

Pediatrics in Review

Vol. 15 No. 11 pp. 417-457 November 1994

Hyperthyroidism – *Sills*

Neonatal Jaundice – *Gartner*

Quality Improvement: An ACQIP Exercise on Vaccine Administration:
Part 2 – *Smith-Ross*

Back to Basics: Antibiotics: Mechanisms of Action – *Woodin and Morrison*

Psychosomatic Disorders: The Approach – *Rickert and Jay*



PREP
Pediatrics Review and
Education Program

**PREP
ROSS**
SUPPORTING
PEDIATRIC
EDUCATION

Pediatrics in Review

CONTENTS

ARTICLES

- 417 **Hyperthyroidism**
Irene N. Sills
- 422 **Neonatal Jaundice**
Lawrence M. Gartner
- 433 **Quality Improvement: An ACQIP Exercise on Vaccine Administration: Subscriber Responses and Recommendations**
Shannon Smith-Ross
- 437 **Consultation with the Specialist: Cardiac Arrhythmias**
Sharon J. Kaminer and William B. Strong
- 440 **Back to Basics: Antibiotics: Mechanisms of Action**
Kathleen A. Woodin and Susan H. Morrison
- 448 **Psychosomatic Disorders: The Approach**
Vaughn I. Rickert and M. Susan Jay
- 456 **Point-Counterpoint: Migraine**

ABSTRACT

- 455 **Testicular Torsion**

COVER

"Le Gourmet," painted in 1901 by Picasso (1881-1973) during his "Blue Period," demonstrates the natural appetite of the small child, who appears well nourished and even is eating standing up. Eating problems in children are not inherent in their stage of development but are their response to adverse environments. The blue color, however, suggests a threat to this healthy state. Child health professionals must balance this innate healthy aspect of childhood against the environmental threats to their well-being and be advocates for the healthy development of children. (This painting is from the National Gallery of Art's Chester Dale collection and is reproduced with permission.)

ANSWER KEY

1. D; 2. C; 3. B; 4. D; 5. D; 6. D; 7. C; 8. A; 9. E; 10. E; 11. D; 12. C

Pediatrics in Review

Vol 15 No 11
November 1994

EDITOR
Robert J. Haggerty
University of Rochester
School of Medicine and Dentistry
Rochester, NY

Editorial Office:
Department of Pediatrics
University of Rochester
School of Medicine and Dentistry
601 Elmwood Ave, Box 777
Rochester, NY 14642

ASSOCIATE EDITOR
Lawrence F. Nazarian
Panorama Pediatric Group
Rochester, NY

CONSULTING EDITOR
Evan Charney, Worcester, MA

ABSTRACTS EDITOR
Steven P. Shelov, Bronx, NY

MANAGING EDITOR
Jo Largent, Elk Grove Village, IL

EDITORIAL CONSULTANT
Victor C. Vaughan, III, Stanford, CA

EDITORIAL BOARD
Moris A. Angulo, Mineola, NY
Russell W. Chesney, Memphis, TN
Peggy Cople, Tucson, AZ
Richard B. Goldbloom, Halifax, NS
John L. Green, Rochester, NY
Robert L. Johnson, Newark, NJ
Kathi Kemper, Seattle, WA
Alan M. Lake, Glen Arm, MD
Frederick H. Lovejoy, Jr, Boston, MA
John T. McBride, Rochester, NY
Vincent J. Menna, Doylestown, PA
Lawrence C. Pakula, Timonium, MD
John M. Pascoe, Madison, WI
Ronald L. Poland, Hershey, PA
James E. Rasmussen, Ann Arbor, MI
Kenneth B. Roberts, Worcester, MA
James S. Seidel, Torrance, CA
Richard H. Sills, Newark, NJ
Laurie J. Smith, Washington, DC
William B. Strong, Augusta, GA
Jon Tingelstad, Greenville, NC
Vernon T. Tolo, Los Angeles, CA
Robert J. Touloukian, New Haven, CT
Terry Yamauchi, Little Rock, AR
Moritz M. Ziegler, Cincinnati, OH

EDITORIAL ASSISTANT
Sydney Sutherland

PUBLISHER
American Academy of Pediatrics
Errol R. Alden, Director
Department of Education
Jean Dow, Director
Division of PREP/PEDIATRICS
Deborah Kuhlman, Copy Editor

PEDIATRICS IN REVIEW (ISSN 0191-9601) is owned and controlled by the American Academy of Pediatrics. It is published monthly by the American Academy of Pediatrics, 141 Northwest Point Blvd, PO Box 927, Elk Grove Village, IL 60009-0927.

