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COVER

Each of our 1996 issues of Pediatrics in Review will feature a work of art submitted to our cover art contest this past year. We received more than 200 entries and have chosen 12 to appear on our covers—four from each of three age groups: 5 to 7 years, 8 to 10 years, and 11 to 15 years. The entrants were asked to submit a drawing of what they like to do best. Most entries will be displayed by the American Academy of Pediatrics at various sites.

This month’s work, by 8-year-old Kyle Trombley, is of her reading and letting her imagination flow. Kyle lives in Shelby Twp, Michigan; her pediatrician is Thomas J. Schnur, MD.

ANSWER KEY

PIR QUIZ

1. The mother of a newborn asks about prevention of future ear infections in the baby because she herself experienced repeated infections as a child, underwent tympanostomy tube placement, and required speech therapy. Which of the following environmental factors is associated with the highest risk of recurrent acute otitis media in the first 2 years of life?
   A. Bottle feeding.
   B. Endotracheal intubation.
   C. Group child care.
   D. Pacifier use.
   E. Passive smoking.

2. You are discussing with a resident antibiotic resistance encountered in the bacterial pathogens most commonly isolated from infected middle ears. You correctly state that:
   A. Most isolates of *H influenzae* are resistant to amoxicillin.
   B. Most isolates of *H Influenzae* are resistant to cefaclor.
   C. Most isolates of *M catarrhalis* are resistant to amoxicillin.
   D. Most isolates of *S pneumoniae* are resistant to macrolides.
   E. Most isolates of *S pneumoniae* are resistant to penicillin.

3. You are examining a previously well 9-month-old infant who has a runny nose and who has been pulling at his ears for a day. In this circumstance, the best aid to diagnosis is:
   A. Acoustic reflectometry.
   B. Needle tympanocentesis.
   C. Pneumatic otoscopy.
   D. Simple otoscopy.
   E. Tympanometry.

4. You diagnose acute otitis media in the 9-month-old infant. Assuming use of an appropriate analgesic, the best choice for further therapy at this time is:
   A. Amoxicillin.
   B. Cefaclor.
   C. Ceftriaxone.
   D. Clarithromycin.
   E. Observation.

5. A 9-month-old boy has just completed successful therapy for his third episode of acute otitis media in the past 5 months. The most appropriate option for preventing an early recurrence is administration of:
   A. Bacterial polysaccharide immune globulin.
   B. Decongestant-antihistamine combination at the onset of a cold.
   C. Multivalent pneumococcal vaccine.
   D. Sulfasoxazole, 3/4 tsp BID for 6 months.
   E. Trimethoprim-sulfamethoxazole, 1 tsp BID for 6 months.

SHARE YOUR EXPERIENCE

Most of the “Index of Suspicion” cases you read have been submitted by readers. If you would like to share a clinical experience with a particular patient and instruct your fellow readers, we would like to hear from you. Please send a letter that describes the case briefly, and we will supply you with guidelines and any help you may need.

Send inquiries to:
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DEPARTMENT OF CORRECTIONS

Erratum

In the discussion of the “Index of Suspicion” case of human immuno-deficiency virus (HIV) infection in an infant in Pediatrics in Review, 1996;17:67 (February), the sentence that reads, “Diagnosis of HIV infection in the pregnant mother should lead to her treatment with zidovudine after the third trimester....” is incorrect. It should read, “treatment with zidovudine after the first trimester.”
Gastroesophageal Reflux in Infants and Children Who Have Neurodevelopmental Disabilities


Infants and children who have neurodevelopmental disabilities are at risk of additional compromise due to malnutrition. Poor nutrition may result from motor difficulties, which makes those affected difficult to feed. Oropharyngeal abnormalities may predispose to recurrent aspiration pneumonia. Gastroesophageal reflux (GER) is present in the majority of those who are affected severely and adds to malnutrition by limiting intake and, if chronic esophagitis develops, by expending energy in painful movements and by creating a catabolic state.

Although most of the attention to GER has centered on the control of vomiting and esophagitis, nutrition also must be a major consideration. Indeed, recent evidence suggests that GER may resolve if normal nutrition is attained.

