Erticaria, Angioedema, and Anaphylaxis — Rosen
CONTENTS

COMMENTARY

363  “Lethargic” and Other Adjectives
      Vincent J. Menna

ARTICLES

364  Fetal Environmental Toxins
      Lewis B. Holmes

371  Lumps and Bumps in Children
      Thomas C. Putnam

379  Consultation with the Specialist: Complications of
      Polycythemia in Patients Who Have Cyanotic
      Congenital Heart Disease
      William B. Strong

381  Depressant Substances in Adolescent Medicine
      Robert L. DuPont, Keith E. Saylor

387  Urticaria, Angioedema, and Anaphylaxis
      Fred S. Rosen

391  Index of Suspicion
      Geeta Berera, Robert H. Dixon, William J. Koenig

ABSTRACTS

370  Prevention of Neisseria meningitidis

394  Pasteurella Infections

395  Management of Acute Barbiturate Overdose

396  Standardized Percentile Curves of Body Mass Index
      for Children and Adolescents

397  Irritable Bowel Syndrome

398  Spontaneous Pneumothorax

399  Chronic Nonspecific Diarrhea

COVER

“The Knitting Lesson” (ca 1860) by Jean Francois Millet (1814—1875). Renowned for his peasant paintings, Millet in this painting illustrates the cycles of life and the passing on of skills from one generation to another. One of the major tasks of pediatricians is to teach parents and children skills to promote health. May we do it as gently and lovingly as this mother teaches her daughter knitting. (From the Museum of Fine Arts, Boston, Massachusetts.)

ANSWER KEY

Prevention of Neisseria meningitidis


**Textbook of Pediatric Infectious Diseases.** Feigin RD, Cherry JD, eds. Philadelphia, PA: W.B. Saunders Co; 1987:1219-1220

**Neisseria meningitidis** causes approximately 3000 cases of invasive disease annually in the United States. A high rate of nasopharyngeal carriage occurs in household contacts of persons with invasive disease. During an epidemic (a situation that is more common outside of the United States), secondary attack rates in family members may be as high as 4% to 5%. Following a sporadic case of meningococcal disease, the secondary attack rate is approximately 3 per 1000 household members.

Chemoprophylaxis has been very effective in preventing meningococcal spread of infection, especially if used within 24 h of diagnosing a primary case. Groups that become carriers and should receive chemoprophylaxis are the most likely to have had contact with the oral secretions of a case of invasive meningococcal infection. These include household, day-care center, and nursery contacts. The index patient also should receive prophylaxis because *N meningitidis* is isolated from the respiratory tract of 29% of patients cultured 1 wk after the completion of therapy. Medical personnel should not receive prophylaxis routinely unless they have had intimate exposure to a case (eg, mouth-to-mouth resuscitation, intubation, suctioning) before antibiotic therapy was begun.

The primary factor determining an agent's effectiveness for *N meningitidis* prophylaxis is its ability to achieve bactericidal levels in tears, saliva, and nasal secretions. Several drugs, including sulfadiazine, minocycline, rifampin, and ciprofloxacin, have emerged as candidates for meningococcal prophylaxis. The usefulness of sulfadiazine has been limited severely by the widespread emergence of resistant strains.

Minocycline and rifampin have been shown to eradicate the carrier state rapidly, yet problems are associated with both drugs. Minocycline has been shown to cause vertigo, probably secondary to an effect on the vestibular system. Rifampin resistance has been demonstrated in strains of meningococci recovered from nasopharyngeal cultures of patients after rifampin prophylaxis. Also, rifampin causes red urine and can cause staining of soft contact lenses. Nevertheless, rifampin remains the drug of choice for chemoprophylaxis of meningococcal disease because it can eradicate meningococci from the nasopharynx in approximately 90% of carriers when given in a dosage of 600 mg every 12 h for 2 d for adults and a dosage of 10 mg/kg every 12 h for 2 d for children.

Although ciprofloxacin has been shown to eradicate meningococci in 100% of persistent adult carriers given 500 mg orally every 12 h for 5 d, it is not approved for use in children or during pregnancy.

Pregnant women exposed to a case of meningococcal disease and thought to be at risk for infection should not receive rifampin because it may have teratogenic effects. Ceftriaxone effectively eradicates nasal carriage of meningococcus. A single intramuscular dose should be given to pregnant women who are candidates for meningococcal prophylaxis.