Statements and opinions expressed in *Pediatrics in Review* are those of the authors and not necessarily those of the American Academy of Pediatrics or its Committees. Recommendations included in this publication do not indicate an exclusive course of treatment or serve as a standard of medical care.

Subscription price for 1994: AAP Fellow \$100; AAP Candidate Fellow \$75; AAFP \$125; Allied Health or Resident \$70; Nonmember or Institution \$130. Current single price is \$10. Subscription claims will be honored up to 12 months from the publication date.

Second-class postage paid at ARLINGTON HEIGHTS, ILLINOIS 60009-0927 and at additional mailing offices.

©AMERICAN ACADEMY OF PEDIATRICS, 1994. All rights reserved. Printed in USA. No part may be duplicated or reproduced without permission of the American Academy of Pediatrics. POSTMASTER: Send address changes to PEDIATRICS IN REVIEW, American Academy of Pediatrics, PO Box 927, Elk Grove Village, IL 60009-0927.

The printing and production of *Pediatrics in Review* is made possible, in part, by an educational grant from Ross Products Division, Abbott Laboratories.



SUGGESTING READINGS

Daneman D, Howard NJ. Neonatal thyrotoxicosis: intellectual impairment and craniosynostosis in later years. *J Pediatr.* 1980;97:257-259

Hashizume K, Ichikawa K, Sakurai A, et al. Administration of thyroxine in treated Graves disease: effects on the level of antibodies to thyroid-stimulating hormone receptors and on the risk of recurrence of hyperthyroidism. *N Engl J Med.* 1991;324:947-953

Lippe BM, Landaw EM, Kaplan SA. Hyperthyroidism in children treated with long term medical therapy: twenty-five percent remission every two years. *J Clin Endocrinol Metab.* 1987;64:1241-1245

Safa AM, Schumacher OP, Rodriguez-Antunz A. Long-term follow-up results in children and adolescents treated with radioactive iodine (131-I) for hyperthyroidism. *N Engl J Med.* 1975;292:167-171

Uretsky SH, Kennerdell JS, Gutai JP. Graves ophthalmopathy in childhood and adolescence. *Arch Ophthalmol.* 1980;98:1963-1964

Zimmerman D, Gan-Gaisano M. Hyperthyroidism in children and adolescents. *Pediatr Clin North Am.* 1990;37:1273-1295

PIR QUIZ

1. Graves disease ordinarily is caused by:
 - A. Autonomous overproduction of hormone by the thyroid gland.
 - B. Excess production of thyrotropin releasing hormone (TRH) in the hypothalamus.
 - C. Excess production of thyroid stimulating hormone (TSH) in the pituitary.
 - D. Overproduction of hormone by the thyroid gland in response to autoantibodies.

2. The mother of a 13-year-old girl reports that her daughter has become increasingly restless and irritable over the past several weeks and that she has reported palpitations and a rapid pulse. The mother is receiving thyroid hormone medication for hypothyroidism following therapy for Graves disease. No abnormalities are found on physical examination of the patient except for undue restlessness, a pulse of 130 beats/min, and mild tremor. The thyroid gland is of normal size and consistency. There are no indications of Graves ophthalmopathy. Of the following findings in this patient, which would rule out a diagnosis of Graves disease *most* conclusively?
 - A. Absence of ophthalmopathy.
 - B. A low level of TSH.
 - C. A low uptake of radioactive iodine.
 - D. Presence of antithyroid antibodies.

3. The findings noted for the patient described previously are *most* suggestive of:
 - A. Hashimoto thyroiditis.
 - B. Ingestion of thyroid hormone.
 - C. Pituitary adenoma.
 - D. Thyroid adenoma.

4. Among the following, the *least* helpful step in the further evaluation of the patient would be:
 - A. Psychological evaluation.
 - B. Serial measurements of thyroid hormone levels.
 - C. Trial of propranolol therapy.
 - D. Trial of propylthiouracil therapy.