GER tends to be present in infants and children who have neurodevelopmental disabilities for a number of reasons. Many affected individuals are predominantly in the supine position and have increased muscle tone (including the abdominal musculature), both of which predispose to GER. Gastrointestinal tract dysmotility may be present as well.

Many tests have been proposed to evaluate infants and children in whom GER is suspected, including barium swallow, pH recordings in the esophagus, nuclear scans to quantify gastric emptying, nuclear scans for aspiration (“milk scan”), and esophagoscopy with biopsy. Although each has its proponents, the tests have different purposes and provide different, often complementary, data. The barium swallow may demonstrate oropharyngeal discoordination with or without aspiration as well as anatomic factors that foster GER. pH recordings identify the amount of time acid remains in the esophagus, but esophagoscopy and biopsy are required to establish a definitive diagnosis of esophagitis. Nuclear scans can help determine whether gastric emptying time is prolonged and document aspiration of stomach contents. No single test provides all the information, and clinicians need to decide which test, if any, is indicated for a particular infant or child.

Medical management of GER consists of positioning and providing pharmacologic agents. For years it was recommended to place children in reclining chairs; it now is clear that such a position actually favors GER. Placing the child prone with his or her head elevated allows air in the stomach, rather than liquid stomach contents, to rise to the gastroesophageal junction. Drugs for GER are of three types: those that reduce stomach acid (by reducing production, eg, ranitidine or by neutralizing, eg, antacids); those that increase tone at the gastroesophageal “sphincter” (eg, metoclopramide); and those that increase intestinal motility (eg, cisapride). New agents, such as ondansetron, may enlarge the armamentarium.

Operations to control GER have been reported to be the third most commonly performed surgical procedures in large pediatric centers. Surgery has been used to create a means of feeding (generally a gastrostomy) and to reduce reflux with a fundoplication: some surgeons also perform a pyloroplasty to aid gastric emptying. Although the procedures seem logical, the success rate is not as high as hoped; only about one third of children are asymptomatic after the procedures. Complications are common, and 30% to 40% of children...
continue to vomit and to aspirate. Nearly 25% of children develop choking, gagging, or retching.

More recently, the emphasis has shifted away from being concerned about the GER per se and toward assuring adequate nutrition. Percutaneous endoscopic gastrostomy procedures and feeding programs that deliver nutrients beyond the stomach directly to the jejunum (eg, gastrojejunostomy tube feedings) have emerged and appear to be promising alternatives to more invasive surgical procedures.

Kenneth B. Roberts, MD
Editorial Board
Announcing the probable sex and assigning pink or blue identification cards should be avoided. Discussions with the families should explain that a decision about sex of rearing should wait until test results are known. Critical to the decision of sex assignment is appreciating the potential and capacity for the child's genitalia to function sexually in adulthood. If severe androgen resistance is diagnosed in a chromosomal male, the child should be raised as a female because testosterone replacement would not allow penile growth sufficient for copulation, although the scrotum could be reconstructed surgically. On the other hand, a 46,XX patient who has severe virilization from excess androgens due to CAH would be well-suited to function as a female once medical therapy and surgical reconstruction take place, even though she may appear more like a male at birth. Fertility will be normal, and she will be able to function sexually as a female. Thus, only males are reassigned as females for sex of rearing.

Summary

The newborn whose genitalia are ambiguous presents a challenge to the pediatrician and the family. A clear understanding of the basis of sex differentiation and timely consultation with a pediatric endocrinologist is critical in the evaluation and determination of sex of rearing in a newborn who has ambiguous genitalia. Sex karyotype and a 17-OHP level may suffice in the initial evaluation of female pseudohermaphroditism because most patients will have virilizing CAH. If male pseudohermaphroditism is suspected on the basis of palpable gonads, we routinely obtain a karyotype, basal adrenal steroid levels, and levels of hCG-stimulated serum testosterone and DHT, then consider a testosterone treatment trial. Physicians who care for children who have ambiguous genitalia must appreciate the family's cultural, religious, and psychological needs and avoid determining sex of rearing before accurate diagnosis is reached.

SUGGESTED READINGS


