



EDITOR'S FOCUS
Editor's Focus

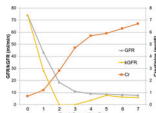
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EARLY CAREER INVESTIGATOR



Congratulations to Michelle Batthish, the Early Career Investigator for September 2021. Dr. Batthish is a pediatric rheumatologist at McMaster Children's Hospital and an associate professor of pediatrics at McMaster University in Hamilton, Ontario, Canada. She is from Toronto, and completed her medical schooling, pediatrics residency, and pediatric rheumatology fellowship at the University of Toronto and The Hospital for Sick Children. She completed a master's of science degree in cardiovascular physiology, studying ischemic preconditioning in rabbit cardiomyocytes before medical school. After her fellowship she completed a master's of science in health services research, examining the role of organizational learning in morbidity and mortality rounds. She is thankful to all her mentors in rheumatology and research, who have been instrumental in connecting her with the right people and guiding her toward career-advancing opportunities. In this issue, she and colleagues examine the incidence and short-term outcomes of Kawasaki disease in Ontario between 1995 and 2017. Her advice to trainees is to take advantage of opportunities as they come, especially early in one's career; surround themselves with a team of experts, both within and outside their specialty as well as non-physician researchers with expertise in other areas; connect with patient advocacy groups; and involve patients and families in their research. See pages 502 and 670.

KINETIC EGFR TO IDENTIFY ACUTE KIDNEY INJURY RISK IN CARDIAC TRANSPLANTATION



The rate of postoperative acute kidney injury (AKI) has been reported to be as high as 65% among pediatric patients who undergo cardiopulmonary bypass for cardiac transplantation and cardiac surgery. Because AKI may lead to chronic kidney disease, prolonged mechanical ventilation, and prolonged hospital stay, predicting and preventing AKI is paramount. A single measurement of serum creatinine is considered a poor marker of kidney function because kidney function is dynamic, not static. Kinetic glomerular filtration rate (kGFR) is a composite biomarker of renal function that incorporates sequential creatinine values and temporality and may therefore be a reliable marker of the dynamic nature of kidney dysfunction. kGFR has been found to be a useful marker in predicting AKI in adults but has not been evaluated in children. In a retrospective study, Dasgupta and colleagues evaluated the usefulness of kGFR in predicting AKI in children who underwent cardiac transplantation. AKI and severe AKI occurred in 75% and 45%, respectively, in their cohort. kGFR was found to be moderately accurate in identifying postoperative risk of AKI in children undergoing cardiac transplantation and may serve as a useful risk-stratification technique. See page 632.

IMPACT OF ALTERNATIVE PEDIATRIC METABOLIC SYNDROME DEFINITIONS



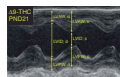
Childhood obesity is increasing in epidemic proportions. Children with metabolic syndrome (a cluster of cardiometabolic risk factors including central obesity, dyslipidemia, hyperglycemia, and hypertension) are at increased cardiometabolic risk later in life. This risk is closely related to noncommunicable diseases such as type 2 diabetes and cardiovascular diseases. Prevention of metabolic syndrome and childhood obesity are necessary to decrease morbidity and enhance quality of life of future generations. However, a consensus definition for metabolic syndrome is lacking, which creates confusion when quantifying the risk in populations. Lepe et al. compare the impact of using different definitions of childhood metabolic syndromes on prevalence estimates and socioeconomic gradients. Using data from the prospective, multi-generational Dutch Lifelines Cohort Study, they derived prevalence estimates using five definitions of metabolic syndrome. Although the prevalence estimates vary by definition, low socioeconomic status stands out as an important risk factor irrespective of the definition used. (Photo: Karan Kapoor/Getty.) See page 694.

