Does prompt tympanostomy improve speech, language, and cognitive development? ▶ Pediatricians have been haunted by concerns that chronic middle-ear effusion (MEE) — prevalent during the critical period for speech and language development — causes later impairment in learning and language skills. Although current practice sanctions placement of tympanostomy tubes for MEE persisting 3 months or longer, evidence to support this treatment is limited. In this long-term, prospective study, researchers enrolled 6350 infants (age range, 2 to 61 days) who were regularly evaluated for MEE throughout their first 3 years of life. Treatment was directed by established guidelines.

Children with persistent MEE were randomly assigned to early tube insertion (at 90 days of MEE) or late tube insertion (6 months later). Assessment of speech, language, and cognition was performed at age 4 years in both treatment groups (397 children) and in a control group of 234 children who did not receive tubes (because MEE was absent or because they did not meet criteria for tube placement).

There were no significant differences favoring early versus late tube placement in any tests of development. Correlations between MEE duration and developmental outcomes at 4 years of age were weak or nonexistent. In both treatment groups and the control group, sociodemographic variables were the most important factor in developmental outcomes.

Comment ▶ Old habits die slowly. This elegant study should help convince us that tympanostomy tube placement in normal circumstances does not improve cognitive, speech, language, or psychosocial outcomes. As the authors point out, however, caution should be observed in applying these findings to children with certain handicapping conditions, such as Down syndrome, cleft palate, or sensorineural hearing loss, or to those with MEE and moderately severe hearing loss.

Harlan R. Gephart, MD
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Gastroesophageal reflux ▶ Faced with the common problem of gastroesophageal reflux (GER), pediatricians must often decide if medical evaluation is worthwhile or whether a tincture of time is all that is needed. The AAP has endorsed a guideline developed by the North American Society for Pediatric Gastroenterology for the evaluation and treatment of GER in healthy, full-term infants, children, and adolescents without neurologic impairment. Here are some highlights of the guideline for infants:

Definition: GER is the passage of gastric contents into the esophagus. Gastroesophageal reflux disease (GERD) refers to symptoms or complications of GER, including, in infants, irritability, poor weight gain, food refusal, and such respiratory disorders as asthma and apnea.

Diagnosis: Upper gastrointestinal series is neither sensitive nor specific for diagnosis. Esophageal pH monitoring is precise in making the diagnosis and assessing the effectiveness of treatment. Endoscopy with biopsy is necessary to confirm the diagnosis of reflux with esophagitis.

Management: Approaches should be tailored to the specific history and severity of symptoms. Milk protein allergy can present as vomiting and cause GERD with esophagitis but is uncommon. A 1- to 2-week trial of hypoallergenic formula is recommended. Although thickening the formula does not reduce reflux index scores, it does reduce the occurrence of vomiting. Placing infants in the prone position is likely to reduce symptoms, but this approach is not recommended because of the elevated risk for SIDS. The authors do not address sleep position in older infants, who have negligible SIDS risks.

Pharmacologic therapies: Proton-pump inhibitors (PPIs), such as omeprazole, relieve symptoms and heal esophagitis better than H2-receptor antagonists (e.g., cimetidine, ranitidine). Prokinetic agents, such as metoclopramide and bethanechol, are of unproven benefit. There are no good clinical trials of surgery, but evidence from case series suggests that it is effective. However, surgery is indicated only when patients have biopsy-proven esophagitis and medical management has failed.

Comment ▶ How are we to digest this guideline? For infants who spit-up or vomit but who are neurologically normal, growing, and developing, nothing is necessary. Evaluation may be warranted for those with poor weight gain, persistent irritability, or apnea or wheezing and a history consistent with GER. The guideline does not address the necessity of diagnostic evaluation before instituting therapy. From my standpoint, it is reasonable to thicken feeds, change formula, and try PPIs before doing a definitive diagnostic test. When selecting a new formula, recall that the cross-reactivity of formulas containing soy and casein/whey is between 30% and 50%. Diagnostic evaluation is indicated in infants with moderate-to-severe respiratory disease possibly related to GER. At the time of publication, the guidelines were available at http://www.naspgn.org/sub/position_papers/GERD.pdf free of charge.

Howard Bauchner, MD
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November 10, 2003

Asthma: from childhood to adulthood ▶ Parents often want to know how long asthma will persist in their children. In a longitudinal, population-based study from New
Zealand, children were enrolled shortly after birth, and they or their parents were surveyed about respiratory events from ages 9 to 26 years. Subjects were also tested for atopy, hyperresponsiveness to methacholine, and responsiveness to bronchodilators at various times.

Of 613 subjects who responded to all surveys, 51.4% had reported wheezing on at least two surveys by age 26. By age 26, 14.5% had asthma persisting from onset; of the rest, 27.4% reported never wheezing; 21.2% had transient wheezing (reported once); 15% were wheeze free at age 26; 12.4% had relapsed (wheezing had stopped and recurred); and 9.5% had intermittent wheeze (reported at some assessments). Of the 168 who reported remission, 45.2% relapsed by age 26. Persistence of wheeze was significantly related to positive skin test for dust mites at age 13, female sex, smoking at age 21, and airway hyperresponsiveness. Airway hyperresponsiveness, dust-mite allergen sensitivity, and young age were significantly related to relapse.

Comment

The good news: Many children who wheeze stop by the time they become young adults. The bad news: About 15% of children will wheeze for their entire lives, and about half of those who stop wheezing during childhood will relapse by early adulthood. Results of other studies indicated that children of asthmatic parents are more likely to wheeze as they get older. A family history of asthma, early age at onset, and a history of atopy are all predictors of adult wheezing.

Howard Bauchner, MD
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What’s the solution when a newborn is hypotensive?

Hypotension is common during the first day of life in both term and preterm infants. Because the development of acute low blood pressure is unpredictable, general pediatricians—often the first responders—face a major decision about which solution to use for volume expansion. In this controlled study, 41 hypertensive newborns younger than 24 hours were randomized to receive either normal saline (n = 21) or 5% albumin (n = 20). Infants with complicating conditions were excluded. The protocol called for a 10-cc/kg infusion of the selected solution over 15 minutes, which could be repeated a second time if the blood pressure response was unsatisfactory.

Seven infants (35%) received a second saline infusion, and 9 (43%) received a second dose of albumin. Average mean arterial blood pressure rose significantly, from 29.8 to 37.2 mm Hg in the saline group and from 27.8 to 36.4 mm Hg in the albumin group. No differences between the groups were evident, even when birth weight was taken into account. The authors conclude that normal saline is as effective as albumin in raising blood pressure and point out that saline is considerably cheaper and may be safer.

Comment

When treating a hypotensive newborn, no advantage appears to be conferred by using albumin—a finding that suggests that normal saline should be the solution of choice. The high percentage of infants who required a second treatment should remind us of the newborn’s ability to compensate for volume loss and of the need for continued monitoring. As well as providing volume expansion, the clinician should evaluate the cause of the hypotension.

William P. Kanto, Jr., MD
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