ARTICLES OF INTEREST – February 2022

Macitentan attenuates cardiovascular remodelling in infant rats with chronic lung disease

To assess if macitentan, an endothelin-1 receptor antagonist, has the potential to attenuate pulmonary and cardiovascular remodelling in BPD, the authors performed lung and heart cell counts and morphometrics in hyperoxia-exposed newborn rats. They found that macitentan increased pulmonary vessel count and decreased right to left ventricular wall diameter ratios without altering alveolar number and size, thereby highlighting the potential for endothelin-1 antagonism to prevent systemic impacts of BPD.

Association between very to moderate preterm births, lung function deficits, and COPD at age 53 years: analysis of a prospective cohort study

Given that prematurity is linked to reduced adult lung function, the authors investigated long-term effects on lung function and chronic obstructive pulmonary disease (COPD) using data from the Tasmanian Longitudinal Health Study. In a cohort of 3565 individuals, they found that very to moderate preterm birth was significantly associated with an increased risk of COPD. This data show that very-to-moderate prematurity is associated with obstructive lung function well into the sixth decade of life and that this effect is compounded by personal smoking.

Neonatal Resuscitation in 22-Week Pregnancies

In this clinical vignette, a 20-year-old woman at 22 weeks' gestation presents to the emergency department with premature contractions and is admitted to the obstetrics ward for further management. Two approaches to the initial management and resuscitation of infants born at 22 weeks' gestation are presented: 1) resuscitation for all neonates born at 22 weeks’ gestation or 2) selective resuscitation for neonates born at 22 weeks’ gestation. Two experts in the field summarize the evidence in favor of each of these approaches. A poll is provided for readers to indicate which approach they would choose.

Neonates and COVID-19: state of the art
This article is a Comprehensive review of current available evidence related to impact of the COVID-19 pandemic on neonates, effects on their health, impact on their quality of care and indirect influences on their clinical course, including comparisons with other age groups. It talks about placental changes with COVID-19, rate of preterm delivery, incidence of adverse events such as MIS-C. Also gives an outline of the need for ongoing research, including specific areas in which there are significant gaps in knowledge.

**Bronchopulmonary dysplasia and risk of developmental delay: an EPiPAGE-2 cohort study**


The goal of this study was to explore whether the previously proven association of BPD and poor neurodevelopmental outcomes still holds true with evolving respiratory practices and using a newer cohort of patients. 2706 patients < 32 weeks were analyzed and the main outcome was risk of developmental delay defined by an Age & Stages Questionnaires (ASQ) score below threshold at 24 months' corrected age. Among those with available ASQ score, 196/1,587 had BPD and 671/1,587 had an ASQ score below threshold. BPD was associated with an ASQ score below threshold (odds ratio 1.52, 95% confidence interval 1.11-2.08; p = 0.008).

**Delivery characteristics and the risk of early-onset neonatal sepsis**


This multicenter retrospective cohort study aimed to identify term and preterm infants at lowest risk of Early onset Sepsis (EOS) using delivery characteristics and to determine their antibiotic use. Of 53,575 births, 7,549 infants (14.1%) were evaluated using blood culture with or without cerebrospinal fluid culture (≤72 hours after birth), and 41 (0.5%) of those evaluated had EOS. None of the babies with low-risk delivery characteristics (14.8%; n=1121) had EOS. While antibiotics were started in fewer low-risk babies (80.4% vs 91.0%, P < .001), the duration of antibiotics was not different in infants born with and without low-risk characteristics. The authors concluded that despite the extremely low risk of EOS among infants with low-risk delivery characteristics, a substantial proportion received antibiotics.

**Mortality in outpatients with bronchopulmonary dysplasia**


This study is a review of 862 patients followed in a single BPD clinic from Jan 2008 – March 2021. All patients were born ≤32 weeks. 47% had severe BPD, 5% had tracheostomy, and 4% were managed with a portable ventilator. Overall mortality was 1.5% with median age at death of 2.47 years. Factors associated with increased mortality include increased amount of supplemental oxygen, tracheostomy, portable ventilator use, g-tube, CSF shunt, and older age at NICU discharge. Characteristics of the 13 deaths are described. The authors conclude the risk of death among BPD patients after hospital discharge remains higher than the general population.

