EPIDEMIOLOGY BULLETIN

C. M. G. Buttery, M.D., M.P.H., Commissioner
Grayson B. Miller, Jr., M.D., Epidemiologist *Editor: Carl W. Armstrong, M.D.*

November, 1986 Volume 86, Number 11

Recommendation of the Immunization Practices Advisory Committee (ACIP) of the U.S. Public Health Service

New Recommended Schedule for Active Immunization of Normal Infants and Children

Until now, the recommended schedule for active immunization of normal infants and children called for administering combined measles-mumps-rubella (MMR) vaccine at 15 months and giving the fourth dose of Diphtheria and Tetanus Toxoids and Pertussis Vaccine (DTP) and the third dose of oral poliovirus vaccine (OPV) at 18 months (*1*). Two visits have been needed to receive these vaccines in the second year of life because the safety and efficacy of administering all three simultaneously had not been proven.* A large, randomized, double-blind trial has recently been completed (*2*), and sufficient data are now available to recommend the simultaneous administration of MMR, DTP, and OPV to all children 15 months old or older who are eligible to receive these vaccines (Table 1).

**It should be noted that simultaneous administration of MMR, DTP, and OPV was previously recommended for children who were behind schedule in receiving their immunizations. This recommendation was based on the demonstrated safety and efficacy of other vaccine combinations (e.g., DTP and measles, or MMR and OPV).* *Continued to page 2*

TABLE 1. New recommended schedule for active immunization of normal infants and children*

Recommended age†	Vaccine(s)§	Comments
2 months	DTP-1¶, OPV-1**	Can be given earlier in areas of high endemicity.
4 months	DTP-2, OPV-2	6-week to 2-month interval desired between OPV doses to avoid interference.
6 months	DTP-3	An additional dose of OPV at this time is optional for use in areas with a high risk of polio exposure.
15 months††	MMR,§§ DTP-4, OPV-3	Completion of primary series of DTP and OPV.
24 months	HbPV¶¶	Can be given at 18-23 months for children in groups who are thought to be at increased risk of disease, e.g., day-care-center attendees.
4-6 years***	DTP-5, OPV-4	Preferably at or before school entry.
14-16 years	Td†††	Repeat every 10 years throughout life.

*See Reference 1 for the recommended immunization schedules for infants and children up to their seventh birthday not immunized at the recommended time in early infancy and for persons 7 years of age or older.
†These recommended ages should not be construed as absolute, i.e., 2 months can be 6-10 weeks, etc.
§For all products used, consult manufacturer's package enclosure for instructions for storage, handling, and administration. Immunobiologics prepared by different manufacturers may vary, and those of the same manufacturer may change from time to time. The package insert should be followed for a specific product.
¶DTP-Diphtheria and Tetanus Toxoids and Pertussis Vaccine Adsorbed.
**OPV-Poliovirus Vaccine Live Oral; contains poliovirus strains Types 1, 2, and 3.
††Provided at least 6 months have elapsed since DTP-3 or, if fewer than three DTPs have been received, at least 6 weeks since last previous dose of DTP or OPV. MMR vaccine should not be delayed just to allow simultaneous administration with DTP and OPV. Administering MMR at 15 months and DTP-4 and OPV-3 at 18 months continues to be an acceptable alternative.
§§MMR-Measles, Mumps, and Rubella Virus Vaccine, Live.
¶¶Hemophilus b Polysaccharide Vaccine.
***Up to the seventh birthday.
†††Td-Tetanus and Diphtheria Toxoids Adsorbed (For adult use)—contains the same dose of tetanus toxoid as DTP or DT and a reduced dose of diphtheria toxoid.

Recommendation of the Immunization Practices Advisory Committee (ACIP) of the U.S. Public Health Service

Immunization of Children Infected with HTLV-III/LAV

Introduction

This document is intended to summarize available information and to assist health-care providers in developing policies for the immunization of children infected with human T-lymphotropic virus type III-lymphadenopathy-associated virus (HTLV-III/LAV),* the virus that causes acquired immunodeficiency syndrome (AIDS). These policies may vary depending upon the prevalence of HTLV-III/LAV infection and the incidence of vaccine-preventable diseases in the community, individual assessment of a child's health status, and the risks and benefits of immunization in a particular situation. This discussion considers the risks and benefits of immunization for children residing in the United States based on the risks of vaccine-preventable diseases and the prevalence of HTLV-III/LAV infection and is intended for use by health-care providers in the United States. The recommendations may not pertain to other countries with different risks of vaccine-preventable diseases and prevalence of HTLV-III/LAV infection among children. Since these recommendations are based upon information and knowledge available at this time, periodic reassessment and revision will be required as more data concerning risk and benefits associated with immunization of HTLV-III/LAV-infected children become known and as the prevalences of specific vaccine-preventable diseases and HTLV-III infection change.

