Pediatric Stroke Is Focus Of New AHA Guidelines

BY NANCY WALSH

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The he first comprehensive guidelines for the diagnosis and management of stroke in children were released online last week. The guidelines describe a wide range of clinicians responsible for treating cerebrovascular disease in infants and children with evidence- and consensus-based recommendations, according to the American Heart Association. The recommendations, written by a group of experts from the American Heart Association Stroke Council and the Council on Cardiovascular Disease in the Young, have been released online.

“Clinicians in the United States have a high level of expertise in dealing with stroke in children, and these guidelines share this concentrated knowledge with physicians who don’t have access to that expertise,” committee chair Dr. E. Steve Roach said in an interview. One important message in the statement is that stroke in children is far more common than is generally realized. Data from the National Hospital Discharge Survey report that the overall risk of stroke from birth through 18 years is 13.5/100,000, and the rate of hemorrhagic stroke for term infants is 6.7/100,000 per year. Other recent investigations found that neonatal stroke occurs in about 1 in 4,000 live births, with about of those 80% being ischemic. “The take-home message is that ischemic stroke is far more common as brain tumors in children,” said Dr. Roach, chief of neurology at Nationwide Children’s Hospital and professor of pediatric neurology, Ohio State University, both in Columbus. Strokes in children differ from those in adults in that few are associated with atherosclerosis, but they are similar in that once the stroke has occurred, no medicine can reverse it, Dr. Roach said. “However, an aggressive approach to finding out the cause of the stroke is your best chance for preventing subsequent strokes and the cumulative pupil progression that will determine whether that child grows into a normally functioning adult.” Among the causes and risk factors for stroke cited in the statement are sickle cell disease and cerebro- cephalic arterial dissection (Circulation 2008; doi:10.1161/strokea.108.189906). The guidelines offer detailed recommendations on primary and secondary stroke prevention in sickle cell disease. Management of acute stroke includes optimal hydration and correction of hypoxemia and hypertension. Periodic transfusions are recommended for children aged 2-16 years with abnormal transcranial Doppler findings, and those with a confirmed cerebral infarction should be on a program of red cell transfusion with measures to prevent transfusion reactions. In sickle cell disease with acute cerebral infarction, exchange transfusion with the goal of reducing sickle hemoglobin to less than 30% of total hemoglobin is “reasonable,” and hydroxyurea may be considered for children who are unable to continue on long-term transfusion. Cervicocephalic arterial dissection is described as an important but underrecognized cause of stroke in children. For extracranial cervical arterial dissection, it is reasonable to institute unfractionated heparin or low-molecular-weight heparin as a bridge to oral anticoagulation. Anticoagulant therapy can continue for 3-6 months or longer for patients with recurrent symptoms, according to the guidelines. For hemorrhagic stroke, recommendations include noninvasive testing and standard cerebral angiography if needed, along with standard measures such as controlling hypertension and seizures and managing increased intracranial pressure. Surgical evacuation of a supratentorial intracerebral hematoma is not usually recommended, although in certain selected patients with developing brain herniation or very high intracranial pressure, surgery may be helpful. With cerebral venous sinus thrombosis (CVST) in children, anticoagulation is reasonable, with the exception of neonates. Until there is more evidence of safety and effectiveness, anticoagulation is not appropriate for most neonates with CVST,” the authors wrote, adding that it may be considered in the context of severe prothrombotic disorders, multiple emboli, or radiologic evidence of propagating CVST despite supportive care.

Some recommendations, such as those that suggest using anticoagulation only for neonates with some evidence of progression of venous sinus thrombosis, are likely to cause controversy, said Dr. Heather J. Fullerton, who directs the pediatric stroke and cerebrovascular disease center at the University of California, San Francisco. Nonetheless, these are “landmark comprehensive guidelines” for clinicians who have “struggled with how to manage these patients in the absence of more evidence,” said Dr. Fullerton, who was not a member of the writing group. The guidelines are at www.americanheart.org/presenter.jhtml?identifier=3003999.

Lipid Screening in the Pediatric Population

BY NEIL S. SKOLNIK, M.D., AND MEERA SHAH, D.O.

About 75% of children who have total cholesterol levels above the 90th percentile continue to have total cholesterol levels higher than 200 mg/dL when they are in their early twenties. Currently, about 12% of children in the United States have total cholesterol levels above 200 mg/dL. The American Academy of Pediatrics has issued guidelines for the screening and management of childhood lipids (Pediatrics 2008;122:198-208).

There are two approaches to decreasing pediatric cholesterol levels. In the population approach, dietary changes are not recommend- ed for children younger than 2 years of age because they may need more fat in their diet for normal growth and development. For children older than 2 years, “a prudent” low-fat diet is recommended, with an increase in the intake of fruits, vegeta- bles, and fish and a commensurate decrease in the intake of fruit juices, high-salt foods, and sweetened sodas and foods. In addition, the im- portance of exercise and the achievement of ap- propriate body weight should be emphasized.

The individual approach involves screening for increased lipid levels in defined high-risk populations. Guidelines for treatment are based on the individual’s risk of developing cardio-vascular disease (CVD).

Screening

Given the relationship of childhood cholesterol levels to the development of adult atherosle- rotic disease, it is important that there be a clear approach to screening for abnormal cho- lesterol levels. The AAP recommends screening children who have a family history of dys- lipidemia or have premature CVD or dyslipidemia, those whose family history is unknown, and those with other CVD risk factors, such as overweight or obesity (defined as a body mass index greater than the 85th and 95th percentiles, respectively), hypertension, tobac- co use, and diabetes mellitus. The screening test in these children is a fasting lipid profile, conducted when the child is 2-10 years old and repeated every 3-5 years if the results are within the reference range.

Treatment

The population approach focuses on decreasing the proportion of the population that has elevated lipid levels by promoting a healthy lifestyle in children older than age 2 years. The individual approach focuses on chil- dren identified through screening as having el- evated lipid levels. The first step is to urge lifestyle modification via diet and exercise. The next is to emphasize a nonpharmacolog- ical approach that includes high-soluble fiber intake and the addition of plant stanols and sterols to the diet to decrease the absorption of dietary cholesterol.

For children older than age 8 years whose LDL cholesterol levels remain above the recom- manded range, a statin is started. If this is not effective in lowering cholesterol concentrations, the AAP recommends the use of a cholesterolemia inhibitor such as ezetimibe, which can lower LDL cholesterol by 20%, are potential first-line agents for treat- ment because of their limited side effects and small tablet size.

The Bottom Line

Selecting screening for hypercholesterolemia should begin when the child is 2-10 years old; a fasting lipid profile should be done in those who have a higher-than-average risk for coronary artery disease. Treatment should be through diet and exercise. For selected children with LDL cholesterol levels of 160-190 mg/dL, drug therapy should be considered.

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