LETTERS FROM MAINE

Keep the CAT in the Bag

On a low-lying landscape of inert couch potatoes, my longtime patient Jackson, 10 years old, is a refreshing peak of activity. However, sometimes activity leads to injury, and over the weekend he found himself in the emergency department following some head trauma that left him dazed for a minute or 2. He was now fine without any symptoms, but the ED personnel had told him to come to our office in 2 days regardless of how well he was feeling.

BY WILLIAM G. WILKOFF, M.D.

I learned from his father that while in the ED, Jackson had undergone a computed axial tomography (CAT, or CT) scan of his head. With mock surprise I asked, "Really? Did they warn you that this procedure involves a pretty hefty radiation dose?" His dad replied, "Actually, the doctor did mention that and said that it might be associated with an increased cancer risk. She was on the fence about ordering the study, but after Jackson vomited she decided to go ahead and have it done." Heightening my concerns all the more, Dad recalled that Jackson had had another mild concussion 3 years earlier and had also received a CT scan on that ED visit.

Of course, the images then and now were normal. I have never seen a meaningful positive CT scan in a patient who was awake and conversant. It turns out Jackson's emesis was a single event in response to a well-meaning but ill-timed attempt to leave no pain untreated. A big slug of acetaminophen syrup hadn't sat well in his nerved-up stomach.

In a recent paper in the New England Journal of Medicine, the authors pointed out that the dose of radiation from a CT scan is significantly greater than that from a traditional radiograph. For example, an abdominal CT bombards the patient's stomach with 50 times more radiation than does a standard film (N. Engl. J. Med. 2007;357:2277-84).

Equally alarming was their citation of a survey finding that 75% of radiologists and ED physicians significantly underestimated the radiation dose of a CT scan (Radiology 2004;231:393-8). While the risk of cancer from CT scans is as yet unproved, it is troubling that 91% of these ED physicians did not believe that the scans were associated with an increased lifetime risk of cancer. Until we have all of the answers, ordering CT scans is an area in which it seems physicians should be prudent. Whatever happened to *primum non nocere*?

In a related discussion among pediatric radiologists, it was suggested that there is consensus that "somewhere around 30% of CT scans that we do are unnecessary" (Pediatr. Radiol. 2002;32:298-300). My observations suggest that this number is a serious underestimate, certainly when one is talking head injuries.

We older adults tend to be goofy most of the time. Children, on the other hand, tend to be far more transparent. By the time they present to us in the office or ED, what you see is what you get. It certainly is wise to have them sit around for an hour or 2 to make sure their mental status and physical exam are stable. But, the old nursery rhyme verse "bumped his head, went to bed, and couldn't get up in the morning" is a myth. As is the notion that vomiting is a predictor of intracranial injury (J. Pediatr. 2007;150:274-8).

Unfortunately, even a short observation period in an ED is expensive and can add to the chaos of gridlock. Sadly, for physicians who may not be as confident of their physical exam skills as they could be and who feel the hot breath of opportunistic lawyers on the backs of their necks, ordering a CT scan is the path of least anxiety.

We all must reevaluate use of CT scans and to support and educate those among us who are having the most difficulty being prudent in using these often unnecessary higher-dose imaging techniques. ■

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POINT/COUNTERPOINT

Did the AAP's clinical statement on lipid screening get it right?

Guidelines outline multilevel approach.

The clinical report by the American Academy of Pediatrics' Committee on Nutrition, "Lipid Screening and Cardiovascular Health in Childhood," represents a multilevel approach for the screening and management of children with risk factors for cardiovascular disease. The clinical report, which I helped to develop, offers both a population-level approach and targeted recommendations for identifying and treating high risk children (Pediatrics 2008;122:198-208).

While much of the press coverage has focused on treatment of children with medication, the statement as a whole stresses a balanced approach to management of dyslipidemia that begins with diet and lifestyle modifications with the addition of medications in only a small group of children with extremely elevated LDL cholesterol levels, usually due to a genetic predisposition for hypercholesterolemia. In fact, while the clinical report reflects the latest evidence, its content is very similar to previously published recommendations from the AAP and other groups such as the American Heart Association.

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Screening is a key part of the report. While the risks from screening for this condition are likely nonexistent, there are potentially important benefits. We felt that screening was appropriate across a broad segment of children—those with risk factors for cardiovascular disease or family risk factors—because there are effective interventions available to address pediatric dyslipidemia. In terms of treatment, our recommendations were once again consistent with previous guidelines.

The clinical report is based on current data, including assessments by the Food and Drug Administration of the risk and benefits of medications for children and observational studies of the natural history of untreated hypercholesterolemia. We also weighed the risks on our own and concluded that the known risk of having a continuously elevated LDL cholesterol level was greater than the potential risk of long-term use of medications.

It's also important to recognize that the role of the pediatrician is changing. Over the years we've done a wonderful job preventing infectious disease, detecting and addressing early developmental issues, and treating common pediatric diseases such as asthma. But this and other reports represent the next frontier for pediatricians as we begin to intervene in childhood to help prevent chronic diseases that will manifest in adulthood. Addressing high cholesterol in childhood is an important part of this new mission for pediatricians. ■

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Screening and management are unproved.

Focusing on cardiac risk factors from a young age is a very worthy goal. In particular, healthy diet, lifestyle, and appropriate weight starting in the toddler years are important.

However, I believe the AAP's clinical report overplays the importance of cholesterol levels in children as a risk factor for myocardial infarction in later adulthood. There are serious gaps in current knowledge about screening and treating cholesterol in young children, and the AAP's report prematurely encourages widespread adoption of a risky strategy.

My primary concern is that excessively focusing on an unproven screening and treatment strategy may cause more harm than good. The AAP now recommends that all children be screened for cholesterol beginning at age 2, if they are overweight or have other risk factors for heart disease. In the United States, that means screening more than 10 million children every 3-5 years, which will cost hundreds of millions of dollars.

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Universal cholesterol screening in children is not supported by the U.S. Preventive Health Services Task Force.

The clinical report offers confusing justifications for widespread screening, which has little to do with increasing childhood obesity rates, since LDL cholesterol levels in children have actually fallen over the past few decades. In fact, the goal of widespread screening is actually to identify the small population of children who have a genetic condition, heterozygous familial hypercholesterolemia, which can cause extremely high LDL cholesterol levels. But assuming a population prevalence of even 1 in 1,000, the positive predictive value of the AAP's screening is only 3%. That means that 97% of children who screen positive may not have the genetic condition.

Yet these healthy children may be still treated with statins. Even in adults over 50 years old with hypercholesterolemia, the absolute risk of myocardial infarction drops only 2 percentage points with therapy over 5 years.

Thus, the number needed to treat will be very high—very possibly in the tens of thousands—in young children. It is highly unlikely this benefit outweighs the possible risks of widespread statin treatment of children.

Rather than broadly screening and treating healthy children, a more appropriate approach would be to test children's cholesterol only if one of their parents is known to have heterozygous familial hypercholesterolemia. Once we identify those children at the highest risk, I would like to see the AAP try to be more quantitative about outlining the risks and benefits of therapy, to empower patients to make individualized decisions about treatment. ■

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