**The AIDS virus has been variously termed human T-lymphotropic virus type III (HTLV-III/LAV), lymphadenopathy-associated virus (LAV), AIDS-associated retrovirus (ARV), or human immunodeficiency virus (HIV). The designation "human immunodeficiency virus" (HIV) has been accepted by a subcommittee of the International Committee for the Taxonomy of Viruses as the appropriate name for the retrovirus that has been implicated as the causative agent of AIDS (Science 1986;232:697).*

HTLV-III/LAV Infection Among Children

In the period June 1, 1981-September 2, 1986, physicians and health departments in the United States reported 24,430 cases of AIDS to CDC (*1*). Three hundred forty-five (1%) of the case-patients were children under 13 years of age who met the AIDS case definition; 75% of these pediatric cases were reported from New York, Florida, New Jersey, and California. Children with less severe manifestations of HTLV-III/LAV infection (AIDS-related complex, or ARC) or with asymptomatic infections are not now reported to CDC, and no seroprevalence studies have been conducted among children. Thus, the number of less severely affected children and the number of infected but presently asymptomatic children are uncertain. In one recently published case series, 14 (48%) of 29 symptomatic HTLV-III/LAV-infected children met the CDC criteria for AIDS (*2*).

Fifty percent of children reported to CDC were diagnosed as having AIDS during the first year of life; 82%, by 3 years of age (*1*). Sixty-five percent of pediatric AIDS cases reported to CDC were fatal (*3*). Short-term fatality rates are lower for children with less severe disease (ARC) who have not developed opportunistic infections; however, the ultimate prognosis of these children and of asymptomatic infected children is unknown.

Mechanisms of Transmission of HTLV-III/LAV Among Children

Two risk factors are predominately

Continued to page 3

Active Immunization

Continued from page 1

In this trial, serologic response and clinical reaction rates following primary immunization with MMR were compared in a test group of 405 children given MMR simultaneously with DTP and OPV and a control group of 410 children given MMR followed by doses of DTP and OPV vaccine 2 months later. Seroconversion rates to each MMR component exceeded 96% in both groups, and the geometric mean titers achieved against the other six antigens were also similar in both groups. Rates of most of the common vaccine-associated clinical reactions to DTP and MMR were not augmented by simultaneous administration of these two vaccines. Some minor side effects were reported more frequently in the simultaneous-administration group; however, these differences were judged to be related to artifacts of the study design rather than to differences in the safety of the two vaccine schedules.

Data from CDC's Monitoring System for Adverse Events Following Immunization (MSAEFI) have been reviewed, particularly the information from Idaho, Louisiana, and Tennessee, where policies to administer MMR, DTP, and OPV simultaneously have been in effect for periods ranging from several months to years. Although there are limitations to the use of the MSAEFI data set for this purpose, the evidence suggests no increased risk of reactions associated with the simultaneous administration of these antigens.

Although the overall implications of simultaneous administration have not been fully defined, it is anticipated that implementation of this new schedule will result in at least three benefits: (1) a decrease in the number of health-care-provider visits required for immunization during the second year of life, (2) an accompanying decrease in costs, and (3) an increase in the percentage of children who will be fully or partially immunized by 24 months of age.

Some health-care providers may continue to prefer administering MMR at 15 months followed by DTP and OPV at 18 months, especially for patients who are known to be compliant with health-care recommendations or if other purposes are served by the additional visit. Such a schedule remains an acceptable alternative to the newly proposed schedule involving simultaneous administration of DTP, MMR, and OPV in a single visit.

References

1. ACIP: General recommendations on immunization. MMWR 1983;32:1-17.

2. Deforest A, Long FF, Lischner HW, et al. Simultaneous administration of measles-mumps-rubella (MMR) with booster doses of diphtheria-tetanus-pertussis (DTP) and poliovirus (OPV) vaccines (unpublished data).

Reprinted from MMWR 1986;35:577-9.

associated with HTLV-III/LAV infection in children: a) being born to a mother who has HTLV-III/LAV infection, and b) receiving blood or clotting factors containing HTLV-III/LAV. Most case-patients (79%) are children whose mothers probably are infected with the virus. The major risk factors for infection of these women are intravenous (IV) drug abuse and sexual contact with men at risk of HTLV-III/LAV infection (primarily through drug abuse or bisexual contacts); women of Haitian or central African origin are also at a higher risk of acquiring HTLV-III/LAV infection, and a small percentage of infected women have a history of being transfused with blood (*4*). Approximately 15% of pediatric AIDS case-patients have received transfusions of blood or blood products, and 4% have hemophilia and have been treated with clotting-factor concentrates. Information about risk factors is incomplete for 3% of children with AIDS.

Currently available data indicate that most pediatric HTLV-III/LAV infections are acquired from infected women during pregnancy, during labor and delivery, or perhaps shortly after birth. The risk of perinatal transmission from an infected mother to her infant is not known, although prospective studies indicate the rate of transmission has ranged from 0% (0/3) to 65% (13/20) (*5-7*). Seropositive women who had previously delivered an infected child had the highest of these transmission rates (65%) in subsequent pregnancies (*5*). In a retrospective study evaluating nine children whose mothers were later diagnosed as having AIDS, two (22%) children had antibody to HTLV-III/LAV (*8*). Additional prospective studies are needed to define more precisely the rate of perinatal transmission of HTLV-III/LAV.