THE PIPPA STUDY: A RANDOMIZED CONTROLLED TRIAL



It is well known that very preterm infants are at increased risk of socio-emotional and behavioral difficulties, which maybe mediated by the quality of parent–infant interaction early in life. The quality of such interactions, including parental sensitivity to infant cues, may impact later emotional and behavioral outcomes. Twohig et al. report the results of the PIPPA (Preterm Infant–Parent Programme for Attachment) Study, a randomized controlled trial of an intervention that comprised reflective interview, observation of infant cues, and video interaction guidance (VIG), and compared it with standard care. Although there were no differences in maternal sensitivity during play at 9 months corrected age (CA), infants in the intervention group had fewer self-regulation problems at 12 months CA, and infants whose mothers completed VIG had significantly fewer communication problems. The authors recommend further research on this fascinating aspect of parent–infant bonding that could have long term socio-emotional impact in infants born preterm. (Photo: IvanJelic/Getty.) See page 617.

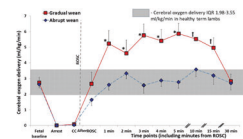
EXPOSURE TO Δ9THC DURING RAT PREGNANCY LEADS TO IMPAIRED CARDIAC DYSFUNCTION



Cannabis is the most commonly used recreational drug. In California, it is reported that up to 7% of pregnant women and 5% of nursing women use cannabis. It is predictable that legalization of the drug in Canada and some US states will further increase its use during pregnancy. Systematic reviews have shown that the use of cannabis is associated with impaired fetal growth. Lee et al. report the effects of administration of Δ9THC, the main

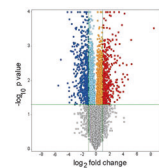
psychoactive component of cannabis, in pregnant Wistar rats and their offspring. They found that the rat pups were growth-restricted, with low heart-to-body weight ratios and had markers of cardiac remodeling and poor cardiac function in early life. In the related Comment, Singh et al. call for increasing research and education to decrease cannabis use in pregnant women. See pages 532 and 503.

OXYGEN WEANING STRATEGIES AFTER CHEST COMPRESSIONS DURING NEONATAL RESUSCITATION



Oxidant stress is deleterious to tissue—especially to the brain, due to its lipid content. Minimizing oxidative stress may limit tissue injury after recovery from asphyxia, particularly after return of spontaneous circulation (ROSC) in neonatal resuscitation that requires chest compressions. Resuscitation with chest compressions is accompanied by the use of 100% oxygen. The current Neonatal Resuscitation Program/American Academy of Pediatrics recommendations state that after ROSC, FIO₂ can be weaned based on preductal oxygen saturations from 100% oxygen. Sankaran et al. randomized lambs asphyxiated by occlusion of the umbilical cord to either abrupt wean from an FIO₂ of 1.0–0.21 or gradual wean based on preductal saturations. The investigators observed reductions in PaO₂, cerebral oxygen delivery, and oxidant stress (indicated by a lower blood oxidized/glutathione ratio) in the group in which FIO₂ was weaned abruptly following ROSC. In an accompanying Comment, Saugstad suggests that clinical trials are needed to investigate the best way to wean from 100% oxygen following chest compressions. See pages 540 and 510.

PULMONARY IMMUNE CELL TRANSCRIPTOME CHANGES IN A DOUBLE-HIT MODEL OF BPD



Bronchopulmonary dysplasia (BPD) is a serious complication of prematurity, characterized by arrest of alveolar development in response to multifactorial insults to the developing lung. Antenatal and postnatal inflammatory stimuli contribute to the development of BPD. Infants with the disorder have a higher susceptibility to respiratory infections and asthma later in childhood. Immune cells in the lung, which constitute up to one-third of the lung cells and maybe programmed in response to inflammatory stimuli, are an increasing area of study. Shrestha et al. examined the transcriptomics of immune cells in the lung that had been exposed to maternal chorioamnionitis and postnatal hyperoxia (common antecedents in human BPD) in an animal model. They report dysregulation of genes that are involved in T-cell-receptor signaling in both the short and long term, which may have lifelong implications for preterm infants with BPD. See page 565.