Glenn J. Fennelly, MD
Montefiore Medical Center/Albert Einstein College of Medicine
Bronx, NY
Table 2. Guidelines for Diagnosis

Factors to be Noted in History and Physical Examination
- Change in size
- Multiplicity
- Duration
- Pain or other symptoms
- Level of lesion
- Supraclavicular fixation
- Firmness
- Weight loss
- Sudden darkening
- Ulceration

Changes in Acquired Nevi Indicating Need for Biopsy
- Bleeding
- Changes in size or borders
- Itching or pain
- Sudden darkening
- Ulceration

Indications for Urgent Lymph Node Biopsy
- Fever longer than 1 week
- Noninflammatory fixation to skin
- Supraclavicular location
- Weight loss

Risk Factors for Malignancy in Superficial Lesions
- Firm mass >3 cm in diameter
- Fixation to or location deep to fascia
- Onset in neonatal period
- Rapid or progressive growth
- Skin ulceration

Suggested Reading
Knight PJ, Mulne AF, Vassy LE. When is lymph node biopsy indicated in children with enlarged peripheral lymph nodes? *Pediatrics.* 1982;69:391–396

Pir Quiz
6. Superficial lesions of the head and neck that require biopsy for diagnosis are:
A. Dermoid cysts.
B. Exostoses.
C. Histiocytosis X.
D. Thyroglossal duct cysts.
E. Congential torticollis.

7. Common benign subcutaneous lesions of the skin include each of the following, except:
A. Cavernous hemangiomas.
B. Lipomas.
C. Neurofibromatosis.
D. Aggressive fibromatoses.
E. Ganglion cysts.

8. On first inspection of a superficial skin lesion, it is essential to determine each of the following, except:
A. Duration.
B. Size.
C. Pain.
D. Determination of level.
E. Age of patient.

9. Each of the following changes in acquired nevi indicate a need for biopsy, except:
A. Sudden darkening.
B. T-lymphocyte invasion in the surrounding area.
C. Change in size.
D. Itching.
E. Pain.

10. Treatment of warts may include each of the following, except:
A. Liquid nitrogen.
B. Electrofulguration.
C. Laser.
D. Excision.
E. Radiography.

11. Most malignant superficial lesions in children involve:
A. Thyroglossal ducts.
B. Lymph nodes.
C. Cavernous hemangioma.
D. Neurofibromas.
E. Nevi.
excessively polycythemic. These adolescents become symptomatic because of increased blood viscosity. The symptoms most frequently described are decreased exercise tolerance, headache, and chest pain, which are observed most commonly when the hematocrit exceeds 65%. These youngsters frequently will benefit from an erythropoiesis, which removes erythrocytes and replaces the volume extracted with a similar volume of colloid (fresh frozen plasma, dextran, hetastarch). As with the younger child, iron deficiency may occur because of the removal of erythrocytes and their iron content.

It is important not to perform a simple phlebotomy, which would reduce intravascular volume, decrease systemic resistance, and promote a larger right-to-left shunt. This would increase hypoxemia further, resulting in systemic vasodilatation that would increase the right-to-left shunt, furthering hypoxemia and resulting in acidosis and potential cardiovascular collapse.

The pathophysiology of the vascular system in cyanotic congenital heart disease is simple: flow goes where resistance is least. It is important for all pediatricians to have an understanding of this mechanism and potential complications. Any procedure that has the potential to reduce blood pressure should be avoided unless the child is in a well-supervised and monitored situation.

One final caution in managing children who have right-to-left intracardiac shunts is the potential for paradoxical systemic embolus. Any intravenous fluids or medications must be given with scrupulous attention to avoiding injection of any air or foreign material. In the normal child, these minute particles would be filtered in the pulmonary circuit. The patient who has an intracardiac right-to-left shunt is at high risk for those particles entering the systemic circulation, especially the cerebral circulation. The risk can be reduced substantially by incorporating an air filter into all intravenous systems and giving medications distal to the filter.

In summary, attention to detail is critical in the care of children who have cyanotic congenital heart disease to avoid preventable complications. Oxygen saturation may be monitored transcutaneously with pulsed oximetry and iron status by blood count and indices. Intravenous fluids and medications should be administered through a system that contains an air filter.
not reliable, however, because the mothers' use of other drugs was not ruled out. No reliable studies demonstrate whether there is an increased risk of congenital malformation in children exposed only to benzodiazepines in utero.