**Association of human milk antibody induction, persistence, and neutralizing capacity with SARS-COV-2 infection vs MRNA vaccination**


Serial samples of human milk collected from lactating mothers after SARS-CoV-2 infection or after SARS-CoV-2 vaccination were studied for IgA and IgG receptor-binding domain antibody response and for microneutralization activity against live SARS-CoV-2 virus. Samples from 77 women were analyzed, 47 after infection and 30 after mRNA vaccination. SARS-CoV-2 mRNA was not detected in any sample from either group. Infection was associated with a variable human milk IgA and IgG receptor-binding domain–specific antibody response over time with 27% having low/no response. Infection was associated with a robust and quick IgA response in human milk that was stable out to 90 days. Among vaccinated women, there was a more uniform IgG-dominant response with concentrations increasing after each vaccine
dose which began to decline by 90 days after the second dose. Vaccination led to an increase in human milk IgA only after the first dose. Both infection and vaccination showed microneutralization activity.

**Chorioamnionitis and neonatal outcomes**

This review discusses the microbiology and inflammatory pathways involved in chorioamnionitis followed by a discussion of the neonatal complications and management of chorioamnionitis. While multiple microbes have been implicated to cause chorioamnionitis, "sterile" inflammation appears to be more common. Eradication of microorganisms has not been shown to prevent the morbidity and mortality associated with chorioamnionitis as inflammatory mediators account for continued fetal and maternal injury. The authors conclude that a better understanding of microbiome alterations and inflammatory dysregulation may help develop better treatment strategies for infants born to mothers with chorioamnionitis.

**Antibiotics in the medical and surgical treatment of necrotizing enterocolitis. A systematic review**

This review included five studies (2 RCT and 3 cohort) with a total of 375 infants who received antibiotics for Bell’s stage II and III NEC. Infants received one of four main antibiotic regimens: three with a combination of ampicillin + gentamycin (or similar) with an addition of 1) clindamycin 2) metronidazole or 3) enteral administration of gentamycin. One study investigated cefotaxime + vancomycin. The authors found no sufficient evidence for any recommendation on the choice of antibiotics, the route of administration, or the duration of treatment for infants with Bell’s stage II and III NEC.

**OTHER NOTEWORTHY PUBLICATIONS - February, 2022**

**COVID-19**
Neonates and COVID-19: state of the art
An update on COVID-19 and pregnancy
COVID-19 vaccination during pregnancy: coverage and safety
SARS-COV-2 in a neonate with truncus arteriosus: management and surgical correction timing
Impact of lockdown measures during COVID-19 pandemic on pregnancy and preterm birth
Neutralizing antibodies and cytokines in breast milk after coronavirus disease 2019 (COVID-19) mrna vaccination
Human milk SARS-CoV-2 antibodies up to 6 months after vaccination
Use of wireless ultrasound probe in isolated infants: a case report of two SARS-COV-2-positive mothers’ newborns

**Pediatrics**
Commentary: Identifying neonates at lowest risk for sepsis
Delivery characteristics and the risk of early-onset neonatal sepsis
Short-term music therapy for families with preterm infants: a randomized trial
Caregiver perspectives on underutilization of WIC: a qualitative study
Risks of infectious diseases in newborns exposed to alternative perinatal practices (Committee of Fetus and Newborn - Clinical report)
Disparities by ethnicity in enrollment of a clinical trial
Novel screening and monitoring techniques for deformational plagiocephaly: a systematic review
Mississippi CHAMPS: decreasing racial inequities in breastfeeding
A quality improvement bundle to improve outcomes in extremely preterm infants in the first week