Prevalence of HTLV-III/LAV Infection Among Women of Child-Bearing Age

The prevalence of HTLV-III/LAV infection among women of child-bearing age varies depending on the patient group and geographic areas (*4*). Reported confirmed seroprevalences are less than 0.01% among female blood donors in Atlanta and 0.06% among female U.S. military recruit applicants (*4,9*). In contrast, the reported prevalence of HTLV-III/LAV antibody among IV drug abusers has ranged from 2% to 59%, with the highest prevalence in New York City and northern New Jersey. Female sex partners of IV drug-abusing men with AIDS or with ARC had a reported seroprevalence of 40%-71%, whereas 10% of female partners of asymptomatic infected hemophiliacs were reported to be seropositive (*4*). Seroprevalence among prostitutes has varied greatly (5%-40%) depending on the geographic area and has been largely attributed to a coincidental history of IV drug abuse (*4*). Seroprevalence has been reported to be as high as 5% among persons born in countries in which heterosexual transmission of HTLV-III/LAV is thought to play a major role (e.g., Haiti, central African countries) (*1,10,11*).

Immunologic Abnormalities Associated With HTLV-III/LAV Infection

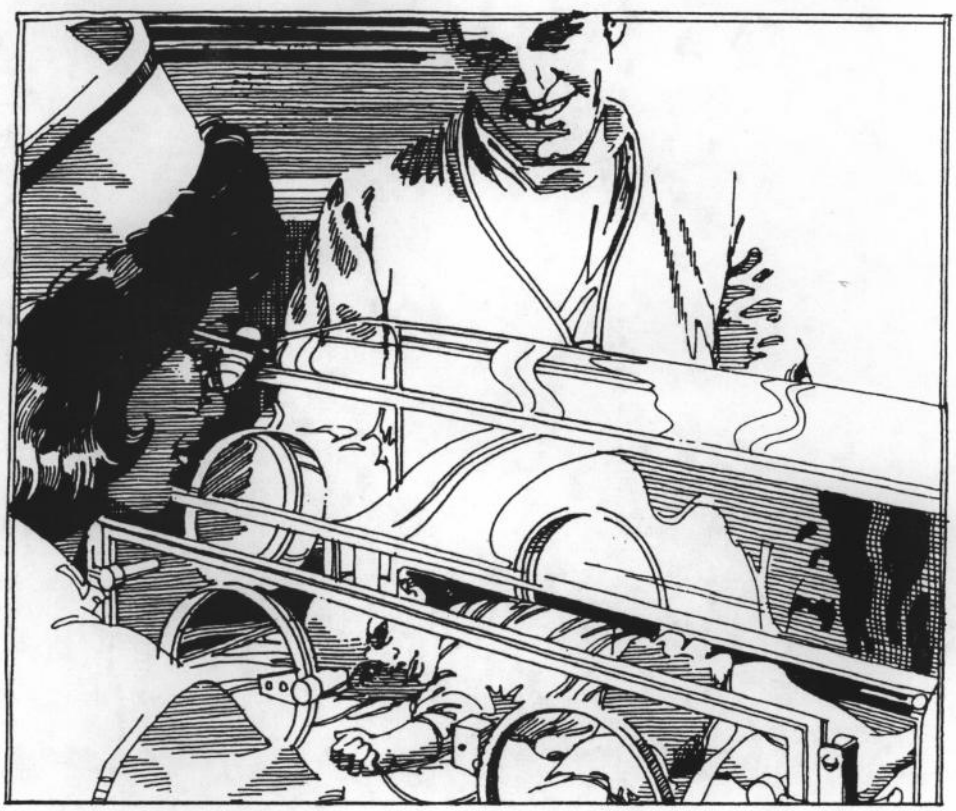
Children with symptomatic HTLV-III/LAV infection (AIDS or ARC) have immunologic abnormalities similar to those of adult AIDS patients, including hypergammaglobulinemia, decreased T4 lymphocytes, reversed helper/suppressor T-cell ratios, poor T-lymphocyte responses to mitogen stimulation, and altered humoral immunity. Lymphopenia (cell counts less than 1,500 cells/mm^3) is uncommon. Antibody responses of children with AIDS or ARC to diphtheria and tetanus toxoid boosters and to pneumococcal vaccine were absent or lower than those of age-matched controls, which is consistent with defective humoral immunity (*12,13*). Some HTLV-III/LAV-infected children responded adequately to immunization; 60% of AIDS and ARC patients given measles-mumps-rubella vaccine (MMR) prior to diagnosis had protective levels of measles antibodies 5-66 months after immunization (*14*).

Asymptomatic HTLV-III/LAV-infected adults as a group generally have less severe abnormalities of immunologic function than adults with AIDS or ARC, and some may have normal immunologic function, although individual asymptomatic adults may have severe abnormalities (*15*). Immunologic function of asymptomatic HTLV-III/LAV-infected children has not yet been adequately studied but presumably would be more intact than that of symptomatic HTLV-III/LAV-infected children. In a small prospective study, all 29 children with symptomatic HTLV-III/LAV infection had immunologic abnormalities within 5-13 months of being found infected, compared with only two of seven (29%) children reported to have asymptomatic HTLV-III/LAV infection (*2*).

