Committee on Fetus and Newborn
Committee on Infectious Diseases

Perinatal Herpes Simplex Virus Infections

Because of the relative paucity of data on the epidemiology and management of perinatal herpes simplex virus (HSV) infections, the following recommendations represent the best current judgments of the Committees on Fetus and Newborn and Infectious Diseases of the American Academy of Pediatrics.

HSV infection of the newborn is associated with a case fatality rate of 60% and at least half of the survivors have significant neurologic or ocular sequelae, or both. Approximately 75% of isolates from affected neonates are HSV-2 and 25% are HSV-1. Although preliminary data suggest that antiviral chemotherapy is effective in reducing mortality and morbidity resulting from neonatal HSV infections, measures designed to prevent infection of newborns are currently the most important means of controlling neonatal infections.

A maternal source of infection can be found in about 90% of neonatal cases. Maternal HSV infection is usually caused by type 2 strains and involves the labia, cervix, and/or vagina. The majority of genital infections are asymptomatic and difficult to recognize on clinical examination, making identification of women whose infants are in jeopardy very difficult.

EPIDEMIOLOGY

Maternal Infection

Primary HSV infection during pregnancy may be associated with spontaneous abortion, prematurity, and rarely with congenital anomalies. The risk of infection to the newborn appears to be the highest in primary genital infection of the pregnant woman, but is also high in recurrent infection. Women with a history of recurrent genital HSV infection, those with active disease during the current pregnancy, and those whose sexual partners have proven genital HSV infection should be monitored with virologic or cytologic studies, or both, at least twice during the last six weeks of pregnancy. It is important to emphasize that clinical examination may be unrevealing in patients with documented infection.

If the partner has documented genital infection, avoidance of sexual contact in the last several months of pregnancy is recommended. Papanicolaou smears of the cervix can be obtained in most clinical facilities and will identify HSV-infected women on only three quarters of virologically proved cases. While at the present time isolation of HSV in cell culture is the most sensitive and accurate method, other methods of monitoring women by virus identification in cervical smears stained with fluorescein-tagged or enzyme-linked HSV antibody are being evaluated. A woman is considered free of infection and may be delivered vaginally if virologic and/or cytologic tests are negative on two successive examinations, the last of which was obtained within one week of delivery, and clinical lesions are not detected at delivery.

Risk of Neonatal Infection

The risk of neonatal infection is highest in infants born to culture-positive women at delivery, to those with primary genital infections, and to those whose fetal membranes have been ruptured for longer than four to six hours and, particularly, for longer than 24 hours prior to delivery. Fetal scalp electrode monitoring may result in direct inoculation of HSV from maternal infection that is usually asymptomatic. Symptomatic disease of the neonate may occur anytime during the first month of life; the average age of onset of disseminated disease is 16 days and localized central nervous system disease, 11 days. Because approximately one third of affected infants will have no cutaneous, ocular, or oral manifestations of HSV disease, delay in establishing the correct diagnosis may occur.

MANAGEMENT PLANS

Abortion

Abortion is not indicated in HSV infection of the pregnant woman even when it develops early in the first trimester.
Delivery

Management of each pregnancy must be based on the probability of HSV infection of the infant, the status of the fetal membranes, the gestational age, and the risk of cesarean section. If virologic and/or cytologic studies of the pregnant woman are negative within one week of delivery, the baby can be delivered vaginally. If the woman has genital HSV infection based on clinical findings or, preferably, on cytologic and/or virologic studies, a cesarean section should be considered if the fetal membranes have been ruptured for less than four to six hours. There is probably no advantage to cesarean section if the membranes have been ruptured for more than four to six hours because the risk to the neonate appears to be similar to that found after vaginal delivery. Cesarean section is not indicated if the membranes have been ruptured for 12 hours or more. If this status is unknown in a woman in labor who had clinical- or laboratory-confirmed genital herpes at 32 weeks gestation or later, management must be based on the above criteria.

Infant

Management of infants born to women with HSV infection is similarly based on individual circumstances. Following vaginal delivery to a woman with active genital HSV infection, the risk of neonatal infection is 50% or greater. The infant should be segregated from other infants and managed with proper isolation techniques (wound and skin precautions) because occasional instances of HSV transmission in nurseries have been reported. In addition, viral cultures, liver function studies, and CSF examination should be obtained, and the infant observed in the hospital for a period of up to two weeks. In contrast, a baby born by cesarean section prior to rupture of the membranes is at minimum risk of developing HSV infection. The infant should also be segregated and observed in the hospital for at least several days and then seen weekly after discharge until approximately 1 month of age. Infants who develop HSV disease should be segregated and preferably managed in a tertiary care facility. Preliminary data suggest that therapy with adenine arabinoside (vidarabine, Vira A) improves the outcome of disseminated and isolated central nervous system HSV disease in newborns. At this time these antiviral drugs have not been approved for systemic use prophylactically in infants who are at high risk of developing infection. Circumcision should be delayed in proven and suspected cases.

Mother

Although separation of the infant from an infected mother would seem to be optimum on theoretical grounds, careful attention to hygienic measures should protect the infant adequately. Breastfeeding is acceptable if there are no herpetic lesions in the area and exposed, active lesions are covered. (A recent study has suggested transmission of HSV via breast milk, but the implications of this isolated case are not clear.) When handling the infant in the hospital, the mother should wear a gown and observe proper hand-washing technique, continuing the latter at home. Rooming-in is acceptable after the mother has been taught protective measures and may be an effective method of segregating the infant if the above precautions are observed. Until all lesions have crusted and dried, the mother and other family members with a cold sore or stomatitis (HSV-1 infection) should be instructed not to kiss or fondle the baby, to cover the lesion if exposed, and to wash their hands using proper technique prior to handling the infant. The mother may remain on the postpartum ward.

Personnel

Nursery and other perinatal personnel who have active HSV infections such as a cold sore should have limited patient contact and must be instructed on proper infection control procedures. Those with hand infections (herpetic whitlow) must wear gloves when handling the infant. Alternatively, some experts recommend that personnel with active HSV infections be removed from the nursery until the lesions have dried.

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THYROID CARCINOMA AFTER RADIOTHERAPY DURING CHILDHOOD

At least 15 years have elapsed since it was common practice in the United States to give radiotherapy for benign disorders in children. In Chicago, a harvest of thyroid neoplasms is now being reaped among young adults whose necks were exposed to radiation during such treatment (Refetoff S, et al: N Engl J Med 292:171, 1975). One hundred persons were examined at their own request because they had been so exposed. They had been irradiated for enlargement of the tonsils and/or adenoids, or the thymus, or for infections of benign tumors of the face and neck. Of the 100, 26 had abnormalities on palpation; of the 15 who were operated upon, 7 had carcinomas and 8 had benign tumors. The patients received their radiotherapy at 56 hospitals or offices. It is estimated that 71,000 children in the Chicago area alone were so treated. (This experience has called attention to the desirability of and the problems in following children into adulthood to determine whether treatment they received causes cancer or other delayed effects.

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