Journal of Pediatrics
Active auditory learning in infants born preterm (PDF)
https://www.jpeds.com/article/S0022-3476(21)01189-6/pdf
Postoperative sepsis in premature neonates requires careful attention to the antibiogram (PDF)
Implementation of a nutrition care bundle and improved weight gain of extremely preterm infants to 36 weeks postmenstrual age
Mortality in outpatients with bronchopulmonary dysplasia
Impact of plans of safe care on prenatally substance exposed infants
Do extremely low gestational age neonates regulate iron absorption via hepcidin?
Feeding and growth outcomes in infants with type C esophageal atresia who undergo early primary repair
Increased n-terminal pro-B-type natriuretic peptide during extracorporeal life support is associated with poor outcome in neonates with congenital diaphragmatic hernia
Parenting and neurobehavioral outcomes in children born moderate-to-late preterm and at term
Volumetric capnography at 36 weeks postmenstrual age and bronchopulmonary dysplasia in very preterm infants
Randomized trial to increase speech sound differentiation in infants born preterm
Urine biomarkers for the assessment of acute kidney injury in neonates with hypoxic ischemic encephalopathy receiving therapeutic hypothermia
Late pre-term infants with severe bronchiolitis and risk of asthma by age 5 years
Neonatal presentation of congenital portosystemic shunt
https://www.jpeds.com/article/S0022-3476(21)00976-8/pdf
**Pediatric Research**

Vital signs as physiomarkers of neonatal sepsis  

Chorioamnionitis and neonatal outcomes  

Epigenetic regulation of pediatric and neonatal immune responses  

Diagnosis of neonatal sepsis: the past, present and future  

Platelets in pediatric and neonatal sepsis: novel mediators of the inflammatory cascade  

Knowledge gaps in late-onset neonatal sepsis in preterm neonates: a roadmap for future research  

Neonatal multidrug-resistant gram-negative infection: epidemiology, mechanisms of resistance, and management  

Peripheral immune cells and perinatal brain injury: a double-edged sword?  

Invasive fungal infections in neonates: a review  

Hemodynamic dysfunction in neonatal sepsis  

Noninfectious influencers of early-onset sepsis biomarkers  

**Archives of Disease in Childhood - Fetal & Neonatal Edition**

No new content

**Journal of Perinatology**

Optimizing neonatal patient care begins with education: strategies to build comprehensive and effective NPM fellowship programs  

Development of a small baby unit to improve outcomes for the extremely premature infant  

Fetal-neonatal neurology program development: Continuum of care during the first 1000 days  

Perinatal morbidity and health utilization among mothers of medically fragile infants  

Survival prediction modelling in extreme prematurity: are days important?  

Targeted newborn metabolomics: prediction of gestational age from cord blood  

Changes in hospital quality at hospitals serving black and hispanic newborns below 30 weeks’ gestation  

Lived experiences of stress of Black and Hispanic mothers during hospitalization of preterm infants in neonatal intensive care units  

Survival and short-term respiratory outcomes of <750 g infants initially intubated with 2.0 mm vs. 2.5 mm endotracheal tubes  

Vitamin D status in very low birth weight infants and response to vitamin D intake during their NICU stays: a prospective cohort study  
Race, language, and neighborhood predict high-risk preterm Infant Follow Up Program participation
The financial burden experienced by families of preterm infants after NICU discharge
Gravity-induced loss of aeration and atelectasis development in the preterm lung: a serial sonographic assessment (PDF)
https://www.nature.com/articles/s41372-021-01189-1.pdf
Cerebral saturation reflects anterior cerebral artery flow parameters by Doppler ultrasound in the extremely premature newborn
Improving the identification of acute kidney injury in the neonatal ICU: three centers’ experiences
Inadvertent hypothermia and acute kidney injury (AKI) in neonates undergoing gastrointestinal surgeries: a retrospective study
Gastroschisis with intestinal atresia leads to longer hospitalization and poor feeding outcomes
How neonatologists use genetic testing: findings from a national survey
Asynchronous telemedicine for clinical genetics consultations in the NICU: a single center’s solution
Essentials of Neonatal-Perinatal Medicine fellowship: an overview
Creating a small baby program: a single center’s experience (PDF)
https://www.nature.com/articles/s41372-021-01247-8.pdf
Do small baby units improve extremely premature infant outcomes?
Does feeding modification strategies help improve reflux symptoms in NICU infants?

