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Cover: Two Young Girls at the Piano, by Pierre August RENOIR (©1989 Metropolitan Museum of Art; Robert Lehman Collection, 1975. 1975.1.201). Two Young Girls at the Piano is one of at least five versions of the same scene by Renoir, including a lovely pastel recently sold at auction. Renoir was 51 years of age at the time he did this work in 1892, and at the height of his popularity. This lovely presentation evokes a former era when adolescents, at least those in favored economic status, spent their leisure learning skills such as playing the piano and singing. One of the major tasks of adolescence is to develop one's identity and sense of competence. Whether it is the charming skills so beautifully depicted in this painting or others, the task of pediatricians is to assist young people in developing skills of which they can be proud.

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of different side effects. Animal studies and the initial experience in neonates suggested the possibility of an increase in the incidence of patent ductus arteriosus. However, no overall increase in patent ductus arteriosus is demonstrated in the current randomized controlled trials. Other neonatal complications such as intra-ventricular hemorrhage, pneumonia, sepsis, and pulmonary hemorrhage have been reported in individual trials, but are not seen in the vast majority of trials to date. However, future studies will have to include careful evaluation for these complications.

A specific concern related to the natural surfactant preparations is the possibility of antigenicity and future allergic responses. Natural surfactant extracts do contain the smaller surfactant proteins. To date, studies have not demonstrated an increase in antisurfactant protein antibody production in treated infants. The risk of transmission of infectious agents in the natural surfactant products has also raised concern. The extraction, filtration, and sterilization processes to which the commercially available products are subject should make those risks negligible.

The economic impact of surfactant treatment is understood only partially. The absolute cost of care does not seem to be affected greatly by treatment. Because survival is increased and the costs are relatively similar in treated and control infants, the cost of producing a surviving infant may be decreased significantly.

As the population from earlier studies grows older, more detailed neurodevelopmental follow-up will become possible. Current short-term follow-up studies (6 months to 2 years) do not demonstrate significant differences between treated and control infants.

CONCLUSIONS

A wide range of surfactant preparations now have been tested in the newborn. Surfactant replacement therapy clearly improves the acute course of premature infants at risk for developing RDS and infants who have RDS. Significant reduction in early barotrauma (pulmonary interstitial emphysema and pneumothorax) is demonstrated by the majority of studies. Mortality is decreased in studies of both synthetic and natural surfactant products.

These successes have led to more widespread use of surfactant during the past year. The FDA has granted preliminary approval that will allow for use of synthetic (Exosurf Neonatal) or natural (Surfana) surfactant in both the prevention and treatment of RDS in premature infants. The release of these drugs at this state of testing is appropriate; therapy has been proven to be lifesaving. However, our knowledge of many of the intricacies of treatment remains incomplete. Further evaluation of specific drugs and treatment strategies will be needed before we arrive at an optimum therapy and come to an understanding of the true impact of this intervention.

SUGGESTED READING


Self-Evaluation Quiz

1. Surfactant is a biochemical substance of predominantly lipid composition present in the normal lung. Its most important function in the lung is:
   A. Facilitation of oxygen transfer from alveoli to capillaries.
   B. Prevention of pulmonary edema.
   C. Protection against pulmonary infection.
   D. Reduction of surface tension within alveoli.
   E. Neutralization of oxygen toxicity.

2. Each of the following is a true statement regarding the metabolic cycle of surfactant, except:
   A. Inflation of the lung stimulates secretion.
   B. Intra-alveolar pool is replaced every 4 to 6 hours.
   C. Synthesis occurs in type II alveolar cells.
   D. Prostaglandins inhibit secretion.
   E. Physical structure ranges from compact layers to reticulated networks.

3. A newborn weighing 1200 g and having a gestational age of 28 weeks develops symptoms and findings of respiratory distress syndrome at 6 hours of age; the arterial/alveolar (a/A) P02 ratio is 0.20. It is decided to treat the infant with a surfactant preparation. In association with surfactant treatment, the infant is most likely to develop:
   A. An increased risk of pneumothorax.
   B. A decreased requirement for supplemental oxygen in 4 to 6 hours.
   C. A more efficacious response to synthetic surfactant than to the natural substance.
   D. An increase in antisurfactant protein antibodies.
   E. A respiratory alkalosis in 1 to 2 hours.

4. As a member of the Policy Committee for your community neonatal intensive care unit, you are requested to consider a program for the use of surfactant treatment. Among the presently known responses to surfactant treatment, the most consistently anticipated effect is:
   A. Improved neurodevelopment in follow-up studies.
   B. Increased survival rate.
   C. Decreased incidence of bronchopulmonary dysplasia.
   D. Improved outcome of "preventive" treatment over "rescue" treatment.
   E. No evident advantage in outcome of multiple dose treatment versus single dose treatment.

HEMATOLOGY/ONCOLOGY

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is truly an orthopedic emergency. Complaints of knee pain should not throw the physician off the track of a diagnosis of hip disease.

It is also important to be aware of how the medical history affects the musculoskeletal system. Many causes of limp are best analyzed by repeat examination and stepwise laboratory and radiographic evaluation. One should realize that a painful limp can be caused by something as mundane as a thorn in the heel or as serious as a tumor of the spine: Be suspicious.

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SUGGESTED READING


Self-Evaluation Quiz

5. Appropriate antibiotic treatment of septic arthritis of the hip should be started pending identification of the organism. The most common organism causing this infection in children is:
   A. Staphylococcus aureus.
   B. Salmonella.
   C. Haemophilus influenzae.
   D. Group A streptococcus.