- weight infants and outcome at 5 years of age. *Pediatrics*. 1992;89:359-364
- Watchko JF, Oski FA. Kernicterus in preterm newborns: past, present, and future. *Pediatrics*. 1992;90:707-715
- Whitmer DI, Gollan JL. Mechanisms and significance of fasting and dietary hyperbilirubinemia. *Semin Liver Dis*. 1983; 3:42-51

PIR QUIZ

5. George is an Asian-American male infant who was delivered at term. He was offered the breast in the delivery room and has been breastfed since. He was discharged with his mother at 48 hours of age, and she reports that George has been nursing well an average of 12 times each day. He became icteric at 72 hours of age. He returned to your office on day 5. You checked his total serum bilirubin and found it to be 19.6 mg/dL, with a direct bilirubin of 1.0 mg/dL. His physical examination was entirely normal, and his weight was 50 g above birth weight. You advised his mother that:
- A. She should stop breast feedings.
 - B. You would like to admit George to the hospital for close observation.
 - C. You would like to begin to investigate his liver function.
 - D. You would like to check his hematocrit and erythrocyte smear today and recheck his bilirubin and general condition the next morning.
 - E. You would like to institute home phototherapy.
6. Rose is a preterm infant who was delivered at 36 weeks' gestation. Her birth weight was 2600 g. She is breastfed. Jaundice was first noticed at 72 hours. Her serum bilirubin was 10 mg/dL when she was discharged on the fourth day. She has seemed to do well. When you see her in your office at 4 weeks, her weight is 3320 g and her physical examination is normal except that jaundice has persisted and her total serum bilirubin is 16 mg/dL, with a direct bilirubin of 0.8 mg/dL. Your advice to her mother is:
- A. Her daughter should be admitted to the hospital for further evaluation and phototherapy.
 - B. Her daughter should be monitored for brain auditory evoked responses for early signs of brain damage.
 - C. Her daughter should receive an exchange transfusion.
 - D. She should not be concerned, but you would like to see her in 2 weeks to see if the jaundice is declining. If so, it will not be necessary to repeat the bilirubin test.
 - E. She should stop breastfeeding her daughter for 24 hours.
7. Jimmy was delivered at term. His birth weight was 3170 g. His mother had been admitted shortly before her delivery and had no history of antenatal care. Jimmy became jaundiced at 12 hours of age, and a serum bilirubin was 14 mg/dL at that time. The most likely cause of the jaundice is:
- A. Dehydration.
 - B. Gilbert syndrome.
 - C. Hemolytic disease.
 - D. Hypothyroidism.
 - E. Sepsis.
8. Cynthia was delivered at term. Her birth weight was 3300 g. She was put on the breast in the delivery room and has been breastfed since. She was discharged with her mother at 48 hours. She was noticed to be slightly jaundiced at 96 hours. She was seen at 6 days for jaundice, at which time her serum bilirubin was 15 mg/dL. The following day she was seen again because her mother reported that she was feeding poorly and seemed floppy and less responsive. On physical examination she was found to have a high-pitched cry and some arching of her back with scissoring of her legs. Her serum bilirubin was 18.4 mg/dL, with a direct bilirubin of 1.2 mg/dL. You should:
- A. Admit her to the hospital for immediate phototherapy while preparing to perform an exchange transfusion as soon as possible.
 - B. Admit her for observation and evaluation for hemolysis.
 - C. Begin a diagnostic evaluation for inborn errors of metabolism.
 - D. Monitor her for brain auditory evoked responses.
 - E. Repeat her serum bilirubin test 12 hours later in the hospital emergency room.
9. Useful initial diagnostic studies to define hemolytic disease in the newborn include each of the following *except*:
- A. ABO typing.
 - B. Blood smear.
 - C. Coombs test.
 - D. Hematocrit.
 - E. Reticulocyte count.

fore the initial visit to review treatment options relative to reimbursement.

If the insurance company or payor is given an appropriate explanation of the child's situation, reimbursement of some and possibly all charges may be permitted. However, a detailed plan of treatment is imperative, and it must be communicated in writing, in advance, to the plan's medical director (or designee). However, this approach still may fail. A payor will review the profile of the child and the pediatrician's practice pattern to determine if a second opinion by an independent provider may be warranted. In other cases, the pediatrician will have no viable option other than to refer the case to a specialist/consultant and serve as the coordinator of care. Once the treatment plan has been accepted by the payor, it is critical that the pediatrician report on the status of care and treatment and alter the plan if necessary; that is, document that more visits are necessary. Recent changes in CPT codes also will require pediatricians and their staffs to increase their understanding of new service codes as well as to update their knowledge of managed care issues.