**Neonatology**
Does early cerebral near-infrared spectroscopy monitoring predict outcome in neonates with hypoxic ischaemic encephalopathy? A systematic review of diagnostic test accuracy (PDF)
https://www.karger.com/Article/Pdf/518687
Impact of carbon dioxide on cerebral oxygenation and vital parameters in stable preterm and term infants immediately after birth
Comparison of cardiac output measurement by electrical velocimetry with echocardiography in extremely low birth weight neonates
The association between evidence-based healthcare practices and outcomes among preterm births in China
Safety inserting neonatal chest drains
Prevalence and infant mortality of major congenital malformations stratified by birthweight
Decreasing trend in incidence of late onset culture positive bloodstream infections but not late onset meningitis in preterm infants <33 weeks gestation in Canadian neonatal intensive care unit
Increased risk of meconium-related ileus in extremely premature infants exposed to antenatal magnesium sulfate
Evaluation of risk factors and approach to screening for asymptomatic neonatal hypoglycemia
Course of stress during the neonatal intensive care unit stay in preterm infants
Maternal intrapartum antibiotic treatment and gut microbiota development in healthy term infants
Importance of early genetic sequencing in neonates admitted to NICU with recurrent hypernatremia: results of a prospective cohort study
Oxygen saturation index in neonates with a congenital diaphragmatic hernia: a retrospective cohort study
Lung recruitment using high-frequency oscillation volume guarantee in preterm infants with evolving bronchopulmonary dysplasia
Bronchopulmonary dysplasia and risk of developmental delay: an EPIPAGE-2 cohort study
Underestimation of trisomy 18 and 13 syndromes in vital statistics from inadequate death certificates
Reply to the letter to the editor “underestimation of trisomy 18 and 13 syndromes in vital statistics from inadequate death certificates”

American Journal of Perinatology
Pregnancy outcomes among women with class III obesity with pre-diabetic early hemoglobin a1c
Neonatal morbidity of monoamniotic twin pregnancies: a systematic review and meta-analysis
Complications associated with low position versus good position umbilical venous catheters in neonates of ≤32 weeks’ gestation
Low variability of blood pressure predicts abnormal electroencephalogram in infants with hypoxic ischemic encephalopathy
Asphyxiated neonates treated with hypothermia: birth place matters
Utilization of therapeutic hypothermia and neurological injury in neonates with mild hypoxic-ischemic encephalopathy: a report from children's hospital neonatal consortium

Journal of Neonatal-Perinatal Medicine
Commentary — The late preterm infant: Vulnerable cerebral cortex and large burden of disability
Methodological rigor in both targeted neonatal echocardiography training and study design are essential to understanding the impact of ultrasound on neonatal pain
Epidemiology and pathogenesis of stroke in preterm infants: A systematic review
Delayed cord clamping: Time for physiologic implementation
Prevalence and predictors of adverse outcomes in neonatal seizures
Effect of cerebrolysin on neurodevelopmental outcome of high risk preterm infants: A randomized controlled trial

Effect of dexmedetomidine on heart rate in neonates with hypoxic ischemic encephalopathy undergoing therapeutic hypothermia

Early motor development in infants with moderate or severe bronchopulmonary dysplasia

Novel mutation in the MYH2 gene in a symptomatic neonate with a hereditary myosin myopathy

Maternal diabetes and fetal cardiac output

Epicardial fat thickness in infants of diabetic mothers

Congenital heart defects and umbilical cord abnormalities, an unknown association?

Evaluation of pain and physiological stress during targeted neonatal echocardiography

Cumulative diagnostic imaging radiation exposure in premature neonates

Vanishing congenital lung malformations: What is the incidence of true regression?

DDAH1 SNP rs480414 that protects against the development of pulmonary hypertension in bronchopulmonary dysplasia results in lower nitric oxide production in neonatal cord blood-derived lymphoblastoid cell lines

Can first trimester pregnancy-associated plasma protein-A predict the surfactant needs of preterm neonates?

Maternal first antenatal care visit biometric indices as potential predictors of umbilical cord morphometric parameters

Prediction of complex gastroschisis: The evolution of therapeutic techniques and their relation with fetal sonographic features

Serum ghrelin is associated with early feeding readiness but not growth in premature infants

Achievement of maturational milestones among very low birth weight infants

Safety and efficacy of a home nasogastric monitoring program for premature infants

Breastfeeding initiation among women with chronic hypertension superimposed on pregestational diabetes mellitus

Increasing the exclusive breastfeeding rate in a private hospital in UAE through quality improvement initiatives