6. Knee pain is a common complaint associated with each of the following conditions, except:
   A. Discitis.
   B. Legg-Calve-Perthes disease.
   C. Multiple epiphyseal dysplasia.
   D. Slipped capital femoral epiphysis.

7. An 11-year-old girl complains of knee pain and a limp. History reveals a gradual onset of illness, with the early appearance of a rash and low grade fever. The least likely diagnosis is:
   A. Transient synovitis of the knee.
   B. Juvenile rheumatoid arthritis.
   C. Rheumatic fever.
   D. Lyme disease.

8. A 10-year-old boy fell and bumped his knee 4 weeks ago. He has complained frequently of knee pain since that time. A radiograph of the knee reveals a pathologic process in the knee. The most likely positive finding would be:
   A. Osteochondroma.
   B. Ewing sarcoma.
   C. Osteogenic sarcoma.
   D. Leukemia.

9. Immediate surgical intervention is important in treating each of the following conditions, except:
   A. Septic arthritis of the hip.
   B. Spondylolisthesis.
   C. Osteomyelitis of the proximal tibia.
   D. Slipped capital femoral epiphysis.

Department of Corrections

of small children and for boys themselves). Home treatment was begun and quickly gained in popularity in the early 1970s, when clotting factor concentrates became available. Not only does home treatment obviate the need for frequent, costly, and time-consuming visits to a medical facility, it also gives the person who has hemophilia (and his parents) a greater feeling of independence, reduces time lost from school or work, and results in more prompt treatment of joint bleeding, thus preventing progressive joint disease. Training involves not only the mechanics of intravenous infusion, but also recognition of symptoms requiring treatment; assessment of the need to contact the hemophilia center; dosage calculation; maintenance of accurate infusion records; and proper disposal of used needles, syringes, and empty bottles. Many hemophilia centers now arrange for clotting factor concentrates and supplies (needles, syringes, etc) to be sent directly (and conveniently) to the patient’s home. Plastic boxes for safe disposal of used needles and syringes are also provided for home use.

ISSUES RELATED TO THE HIV

With the often overwhelming medical, educational, and psychosocial and emotional issues resulting from HIV infection and AIDS, much of the time and effort of the comprehensive care team members now is devoted to such concerns. Using monies appropriated by the Communicable Disease Centers and the Department of Maternal and Child Health, hemophilia centers have been able to hire additional staff for HIV infection and AIDS-related “risk reduction” activities. Education and counseling programs are aimed at preventing further spread of HIV infection from hemophiliacs to sexual partners. Hematologists caring for persons who have hemophilia have had to become expert in AIDS and the management of immunocompromised individuals. Factual and timely educational materials concerning HIV infection and AIDS had to be developed (and updated periodically) for staff, patients, and families. (Such materials are available from the National Hemophilia Foundation, Soho Building, Suite 406, 110 Greene St, New York, NY 10012, as well as from local chapters of the National Hemophilia Foundation.) Hemophilia team members have been required to deal with death and dying to a far greater extent than was ever the case in hemophilia settings before.

Fortunately, it appears that, in general, children and adolescents with hemophilia who became HIV-infected progressed to AIDS at a slower rate than HIV-infected adults. Hopefully, the use of Zidovudine (ZVD), the prophylactic use of aerosolized pentamidine and bactrim, and rigorous medical follow-up will salvage even more of these HIV-infected adolescents until a definitive treatment to rid them of the virus becomes available. Through a network of a few regional centers, coordinated by the National Hemophilia Foundation, most United States hemophilia centers are now actively participating in National Institutes of Health AIDS Clinical Trials Group (ACTG) protocols. Many physicians treating hemophiliacs now regularly attend the ACTG meetings, and have the opportunity for meaningful input into protocol development for HIV-infected hemophiliacs.

SUGGESTED READING


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Self-Evaluation Quiz

10. Laboratory findings for the patient who has hemophilia include each of the following except:

A. Prolonged partial thromboplastin time
B. Normal prothrombin time
C. Prolonged bleeding time
D. Diminished F-VIII activity in plasma
E. Lower than normal ratio of F-VIII activity to level of F-VIII-related antigen (F-VIII R:Ag).

11. The sister of a patient who had hemophilia and died during infancy 10 years ago wishes to establish whether or not she is a carrier. There has been no other known instance of hemophilia in the family. Among the following, the most effective method available to her will be:

A. Measurement of the ratio of F-VIII activity to the level of F-VIII R:AG in her plasma.
B. Serial assays of F-VIII activity.
C. Study of restriction fragment length polymorphisms in her DNA.
D. Study of polymerase chain reactions in her DNA.
E. More exhaustive study of the family pedigree.

12. Among the following, the least appropriate procedure in the routine care of an adolescent patient who has hemophilia would be:

A. Regularly scheduled administration of F-VIII concentrate.
B. Immunization against hepatitis B.
C. Regularly scheduled visits for counseling.
D. Teaching the patient to administer F-VIII concentrate.
E. Referral of the family to a hemophilia support group.

13. For the patient with mild hemophilia A, the initial treatment of choice for a non-life-threatening hemorrhagic episode currently is administration of:

A. Cryoprecipitate.
B. Pooled fresh frozen plasma.
C. A commercial preparation of F-VIII concentrate.
D. Desmopressin.
E. c-Aminocaproic acid.

14. A patient who has severe hemophilia A has developed an F-VIII inhibitor. Among the following, the least likely helpful therapeutic maneuver in the case of an emergency would be administration of:

A. F-VIII concentrate.
B. Porcine F-VIII.
C. Desmopressin.
D. F-IX complex.