Conclusion

The evaluation of children and adolescents who do not have obvious organic findings is both a challenge and an opportunity. It is important for the pediatrician to state firmly both the nonorganic and organic nature of psychosomatic symptoms relative to illness, identify all significant stressors, evaluate communication patterns, and provide strong, detailed recommendations for action. Through such an approach the pediatrician can become a partner in resolving concerns and returning the patient and family to health.

SUGGESTED READING

- Barnard NAS. Visual conversion reaction in children. *Ophthalmic Physiol Opt.* 1989;9:371-378
- Brown RT. Psychosomatic problems in adolescents. *Adolescent Medicine: State of the Art Reviews.* 1992;3:87-96
- Dantzer R. Stress and disease: a psychological perspective. *Ann Behav Med.* 1991;13:205-210
- Dvonch VM, Bunch WH, Siegler AH. Conversion reactions in pediatric athletes. *J Pediatr Orthop.* 1991;11:770-772
- Friedman SB. Concepts in psychosomatic illness. In: Hoekelman, ed. *Primary Pediatric Care*, 2nd ed. St. Louis, Mo: Mosby-Year Book; 1992:664-665
- Garrick TR, Loewenstein RJ. Behavioral medicine in the general hospital. *Psychosomatics.* 1989;30:123-134
- Green M, Stuy MZ. Persistent symptoms: How to end the frustration. *Contemp Pediatr.* 1992;9:104-116
- Harris T. Life stress and illness: the question of specificity. *Ann Behav Med.* 1991;13:211-219
- Kowal A, Pritchard D. Psychological characteristics of children who suffer from headache: a research note. *J Child Psychol Psychiatry.* 1990;31:637-649
- Lavigne JV, Davis AT, Fauber R. Behavioral management of psychogenic cough: alternative to the "bedsheet" and other aversive techniques. *Pediatrics.* 1991;87:532-537
- Marschall P. Self-report and stability of physical symptoms by adolescents. *Adolescence.* 1989;24:209-216
- Muraoka M, Mine K, Matsumoto K, et al. Psychogenic vomiting: the relation between patterns of vomiting and psychiatric diagnoses. *Gut.* 1990;31:526-528
- Orr D. Adolescence, stress, and psychosomatic issues. *J Adolesc Health Care.* 1987;7:97S-108S
- Sherry DD, McGuire R, Mellins E, et al. Psychosomatic musculoskeletal pain in children: clinical and psychologic analyses of 100 children. *Pediatrics.* 1991;88:1093-1099
- Skinner DW, Bradley PJ. Psychogenic stridor. *J Laryngol Otol.* 1989;103:383-385
- Smith MS. Psychosomatic symptoms in adolescence. *Med Clin North Am.* 1990;74:1121-1134
- Starfield B, Gross E, Wood M, et al. Psychosocial and psychosomatic diagnosis in primary care of children. *Pediatrics.* 1980;66:159-167
- Strasburger VC, Reeve A. The adolescent with chronic pains: basic principles of psychosomatic medicine. *Adolescent Medicine: State of the Art Reviews.* 1991;2:677-696
- Wood DP, Wiesner MG, Reiter RC. Psychogenic chronic pelvic pain: diagnosis and management. *Clin Obstet Gynecol.* 1990;33:179-195

PIR QUIZ

10. Among the following, the symptom that would be *most* suggestive of a diagnosis other than psychosomatic illness is:
- Abdominal pain.
 - Chest pain.
 - Headache.
 - Persistent fatigue.
 - Syncope.
11. The *least* important consideration in determining whether the pediatrician will undertake treatment of a child who has a psychosomatic disorder should be:
- Ability to counsel the patient effectively.
 - Expertise in family therapy.
 - Knowledge of pain management strategies.
 - Payment sources.
 - Time constraints.
12. Among the following, the school attendance pattern that is *most* likely to be beneficial for the child who has a psychosomatic illness is:
- Full-day attendance at all classes.
 - Full-day attendance excluding physical education.
 - Graduated return to full attendance.
 - Home school provided by the parents.
 - Home tutoring provided by the school system.