Thrombosis of the abdominal aorta in newborn: About two cases

Bleeding cervical varices in pregnancy: A case report and review of the literature
**Maternal Health, Neonatology and Perinatology**

No relevant articles

**Neoreviews**

Evidence-based discharge nutrition to optimize preterm infant outcomes

Developmental hemostasis: the evolution of our coagulation system

Amplitude-integrated electroencephalography: a primer for neonatologists and practitioners in the NICU

Preterm infant of diabetic mother with a retrorectal mass: a troubling tail tale

A male infant with cholestatic jaundice, hemolytic anemia, and thrombocytopenia

A case of persistent hypoglycemia with disorder of sex development

Visual diagnosis: Newborn with a large intracranial mass

Complex Fetal care: Twin reversed arterial perfusion sequence

Perspective: A blueprint for advocacy in neonatology

**JAMA Pediatrics**

Addressing the lack of clarity about administering surfactant in preterm infants with respiratory distress syndrome treated with noninvasive respiratory support

Association of human milk antibody induction, persistence, and neutralizing capacity with SARS-COV-2 infection vs MRNA vaccination

**BMC Pediatrics**

Audit identified modifiable factors in hospital care of newborns in low-middle income countries: a scoping review (PDF)

Perspectives on resuscitation decisions at the margin of viability among specialist newborn care providers in Ghana and Ethiopia: a qualitative analysis (PDF)

Gestational age specific anthropometric postnatal percentile charts for neonates born at tertiary hospital in Eastern Nepal (PDF)

Preparing newborn screening for the future: a collaborative stakeholder engagement exploring challenges and opportunities to modernizing the newborn screening system (PDF)

Perinatal, neonatal, developmental and demographic predictors of intelligence at 4 years of age among low birth weight children: a panel study with a 2-year follow-up (PDF)

Neonatal mortality in a public referral hospital in southern Haiti: a retrospective cohort study (PDF)

Growth of exclusively breastfed small for gestational age term infants in the first six months of life: a prospective cohort study (PDF)

Evaluation of a diluted lipid emulsion solution as a lubricant for improved peripherally inserted central catheter guidewire removal in a neonatal population (PDF)
Quality of care assessment for small and sick newborns and young infants in Pakistan: findings from a cross-sectional study  (PDF)

Antibiotics in the medical and surgical treatment of necrotizing enterocolitis. A systematic review  (PDF)

Clinical and genetic features of infancy-onset congenital myopathies from a Chinese paediatric centre (PDF)

Novel compound heterozygous variants in XYLT1 gene caused Desbuquois dysplasia type 2 in an aborted fetus: a case report  (PDF)

Does breastfeeding account for the association between maternal sensitivity and infant cognitive development in a large, nationally representative cohort? (PDF)

Novel use of balloon-tipped bronchial blockers to occlude neonatal tracheoesophageal fistula: a case series (PDF)

Giant dorsal lipofibromatosis in an infant: a case report  (PDF)

Neonatal acute ethanol intoxication during the epidemic of COVID-19: a case report  (PDF)

Geotemporospatial and causal inference epidemiological analysis of US survey and overview of cannabis, cannabidiol and cannabinoid genotoxicity in relation to congenital anomalies 2001–2015 (PDF)

Pediatric Critical Care Medicine
No relevant content

New England Journal of Medicine
Neonatal Resuscitation in 22-Week Pregnancies

Lancet
An educational programme in neonatal intensive care units (SEPREVEN): a stepped-wedge, cluster-randomised controlled trial
Comment: Progress in neonate safety

JAMA
Aspirin use for preeclampsia prevention among women with prepregnancy diabetes, obesity, and hypertension
The rational diagnostician and achieving diagnostic excellence

BMJ
Management and outcomes of extreme preterm birth
Vascularised iris in an infant
Interventions to prevent spontaneous preterm birth in women with singleton pregnancy who are at high risk: systematic review and network meta-analysis