There is some evidence that benzodiazepine dependence may develop in fetuses exposed to the drugs. Neonatal withdrawal has been observed in twins whose mother had been taking therapeutic doses of chlordiazepoxide for 5 years. Maternal use of barbiturates may lead to neonatal symptoms, which include irritability, jitteriness, and crankiness. Symptoms generally appear 1 to 2 wk postpartum and can be treated with phenobarbital (5 to 7 mg/kg per day) in divided doses for several days. Infants usually complete drug withdrawal successfully. Particular care should be taken to ensure that the infant is cared for adequately and safely following discharge, particularly if evidence of maternal drug use is present.

Summary

The benzodiazepines have replaced widespread use of barbiturates and other sedatives. They are effective, safe medicines used to treat a variety of disorders associated with excessive CNS excitability. Although many physicians avoid prescribing benzodiazepines to adolescents, there is little evidence to support this practice. Unless an adolescent has a history of substance abuse/dependence and suicidal ideation, the benzodiazepines are safe. Benzodiazepine toxicity rarely occurs unless another CNS depressant, especially alcohol, is used concurrently.

REFERENCES


SUGGESTED READING


PIR QUIZ

12. Each of the following statements is true, except:
A. The majority of initial use of all nonmedical drugs occurs during the teen years.
B. The later nonmedical drug use begins, the greater the likelihood of serious adverse consequences.
C. Nonmedical drug use by adolescents may be transitory or prolonged.
D. Psychosocial factors contribute to the onset of drug use during adolescence.
E. Alcohol is the most commonly used psychoactive substance in all age groups.

13. Each of the following characteristics separates medical substance use from nonmedical substance use, except:
A. Intention.
B. Effect.
C. Control.
D. Legality.
E. Availability.

14. Potentiation of benzodiazepine overdose with concurrent alcohol use could lead to each of the following, except:
A. Respiratory failure.
B. Renal failure.
C. Coma.
D. Suicide.
E. Disinhibition.

15. The intervention least likely to be useful in the treatment of depressant abuse in adolescents is:
A. Disciplinary action.
B. Counseling.
C. Educational services.
D. Hospitalization.
E. Chemical dependence treatment.

16. Therapeutic doses of benzodiazepines may result in each of the following, except:
A. Drowsiness.
B. Ataxia.
C. Impaired psychomotor performance.
D. Loss of libido.
E. Hostility.

17. The primary indication for medical benzodiazepine use in adolescents is clinically significant anxiety. The least appropriate statement regarding this use is:
A. Anxiety disorders are the most common mental disorder in the United States.
B. Anxiety disorders often begin during adolescence.
C. Anxiety disorders tend to be life-long.
D. Adolescents do not require more than moderate doses.
E. Discontinuation is difficult in adolescent patients.
SUGGESTED READING


PIR QUIZ

18. The following events result in the clinical picture of urticaria (hives):
   a. Smooth muscle contraction and increased vascular permeability.
   b. Release of histamine-containing granules.
   c. Immunologic interaction between antigen and IgE antibodies bound to mast cells.
   d. Binding of histamine to H1 receptors.
   The correct sequence of these events is:
   A. d, c, b, a.
   B. a, c, b, d.
   C. c, a, b, d.
   D. c, b, d, a.

19. Each of the following is a true statement regarding urticaria, except:
   A. Salicylates naturally present in foods can be causative.
   B. Terfenadine is useful in treatment.
   C. Anaphylaxis is a systemic response to the same mechanism causing urticaria at local sites.
   D. Gluten protein of wheat is frequently causative.
   E. A recognized chemical cause is yellow food dye with the tartrazine structure.

20. Each of the following is a well-recognized cause of anaphylaxis, except:
   A. Antitoxin of animal origin.
   B. Peanut-containing foods.
   C. Amanita mushrooms.
   D. Penicillin.
   E. Insect venom.

21. Symptoms and clinical findings of anaphylaxis include all of the following, except:
   A. Hypertensive encephalopathy.
   B. Acute diarrhea.
   C. Inspiratory stridor.
   D. Urticaria.
   E. Itching of the eyes.

22. Each of the following is a correct procedure in the management of anaphylaxis, except:
   A. Acute desensitization to penicillin can be completed in less than 12 h.
   B. Sensitized individuals should carry ampules of corticosteroids for emergent use.
   C. Epinephrine is the principal drug for acute treatment.
   D. Desensitization to food allergens is too hazardous for routine application.

23. Sensitized individuals should carry ampules of corticosteroids for emergent use.