Concerns About Immunization of HTLV-III/LAV-Infected Children

The immunologic abnormalities associated with symptomatic HTLV-III/LAV infection have raised concerns about the immunization of infected children. Replication of live, attenuated vaccine viruses may be enhanced in persons with immunodeficiency diseases and theoretically may produce serious adverse events following immunization of symptomatic HTLV-III/

Continued to page 4



Immunization of Children
Continued from page 3

LAV-infected (AIDS and ARC) patients (*16*). Concerns have been expressed on theoretical grounds that antigenic stimulation by immunization with inactivated vaccines might lead to a deterioration of clinical status of HTLV-III/LAV-infected children, but this effect has not been documented (*17*). Since symptomatic HTLV-III/LAV-infected patients have abnormal primary and secondary antibody responses, the efficacy of immunization may be decreased (*18*). The efficacy of immunization for asymptomatic HTLV-III/LAV-infected children is unknown, but presumably would be higher than for symptomatic HTLV-III/LAV-infected children.

Because most HTLV-III/LAV-infected children become infected perinatally, it is to be expected that their mothers are infected with HTLV-III/LAV. Other family members may also be infected with HTLV-III/LAV and may have abnormal immunologic function.† Prospective evaluation of 16 asymptomatic HTLV-III/LAV-infected mothers of children diagnosed as having AIDS or ARC showed that 12 (75%) mothers developed AIDS or ARC during a 30-month follow-up period (*6*). Regardless of the immune status of the recipient, poliovaccine virus is often excreted by children vaccinated with oral poliovaccine (OPV) and may be transmitted to close contacts (*19*). Immunedeficient individuals (either recipients or contacts) have a higher risk of developing vaccine-associated poliomyelitis than normal individuals. There is no risk of transmitting the viruses contained in measles, mumps, rubella (MMR) vaccine to family members (*20-22*).

While the risks of vaccination are not known with certainty, potential risks may exist if HTLV-III/LAV-infected children are not vaccinated. If local outbreaks of measles occur in geographic areas in which there is both a cluster of unvaccinated children and a high prevalence of HTLV-III/LAV infection, the risk of measles for unvaccinated, HTLV-III/LAV-infected children may be high. Measles infection among patients with immune deficiency may be severe, protracted, and fatal (*23*).

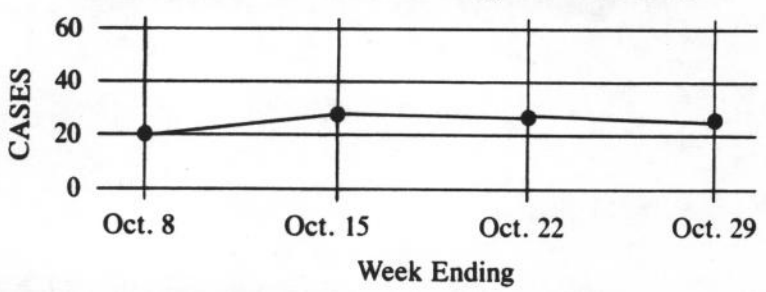
Experiences With Immunization of HTLV-III/LAV-Infected Persons

Some children infected perinatally with HTLV-III/LAV have received routine immunization with OPV and MMR before their illnesses were recognized. Out-patient medical records from New York City and Miami for 213 children with symptomatic HTLV-III/LAV infection (AIDS and ARC), presumably acquired during the perinatal period, were reviewed to determine immunization history and possible vaccine-associated adverse events (*24,25*). One hundred seventy-one children (80%) had received at least one dose of OPV and diphtheria and tetanus toxoids and pertussis vaccine (DTP), 95 (45%) had completed primary immunization with OPV and DTP (three doses and four doses, respectively), and 63 (30%) had received MMR or measles vaccine. Thirty-eight (39%) of 98 children who had available records of dates of immunization and onset of symptoms consistent with HTLV-III/LAV infection had received at least one live-virus vaccine after symptom onset. No serious or unusual adverse events were noted in the medical records of these children following immunization.

Only one adverse event following immunization of an HTLV-III/LAV-infected person has been documented. A 19-year-old asymptomatic army recruit received multiple immunizations during basic training, including primary immunization with smallpox vaccine (*26*). Two and one-half weeks later, he developed cryptococcal meningitis and was

Continued to page 5

Influenza Surveillance Virginia 1986-1987



Surveillance is based on reports from sentinel physicians located throughout the Commonwealth. Influenza activity is judged to be at baseline level. To date, no influenza virus isolates or seroconversions have been reported in Virginia. Sporadic cases of influenza A/Taiwan/86(H1N1) have been reported in several other states.

†Such family members may have been infected by sexual contact with an HTLV-III/LAV-infected person, by parenteral exposure to infected blood (e.g., by sharing needles), or as hemophiliacs who received clotting factors, or by perinatal transmission.

diagnosed as having AIDS. One and one-half weeks later, while being treated for meningitis, he developed lesions of disseminated vaccinia. He was treated with vaccinia immune globulin and recovered from vaccinia, but has since died of AIDS.