Pediatric Infectious Disease Journal
Individual meropenem clearance in infants on ECMO and CVVHDF is difficult to predict: a case report and review of the literature
Raltegravir-based postnatal HIV prophylaxis therapy in a neonate after in utero dolutegravir exposure
Fulminant myocardial involvement in neonatal echovirus-induced sepsis. two autopsy cases
Neonatal coccidioidomycosis: a single-center experience and review of the literature
Duration of antibiotic therapy in neonatal gram-negative bacterial sepsis—10 days versus 14 days: a randomized controlled trial
Neonatal early onset sepsis: impact of Kaiser calculator in an Italian tertiary perinatal center
Congenital cytomegalovirus and hepatic failure: an underrecognized complication
Letter: a case of congenital human parechovirus type 3 meningoencephalitis

Pediatric Cardiology
Birth location in infants with prenatally diagnosed hypoplastic left heart syndrome
Third trimester fetal heart rates in antibody-mediated complete heart block predict need for neonatal pacemaker placement
Calcium chloride infusions are not associated with improved outcomes in neonates undergoing cardiac operations
https://www.ncbi.nlm.nih.gov/pubmed/34523025
Predictive tool for closure of ductus arteriosus with pharmacologic or surgical treatment in preterm infants
The impact of prematurity on morbidity and mortality in newborns with dextro-transposition of the great arteries
Angioplasty of native coarctation in a very low birth weight, donor of twin–twin transfusion infant

Pediatric Neurology
Disorders of neuronal migration/organization convey the highest risk of neonatal onset epilepsy compared with other congenital brain malformations (PDF)
Prolonged video-EEG and heart rate variability can elucidate autonomic dysregulation in infantile apneic seizures
**Obstetrics and Gynecology**
Survival without severe neonatal morbidity in very preterm twins according to planned mode of delivery
Medically assisted reproduction treatment types and birth outcomes: a between-family and within-family analysis
Variations in low-risk cesarean delivery rates in the United States using the society for maternal-fetal medicine definition
Antenatal three-dimensional printing for ex utero intrapartum treatment procedures

**American Journal of Obstetrics & Gynecology**
Fetal magnetic resonance imaging at 36 weeks predicts neonatal macrosomia: the PREMACRO study
Physiological subtypes of gestational glucose intolerance and risk of adverse pregnancy outcomes
Delayed cord clamping in small for gestational age preterm infants
The selective progesterone receptor modulator-promegestone-delays term parturition and prevents systemic inflammation-mediated preterm birth in mice
A randomized controlled trial of low-dose aspirin for the prevention of preeclampsia in women at high risk in China
Outcomes associated with antibiotic administration for isolated maternal fever in labor
Are children born by cesarean delivery at higher risk for respiratory sequelae?

**Hospital Pediatrics**
Improving guidance and maternal knowledge retention after well-newborn unit discharge
Quality initiative to reduce extrauterine growth restriction in very low birth weight infants
National Healthcare Safety Network 2018 baseline neonatal standardized antimicrobial administration ratios
Decreasing laboratory testing for neonatal jaundice through revision of a clinical practice pathway

**Basic Science Selections**
Circulating SPINT1 is reduced in a preeclamptic cohort with co-existing fetal growth restriction

Retinoid signaling regulates angiogenesis and blood-retinal barrier integrity in neonatal mouse retina
Gelsolin attenuates neonatal hyperoxia-induced inflammatory responses to rhinovirus infection and preserves alveolarization

Maladaptive functional changes in alveolar fibroblasts due to perinatal hyperoxia impair epithelial differentiation
Matthew R Riccetti, Mereena George Ushakumary, Marion Waltamath, et al. JCI Insight.

Using a neonatal rat model to explore the therapeutic potential of coenzyme Q10 in prematurity under hyperoxia

A20 is increased in fetal lung in a sheep LPS model of chorioamnionitis

Macitentan attenuates cardiovascular remodelling in infant rats with chronic lung disease

Neonatal isoflurane exposure disturbs granule cell migration in the rat dentate gyrus

ADDITIONAL JOURNAL SELECTIONS

Association between very to moderate preterm births, lung function deficits, and COPD at age 53 years: analysis of a prospective cohort study

Course of retinopathy of prematurity regression and reactivation after treatment with ranibizumab or laser in the RAINBOW Trial

Impact of in utero opioid exposure on newborn outcomes: beyond neonatal opioid withdrawal syndrome

Early N-Terminal Pro B-Type Natriuretic Peptide (NTproBNP) plasma values and associations with patent ductus arteriosus closure and treatment—an echocardiography study of extremely preterm infants