Pediatric RESEARCH

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EDITOR'S FOCUS

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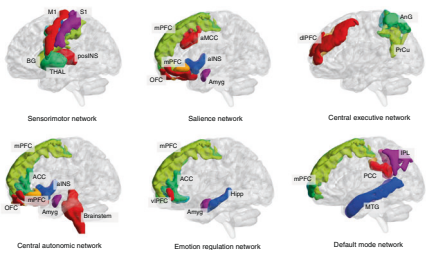
Early Career Investigator

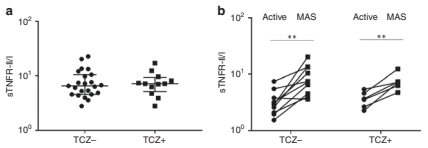
Congratulations to Megan Griffiths, the Early Career Investigator for October. Dr. Griffiths was born in Cape Town, South Africa, and immigrated to Denver, Colorado, as a child. She developed a passion for pediatric cardiology, pursuing fellowship training at Johns Hopkins University and clinical research as a trainee in the Pediatric Scientist Development Program. In an article in this issue, Dr. Griffiths and colleagues provide evidence that insulin-like growth factor—binding protein 2 is associated with disease severity and survival in children with pulmonary hypertension. In her Biocommentary, Dr. Griffiths notes the importance of supportive mentorship for young, emerging scientists and the need to form relationships with others in their field. See pages 826 and 850

Chronic pain in childhood: insights via functional MRI



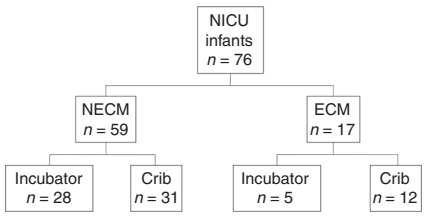
Chronic pain in children and adolescents is a growing problem, costing nearly $20 billion annually. More striking, hospitalizations for children due to chronic pain rose eightfold over the past decade. Unfortunately, chronic pain is a complex entity with multiple overlapping brain pathways that contribute to the quality and severity in individuals and within populations, which limits the application of new potential therapies. In this comprehensive review, Bhatt and colleagues highlight the utility of functional magnetic resonance imaging (fMRI) to define structural and resting-state network pathology in pediatric chronic pain. In an accompanying Family Reflection, a mother vividly describes the daily routine that centers on her children's pain and the lack of relief that overwhelms the families of children with chronic pain. See pages 840 and 834

Macrophage activation syndrome in sJIA



Macrophage activation syndrome (MAS) occurs in 10–30% of persons with systemic juvenile idiopathic arthritis (sJIA), but distinguishing MAS from other comorbidities with sJIA is difficult owing to the lack of specific diagnostic factors for MAS. Immunologics, including monoclonal antibodies against inflammatory cytokines, are common therapeutics for sJIA and may be effective in MAS. Irabu and colleagues analyzed serum cytokine concentrations in 36 patients with MAS complicating sJIA and found that tocilizumab, a monoclonal directed at the interleukin-6 receptor, suppressed many cytokine concentrations at MAS onset. The authors also found that the ratio of soluble tumor necrosis factor receptor (sTNFR)-2 to sTNFR-1 is preserved at the onset of MAS and may be useful in distinguishing MAS from overlapping diseases. See page 934

Ethanol exposure in hospitalized preterm infants

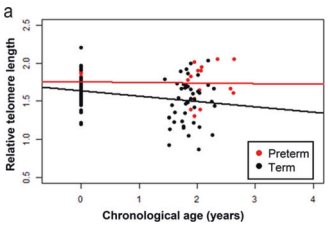


The teratogenic effects of ethanol through maternal exposure are well described; however, neonates may experience ongoing exposure to ethanol through their postnatal hospital care. Stefanak and colleagues provide new evidence that neonates receiving ethanol-containing medications had increased concentrations of ethanol metabolites in their urine. Inhalation of vapor from ethanol-based hand sanitizer may compound this exposure. Given the developmentally immature pathways of biotransformation and elimination, routine care and medications may be ongoing sources of ethanol exposure in hospitalized preterm neonates. In an accompanying commentary, Stroustrup draws attention to the disparate outcomes in preterm infants that may be influenced by environmental factors, including medical ethanol. See pages 865 and 832

Parental interaction modifies screen-time effects on childhood cognition

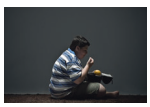
Early and excessive screen time is linked to many outcomes, including poorer executive function. Some modifiers, such as the content being viewed, have been identified, but other interactions and modifiers for the relationship between early childhood screen time and executive function in later life likely exist and support the complexity of this relationship. Supanitayanon and colleagues provide evidence that supports a link between early and excessive screen time and poorer executive functioning in childhood, but also show that parental interaction during screen time is associated with improved executive functioning. These new insights suggest that not all screen time is equivalent. (Photo: serts/Getty.) See page 894

Preterm birth does not affect immune-cell aging



Prematurity can trigger inflammatory pathways and oxidative stress, which imparts a high risk for disease in later life and possibly a shorter life expectancy. Telomere length is negatively influenced by inflammation and oxidative stress. Stress-related telomere shortening in preterm neonates has been suggested as a mechanism in their increased risk. Henckel et al. found that, in comparison to term controls, preterm infants had longer telomeres at birth and again at 2 years, with no difference in telomere attrition between groups. See page 903

Uric acid as a predictor of metabolic risk in adolescents



In the search for highly predictive biomarkers of metabolic risk, renal, hepatic, and hematologic markers are frequently used and have some predictive value; however, the predictive reproducibility of these biologic markers has not been determined in comparative studies. In a population of nearly 2000 adolescents, de Souza and colleagues demonstrate that uric acid, alanine aminotransferase, and aspartate aminotransferase are predictive of metabolic risk, with uric acid concentration showing the highest sensitivity and specificity for predicting metabolic risk. (Photo: Image Source/Getty.) See page 945