CDC has not received any reports of vaccine-associated poliomyelitis among HTLV-III/LAV-infected vaccine recipients or their contacts or among other persons known to be infected with HTLV-III/LAV. There have been no reports of serious adverse events following MMR administration from areas in which pediatric AIDS cases are occurring.

Immunizing Children Who May Be Infected With HTLV-III/LAV: Special Considerations

Children born to women who are at risk of HTLV-III/LAV infection or who are known to be infected with HTLV-III/LAV should be evaluated for infection with the virus—including being tested for antibody (*4,27*). For asymptomatic children presenting for immunization, this evaluation and testing is not necessary to make decisions about immunizations. Children infected with HTLV-III/LAV are best cared for by pediatricians knowledgeable in the management of patients with this infection. Since little information is currently available on the safety and efficacy of immunizing children who may be infected with HTLV-III/LAV, special studies of these children need to be conducted.

Recommendations

Children with symptomatic HTLV-III/LAV infection

A. Live-virus and live-bacterial vaccines (e.g., MMR, OPV, BCG) should not be given to children and young adults who are immunosuppressed in association with AIDS or other clinical manifestations of HTLV-III/LAV infection. For routine immunizations, these persons should receive inactivated poliovaccine (IPV) and should be excused for medical reasons from regulations requiring measles, rubella, and/or mumps immunization.

B. Concerns have been raised that stimulation of the immune system by immunization with inactivated vaccines in these individuals might cause deterioration in immunologic function. However, such effects have not been noted thus far among children with AIDS or among other immunosuppressed individuals after immunization with inactivated vaccines. The potential benefits of immunization of these children outweigh the concerns of theoretical adverse events. Immunization with DTP, IPV, and *Haemophilus influenzae* type b vaccines is recommended in accordance with the ACIP recommendations, although immunization may be less effective than it would be for immunocompetent children (*28-30*).

C. As with other conditions that produce chronic immunosuppression, the Committee recommends annual immunization with inactivated influenza vaccine for children over 6 months of age and one-time administration of pneumococcal vaccine for children over 2 years of age (*31-33*).

D. Children and young adults with AIDS or other clinical manifestations of HTLV-III/LAV infection—as other immunosuppressed patients—may be at increased risk of having serious complications of infectious diseases, such as measles and varicella. Following significant exposure to measles or varicella, these persons should receive passive immunization with immune globulin (IG) or varicella-zoster immune globulin (VZIG), respectively (*20,34*).¶

Children with previously diagnosed asymptomatic HTLV-III/LAV infection

A. A small number of children and young adults known to be infected with HTLV-III/LAV but without overt clinical manifestations of immunosuppression have received live-virus vaccines without adverse consequences. Further experience needs to be monitored, but on the basis of data now available, the Committee believes that such persons should be vaccinated with MMR in accordance with ACIP recommendations (*20-22*). Vaccinees should be followed for possible adverse reactions and for the occurrence of vaccine-preventable diseases since immunization may be less effective than for uninfected persons.

B. Available data suggest that OPV can be administered without adverse consequences to HTLV-III/LAV-infected children who do not have overt clinical manifestations of immunosuppression. However, because family members of such children may be immunocompromised due to AIDS or HTLV-III/LAV infection and therefore at increased risk of paralysis from contact with spread vaccine virus, it may be prudent to use IPV routinely to immunize asymptomatic children with previously diagnosed HTLV-III/LAV infection (*28*).

C. Immunization with DTP and *Haemophilus influenzae* type b vaccines is recommended in accordance with ACIP recommendations (*29,30*).

Children not known to be infected with HTLV-III/LAV

Children and young adults not known to be infected with HTLV-III/LAV should be immunized in accordance with ACIP recommendations.

Children residing in the household of a patient with AIDS

Children whose household members are known to be immunocompromised due to AIDS or other HTLV-III/LAV infections should not receive OPV because vaccine viruses are excreted by the recipient of the vaccine and may be communicable to their immunosuppressed contacts. These children should receive IPV for routine immunization (*28*). Because extensive experience has shown that live, attenuated MMR vaccine viruses are not transmitted from vaccinated individuals to others, MMR may be given to a child residing in the household of a patient with AIDS (*20-22*).

References

1. CDC. Unpublished data.
2. Pahwa S, Kaplan M, Fikrig S, et al. Spectrum of human T-cell lymphotropic virus type III infection in children. JAMA 1986;255:2299-2305.
3. Rogers MF. AIDS in children: a review of the clinical, epidemiologic and public health aspects. Pediatr Infect Dis 1985;4:230-6.
4. CDC. Recommendations for assisting in the prevention of perinatal transmission of human T-lymphotropic virus type III/lymphadenopathy-associated virus and acquired immunodeficiency syndrome. MMWR 1985;34:721-32.
5. Scott GB, Fischl MA, Klimas N, et al. Mothers of infants with the acquired immunodeficiency syndrome: outcome

Continued to page 6

¶*Some physicians administer full replacement doses of intravenous IG on a 2-4 week schedule to children with AIDS and other clinical manifestations of HTLV-III/LAV infection. This therapy may provide some protection against such diseases as measles and varicella.*

Sexually Transmitted Diseases Treatment Guidelines

Acute Epididymo-Orchitis

Acute epididymo-orchitis has two forms: a sexually transmitted form usually associated with urethritis and commonly caused by *C. trachomatis* and/or *N. gonorrhoeae* and a nonsexually transmitted form associated with urinary tract infections caused by Enterobacteriaceae or *Pseudomonas*. Urine should be examined by Gram stain and culture to exclude bacteruria in all patients, including those with urethritis. Testicular torsion is a surgical emergency that should be considered in all cases.

