Neurofibromatosis and sudden death

Pediatricians are well aware of the cutaneous and skeletal manifestations of neurofibromatosis. There is less awareness that patients with neurofibromatosis may present with vascular abnormalities. These vascular abnormalities may lead to stenosis or aneurysms of the renal arteries leading to a severe secondary form of hypertension. However, neurofibromatosis may affect the aorta or any of its main branches. In this issue of The Journal, Kanter et al report on a 22-month-old who had been noted to have multiple café au lait spots and died suddenly of a ventricular arrhythmia. Autopsy revealed narrowing of the left main and left anterior descending coronary arteries due to vascular neurofibromatosis. This case reminds us that we should consider coronary arteriopathy in patients with neurofibromatosis who present with symptoms such as chest pain or syncope.

—Stephen R. Daniels, MD, PhD

Tdap is not associated with excessive reactogenicity in adolescents who received five prior doses of acellular pertussis vaccine

Zepp et al provide the first substantial study of safety of administration of a sixth dose of an acellular pertussis antigen-containing vaccine. Since the recommendation in the United States in 1997 for universal use of acellar pertussis vaccine (aP) instead of whole-cell pertussis vaccine (wP) for all 5 doses in the DTaP series through 6 years of age, reactogenicity (redness, swelling and pain at the injection site; or fever and systemic adverse events; or both within 48 hours of administration) is markedly reduced. As the cohort of children fully immunized solely with aP-containing vaccines has grown, increased reactogenicity after the fourth and fifth doses (still considerably less than after wP-containing vaccines) has been noted. In 2005, two vaccines with tetanus toxoid and reduced-content diphtheria toxoid and acellular pertussis antigens (Tdap) were licensed in the United States and recommended for universal administration in adolescents in order to boost waned immunity. There was a modicum of concern from reactogenicity data following the fifth dose of DTaP in children that a Tdap in adolescents (the sixth dose of an acellular-pertussis containing vaccine) could be associated with heightened reactogenicity. Zepp et al provide reassuring data of only minor reactogenicity following Tdap among study subjects who also had been study subjects for the preceding 5 doses of DTaP. This was true even for subjects who had substantial reactions after the fifth dose.

Halperin’s editorial brings into focus the expected safety, benefit, and challenges of using repeated doses of Tdap to curb the rising incidence of pertussis in adolescents and adults, and indirectly to protect very young infants.

—Sarah S. Long, MD

Surfactant in meconium aspiration syndrome

Meconium aspiration syndrome (MAS) has been one of the most frightening adverse consequences of term delivery. Fortunately, severe MAS has decreased strikingly in recent years because fewer infants deliver after 40–41 weeks gestation and because obstetric management has avoided most hypoxic events during labor and delivery. MAS has been described as a syndrome where the aspiration is simply the proximal indicator for a series of events resulting from birth depression and often in pulmonary hypertension. However, meconium does have effects on the lung: it causes airway obstruction, inflammation and inactivates surfactant. Therefore, MAS might be a sentinel event that could result in abnormal surfactant metabolism as a result of direct toxicity causing inhibition or inflammation/injury to type II cells or indirectly because of the effects of the associated birth asphyxia or pulmonary hypertension on the fetal lung. The worst cases of MAS have pulmonary hypertension and may end up on extracorporeal membrane oxygenation (ECMO). Janssen et al report that infants with MAS on ECMO have disturbed surfactant synthesis and decreased surfactant concentrations in airway fluid. They used sophisticated modeling and measurements with stable isotopes to complement previous reports that the function of surfactant in MAS is abnormal and that surfactant treatments can improve lung function. Clearly, surfactant function and metabolism is disturbed at many levels and for multiple reasons in infants with MAS.

—Alan H. Jobe, MD, PhD

Early referral to avoid late disease

Widely available developments in dialysis and transplantation have made successful rehabilitation of the child with end stage kidney disease (ESKD) possible in the majority of circumstances. Unfortunately, these children often do not fare so well after they grow up. There continues to be a very high rate of cardiovascular morbidity and mortality in adults with treated ESKD.

In this issue of The Journal, Mitsnefes et al provide us with some fascinating and worrisome information about children with chronic kidney disease (CKD) who have not as yet reached ESKD. Studying a group of children with relatively stable CKD (at levels of glomerular filtration rates that would not be predicted to produce symptoms), these investigators document a striking incidence of left ventricular hypertrophy by echocardiography. Careful statistical analysis demonstrated that hypertension, anemia, and hyperparathyroidism all contributed to this cardiovascular morbidity.

The importance of this observation is that all three of these factors are subject to therapeutic intervention; such therapy is part and parcel of modern pediatric nephrology. Unfortunately, CKD of the degree seen in many of these children was so superficially modest that it could have escaped attention or concern by the primary caretaker. This work is a warning that referral to nephrologists with experience in the management of CKD should occur early in the course of the disorder.

—Thomas R. Welch, MD