airway epithelial integrity