Sexually Transmitted Epididymo-Orchitis

Sexually transmitted epididymo-orchitis occurs in young adults and is associated with presence of urethritis, absence of underlying genitourinary pathology, and absence of gram-negative rods on Gram stain of urine.

Recommended Regimens:

Amoxicillin 3.0 g by mouth, OR **ampicillin** 3.5 g by mouth, OR **aqueous procaine pencillin G** 4.8 million units IM at 2 sites (each along with **probenicid** 1.0 g by mouth), OR **spectinomycin** 2.0 g IM OR **ceftriaxone** 250 mg IM.

FOLLOWED BY

Tetracycline HCl 500 mg by mouth 4 times daily for 10 days, OR **doxycycline** 100 mg by mouth twice daily for 10 days, OR (For patients for whom tetracyclines are contraindicated or not tolerated) **erythromycin base or stearate** 500 mg by mouth 4 times a day for 7 days, OR **erythromycin ethylsuccinate** 800 mg by mouth 4 times a day for 7 days.

Alternative Regimens

Alternative regimens have not been well studied. For epididymitis caused by PPNG, clinical experience is lim-

Continued to page 7

Immunization of Children

Continued from page 5

of subsequent pregnancies. Atlanta, Georgia: International conference on acquired immunodeficiency syndrome, April 14-17, 1985.
6. Scott GB, Fischl MA, Klimas N, et al. Mothers of infants with the acquired immunodeficiency syndrome. Evidence for both symptomatic and asymptomatic carriers. JAMA 1985;253:363-6.
7. Stewart GJ, Tyler JP, Cunningham AL, et al. Transmission of human T-cell lymphotropic virus type III (HTLV-III) by artificial insemination by donor. Lancet 1985;2:581-5.
8. Thomas PA, Lubin K, Enlow RW, et al. Comparison of HTLV-III serology, T-cell levels, and general health status of children whose mothers have AIDS with children of healthy inner city mothers in New York. Atlanta, Georgia: International conference on acquired immunodeficiency syndrome, April 14-17, 1985.
9. CDC. Human T-lymphotropic virus type III/lymphadenopathy-associated virus antibody prevalence in U.S. military recruit applicants. MMWR 1986;35:421-4.
10. World Health Organization. Acquired immune deficiency syndrome (AIDS). Report on the situation in Europe as of 31 December 1984. Wkly Epidem Rec 1985;60:85-90.
11. Castro KG, Fischl MA, Landesman SH, et al. Risk factors for AIDS among Haitians in the United States. Atlanta, Georgia: International conference on acquired immunodeficiency syndrome. April 14-17, 1985.
12. Bernstein LJ, Ochs HD, Wedgwood RJ, Rubenstein A. Defective humoral immunity in pediatric acquired immune deficiency syndrome. J Pediatr 1985;107:352-7.
13. Borkowsky W, Krasinski K. Residual cell-mediated immunity to recall antigens in pediatric AIDS-related disease. Pediatr Res 1986;20:292A.
14. Krasinski K, Borkowsky W, Krugman S. Antibody following measles immunization in children infected with human T-cell lymphotropic virus-type III/lymphadenopathy associated virus (HTLV-III/LAV). Paris, France: International conference on acquired immunodeficiency syndrome, June 23-25, 1986.
15. Francis DP, Jaffe HW, Fultz PN, Getchell JP, McDougal JS, Feorino PM. The natural history of infection with the lymphadenopathy-associated human T-lymphotropic virus type III. Ann Intern Med 1986;103:719-22.
16. ACIP. General recommendations on immunization. MMWR 1983;32:1-8, 13-17.
17. Zagury D, Bernard J, Leonard R, et al. Long-term cultures of HTLV-III-infected T cells: a model of cytopathology of T-cell depletion in AIDS. Science 1986;231:850-3.
18. Simberkoff MS, El Sadr W, Schiffman G, Rahal JJ, Jr. *Streptococcus pneumoniae* infections and bacteremia in patients with acquired immune deficiency syndrome, with report of a pneumococcal vaccine failure. Am Rev Respir Dis 1984;130:1174-6.
19. CDC. Paralytic poliomyelitis—United States, 1982 and 1983. MMWR 1984;33:635-8.
20. ACIP. Measles prevention. MMWR 1982;31:217-24, 229-31.
21. ACIP. Rubella prevention. MMWR 1984;33:301-10, 315-8.
22. ACIP. Mumps vaccine. MMWR 1982;31:617-20, 625.
23. Cherry JD. Measles. In Feigin, RD and Cherry, JD (eds): Textbook of Pediatric Infectious Diseases. Philadelphia, W.B. Saunders Company, 1981:1210-31.
24. McLaughlin M, Thomas P, Rubenstein A, et al. Use of live virus vaccines in children with HTLV-III/LAV infection: a retrospective survey. Paris, France: International conference on acquired immunodeficiency syndrome. June 23-25, 1986.
25. Gwendolyn Scott. Personal communication.
26. R. Redfield. Personal communication.
27. CDC. Additional recommendations to reduce sexual and drug abuse-related transmission of human T-lymphotropic virus type III/lymphadenopathy-associated virus. MMWR 1986;35:152-5.
28. ACIP. Poliomyelitis prevention. MMWR 1982;31:22-6, 31-4.
29. ACIP. Diphtheria, tetanus, and pertussis: guidelines for vaccine prophylaxis and other preventive measures. MMWR 1985;34:405-14, 419-26.
30. ACIP. Polysaccharide vaccine for prevention of *Haemophilus influenzae* type b disease. MMWR 1985;34:201-5.
31. ACIP. Update: pneumococcal polysaccharide vaccine usage—United States. MMWR 1984;33:273-6, 281.
32. ACIP. Prevention and control of influenza. MMWR 1986;35:317-26, 331.
33. ACIP. Monovalent influenza A(H1N1) vaccine, 1986-1987. MMWR 1986;35:517-21.
34. ACIP. Varicella-zoster immune globulin for the prevention of chickenpox. MMWR 1984;33:84-90, 95-100.

