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Neonatal screening and diseases in preterm newborns



Ryckman and coinvestigators aimed to identify metabolites associated with common complications of prematurity. They performed a retrospective analysis of medical data and metabolite measurements from routine neonatal screenings of 689 preterm newborns. They found that infants with respiratory distress syndrome had higher levels of phenylalanine, which may be due to impaired phenylalanine hydroxylase activity. **See page 700**

Short-bowel syndrome



Neonatal short-bowel syndrome (SBS) often results in loss of ileum. Hua and colleagues hypothesized that in the absence of ileum, production of endogenous glucagon-like peptide-2 (GLP-2) is inadequate, possibly hampering intestinal adaptation. They compared GLP-2 production and adaptation in newborn piglets with SBS, with and without ileum. SBS piglets without ileum had limited adaptation, lower plasma GLP-2 levels, and severe intestinal failure requiring prolonged parenteral nutrition. See page 742

Fractional anisotropy and perinatal stroke



Diffusion tensor imaging can be used to predict outcome following perinatal arterial ischemic stroke (PAIS), although little is known about white matter changes over time. Infants with PAIS were serially scanned in the neonatal period, at 3 months, and at 24 months. Fractional anisotropy (FA) values were obtained in five regions of interest. The results suggest that neonatal FA measurements may underestimate the extent of injury following PAIS and that measurements at three months may more reliably predict neurodevelopmental outcome. See page 756

Neurodevelopment and imaging techniques

By measuring somatosensory evoked magnetic fields, Rahkonen and colleagues investigated whether abnormalities in higher cortical functioning at term age are associated with adverse neurodevelopment



at two years of corrected age in newborns of less than 28 weeks' gestation at birth. They found that abnormal secondary somatosensory cortex responses at term predict adverse neuromotor development not foreseen with conventional neuroimaging methods. See page 763

Oxidative stress in children



Previous studies have suggested that biomarkers of oxidative stress decrease with increasing age in prepubescent normocholesterolemic (NC) children; conversely, they are persistently high in their hypercholesterolemic (HC) peers. Nicotinamide adenine dinucleotide phosphate (NADPH) oxidase is the most important cellular source of reactive oxygen species. Loffredo *et al.* suggest that NOX2, the catalytic subunit of NADPH oxidase, contributes to the generation of oxidized LDL in the early phase of life in NC children and to high oxidative stress in prepubertal HC children. See page 788