Reprinted from MMWR 1986;35:595-8, 603-6

ited, but a 10-day course of therapy with oral **trimethoprim/sulfamethoxazole** OR parenteral **ceftriaxone, cefotaxime, cefoxitin,** OR **spectinomycin** may be used.

Management of Sex Partners

Sex partners of patients with sexually transmitted acute epididymo-orchitis should be examined for STD and promptly treated with a regimen effective against uncomplicated gonococcal and chlamydial infection.

Adjuncts to Therapy

Bed rest and scrotal elevation until fever and local inflammation have subsided are recommended.

Follow up

Failure to improve within 3 days requires reevaluation of the diagnosis/therapy and consideration for hospitalization.

Nonsexually Transmitted Acute Epididymo-Orchitis

Management includes prompt administration of broad-spectrum antimicrobial therapy. Choice of therapy is initially dictated by the severity of infection and later by results of urine culture and sensitivity. Evaluation for underlying urinary tract disease is indicated. Adjuncts to therapy and followup are the same as for sexually transmitted epididymo-orchitis.

Bacterial Vaginosis

This syndrome consists of nonirritating, malodorous, thin, homogeneous white vaginal discharge, elevated vaginal pH (greater than 4.5), and the elaboration of fishy odor from vaginal fluid after alkalinization with 10% potassium hydroxide. Microscopic examination of vaginal fluid typically reveals the presence of small coccobacillary organisms associated with epithelial cells (so-called "clue cells"). It is now believed that several species of vaginal bacteria interact to produce the syndrome. Cultures for *Gardenerella vaginalis* are not useful and are not recommended for the diagnosis of this syndrome.

Recommended Regimen

Metronidazole 500 mg by mouth twice daily for 7 days is an effective treatment.

Alternative Regimens

Ampicillin or **amoxicillin** 500 mg by mouth 4 times daily for 7 days is less effective but may be used for pregnant patients or individuals for whom metronidazole is contraindicated.

Treatment is not recommended for male or female asymptomatic carriers of *Gardnerella vaginalis*. Treatment of male sexual partners does not reduce the risk of recurrence of bacterial vaginosis in the index case.

Mucopurulent Cervicitis

The presence of mucopurulent endocervical exudate often suggests cervicitis due to chlamydial or gonococcal infection. Criteria for the presumptive diagnosis of mucopurulent cervicitis include: (1) mucopurulent secretion from the endocervix which may appear yellow or green when viewed on a white cotton-tipped swab (positive swab test); (2) greater than 10 polymorphonuclear leukocytes per microscopic oil immersion field (X 1,000) in a gram-stained smear of endocervical secretions; and (3) cervicitis, determined by cervical friability (bleeding when the first swab culture is taken) and/or by erythema or edema within a zone of cervical ectopy.

Treatment of mucopurulent cervicitis:

1. If *N. gonorrhoeae* is found on Gram stain or culture of endocervical or urethral discharge, treatment should be given as recommended for uncomplicated gonorrhea in adults.
2. If *N. gonorrhoeae* is not found, treatment should be given as recommended for chlamydial infection in adults.

Management of Sex Partners

Men exposed to women with mucopurulent cervicitis attributed to gonococcal or chlamydial infection should be evaluated for STD and treated with the same regimen as their sex partners.

Follow-Up

Follow-up cultures for *N. gonorrhoeae* or *C. trachomatis* isolated before therapy should be conducted as outlined for these organisms.

Urethral Syndrome (Dysuria-Pyuria Syndrome)

Women with dysuria, frequency, pyuria greater than 10 leukocytes per 400x field on microscopic examination of urinary sediment), and a negative gram-stained smear of unspun urine have the acute urethral syndrome and may be infected with *C. trachomatis* or with *N. gonorrhoeae*. Cultures of the urethra or cervix are needed to identify these agents in individual patients.

Dysuria may also be due to either vaginitis or genital HSV infection. Patients with dysuria should be evaluated for these infections, as well as for those outlined above.

Recommended Regimens

Initial treatment of patients with dysuria-pyuria syndrome with **tetracycline HCL** 500 mg by mouth 4 times daily for 7 days OR **doxycycline** 100 mg by mouth twice daily for 7 days is usually effective. Management of patients should be based on clinical response to therapy.

Vulvovaginal Candidiasis

Although not generally considered a sexually transmitted disease, vulvovaginal candidiasis is included in these guidelines because it is frequently diagnosed in women presenting with genital symptoms. The large number of commercially available regimens attests to both the high incidence of the condition and also the lack of any obviously superior regimen.

Two classes of drugs are most commonly used to treat vulvovaginal candidiasis: the imidazoles and the polyenes. Some studies suggest that imidazoles have better clinical efficacy than the polyenes.

Examples of imidazole regimens include:

Miconazole nitrate or **clotrimazole** 100 mg intravaginally daily for 7 days. Cream or tablet forms are equally effective, OR **miconazole nitrate** or **clotrimazole** 200 mg intravaginally daily for 3 days, OR **clotrimazole** 500 mg tablet intravaginally as a single dose.

An example of a polyene regimen is:

Nystatin 100,000 unit tablets, 1 tablet intravaginally daily for 2 weeks

Systemic therapy for uncomplicated vulvovaginal candidiasis is not indicated. No evidence exists that such treatment reduces recurrence rates, and it carries an increased risk of toxicity. Simultaneous treatment of rectal colonization does not reduce recurrence rates. Symptomatic disease in pregnancy may be more difficult to cure and should probably be treated with one of the 7-day regimens. Candidal balanitis in sexual partners usually responds promptly to dermatologic anticandidal preparations. Frequently recurrent vulvovaginal candidiasis is a difficult problem which should be managed in consultation with an expert.

Reprinted from MMWR 1985; 34 (4S)

Cases of selected notifiable diseases, Virginia, for the period October 1, through October 31, 1986

Disease	State					Regions				
	This Month	Last Month	Total to Date 1986	Total to Date 1985	Mean 5 Year To Date	This Month N.W.	This Month N.	This Month S.W.	This Month C.	This Month E.
Measles	0	0	60	28	16	0	0	0	0	0
Mumps	3	1	38	43	51	0	1	0	1	1
Pertussis	2	4	36	17	24	1	1	0	0	0
Rubella	0	0	0	2	4	0	0	0	0	0
Meningitis—Aseptic	43	44	238	313	250	11	10	0	10	12
*Bacterial	16	16	203	207	191	4	3	0	2	7
Hepatitis A (Infectious)	16	12	105	137	137	1	9	0	0	6
B (Serum)	66	59	432	458	445	9	11	4	14	28
Non-A, Non-B	5	5	57	74	67	0	0	0	2	3
Salmonellosis	150	176	1205	1401	1283	30	34	20	38	28
Shigellosis	9	17	74	72	338	3	3	0	1	2
Campylobacter Infections	51	64	495	639	429	7	11	2	10	21
Tuberculosis	30	42	303	357	439	4	4	6	4	12
Syphilis (Primary & Secondary)	25	22	304	251	443	0	0	5	6	14
Gonorrhea	1747	1698	15786	16110	17311	—	—	—	—	—
Rocky Mountain Spotted Fever	6	6	52	24	61	1	2	0	2	1
Rabies in Animals	19	26	167	159	314	11	8	0	0	0
Meningococcal Infections	4	4	63	47	62	0	0	1	1	2
Influenza	3	29	3985	977	1651	0	0	0	1	1
Toxic Shock Syndrome	1	0	9	8	7	0	1	0	0	0
Reyes Syndrome	0	0	2	2	5	0	0	0	0	0
Legionellosis	5	3	19	20	20	0	2	2	1	0
Kawasaki's Disease	1	4	23	30	21	0	0	1	0	0
Acquired Immunodeficiency Syndrome	8	15	141	80	—	1	3	0	1	3

Counties Reporting Animal Rabies: Clarke 1 raccoon; King George 1 raccoon; Page 1 skunk; Rockingham 1 raccoon, 2 skunks; Shenandoah 1 raccoon, 3 skunks; Warren 1 raccoon; Fairfax 4 raccoons, 1 skunk; Loudoun 3 raccoons.

Occupational Illnesses: Pneumoconioses 32; Carpal tunnel syndrome 10; Hearing loss 10; Asbestosis 8; Silicosis 2; Dermatitis 1; Farmers Lung 1.

*other than meningococcal

Published Monthly by the
VIRGINIA HEALTH DEPARTMENT
Divison of Epidemiology
109 Governor Street
Richmond, Virginia
23219