Kidz Medical Services
Congenital Syphilis Policy

Purpose:
To provide the clinicians of Kidz Medical Services with guidelines for the consistent treatment of newborns with congenital syphilis.

Guideline:

I. Definition of Syphilis:
   A. Syphilis is caused by Treponema pallidum which is a thin, motile spirochete, surviving only briefly outside the host.
   B. Early congenital syphilis is when clinical manifestations occur < 2 years of age.
   C. Late congenital syphilis is when clinical manifestations occur ≥ 2 years of age.
   D. In 1990, a new surveillance case definition for congenital syphilis was adopted by the CDC to improve reporting of congenital syphilis- Report all infants born to women with untreated or inadequately treated syphilis at delivery, regardless of neonatal symptoms or findings.

II. Incidence of Congenital Syphilis:
   A. During 2000-2002, the rate of Congenital Syphilis decreased 21.1%, from 14.2 to 11.2 cases per 100,000 live births, and primary and secondary (P&S) syphilis rates among women declined 35.3%, from 1.7 to 1.1 cases per 100,000 women.
   B. Among the 451 cases of Congenital Syphilis reported in 2002, a total of 333 (73.8%) occurred because the mother had no documented treatment or received inadequate treatment of syphilis before or during pregnancy.
   C. Lack of prenatal care and late or limited prenatal care continue to be important factors associated with Congenital Syphilis.

III. Perinatal Transmission:
   A. Treponemas can cross the placenta at any time during pregnancy, infecting the fetus.
   B. Untreated infection in the first and second trimester often causes significant fetal morbidity; with third trimester infection many infants are asymptomatic.
   C. Infection can also be acquired via contact with infectious lesions during vaginal birth.
   D. Virtually all (70-100%) infants born to untreated women with primary or secondary syphilis have congenital infection, 50% clinically symptomatic.
   E. The mortality rate can be as high as 54% in infected infants.
   F. No evidence indicates transmission via breast milk in absence of a breast or nipple lesion.

IV. Clinical Presentation:
   A. Congenital syphilis can result in stillbirth, hydrops fetalis, preterm birth, hepatosplenomegaly, jaundice, osteochondritis, and CNS involvement.
   B. Other findings include lymphadenopathy, pneumonitis, myocarditis, nephrosis, pseudoparalysis, rash (vesicobullous, especially of palms and soles), hemolytic anemia, thrombocytopenia, leukemoid reaction and hemorrhagic rhinitis (snuffles).
   C. Late congenital syphilis manifests by Hutchinson’s teeth, healed retinitis, eighth nerve deafness, saddle nose, frontal bossing, mental retardation, hydrocephalus, and saber shins.
   D. Untreated infants, regardless of whether they have manifestations in early infancy, may develop these late manifestations.
V. Testing for Congenital Syphilis:
   A. Reactive serologic test on the neonate does not necessarily indicate that the neonate is infected because the reaction can be caused by passively transferred maternal antibody.
   B. Serologic testing patients for syphilis are grouped into two types:
      1. Nonspecific, nontreponemal antibody (NTA) tests:
         a. Inexpensive, rapid and convenient screening tests.
         b. Used as initial screenings and quantitatively to follow a patient’s response to treatment and to detect reinfection.
         c. False positives can be due to autoimmune disease, IV drug addiction, pregnancy, and other infections such as hepatitis or mononucleosis.
         d. Two NTA tests are Venereal Disease Research Laboratory (VDRL) slide test and Rapid Plasma Reagin (RPR) test.
         e. A sustained fourfold decrease in titer of the NTA test result after treatment demonstrates adequate treatment; a fourfold increase in titer after treatment suggest reinfection or relapse.
         f. Some patients will continue to have low NTA titers despite effective therapy.
      2. Specific, antitreponemal antibody (STA) tests:
         a. STA tests verify diagnosis of current or past infection and should be performed if NTA tests are positive.
         b. Fluorescent treponemal antibody absorption (FTA-ABS) test- This test may be positive in the newborn secondary to maternal transfer of IgG.
         c. IgM FTA-ABS test- This test measures antibody to the treponeme developed by the baby. It is not as specific as initially thought and may give false positive.
         d. Patients with positive FTA-ABS test results usually remain reactive for life even after successful therapy.
   C. An infant’s test may be reactive or nonreactive depending on the timing of maternal and infant infection thus the emphasis is on maternal screening.
   D. No infant should leave the hospital without syphilis serologic status of the mother.

VI. Evaluation for Congenital Syphilis:
   A. A neonate (regardless of infant’s results) should be evaluated and treated for congenital syphilis if he/she is born to a mother with a positive treponemal test result who has one or more of the following conditions:
      1. Syphilis and HIV infection.
      2. Untreated or inadequately treated syphilis.
      3. Syphilis during pregnancy treated with nonpenicillin regimen and inadequate regimen such as erythromycin.
      4. Syphilis during pregnancy treated with an appropriate penicillin regimen that failed to produce the expected decrease in NTA titer after therapy.
      5. Syphilis treated less than one month before delivery.
      7. Syphilis treated before pregnancy but with insufficient serologic follow up during pregnancy to assess the response to treatment and current infection status.
      8. Maternal titers have increased fourfold.
      9. The infant’s titer fourfold greater than the mother’s titer.
      10. Infant with clinical, laboratory, or radiographic evidence of syphilis.
   B. Physical examination for clinical manifestations.
   C. If maternal RPR positive, perform RPR on infant’s serum, not cord blood. STA test (FTA-ABS) on a newborn’s serum is not recommended by CDC.
D. Perform a CBC with differential and platelet count—monocytosis is typically seen, and look for hemolytic anemia and leukemoid reaction.

E. Lumbar Puncture—CNS disease may be detected by positive VDRL (RPR and FTA not reliable on CSF), elevated monocyte count or elevated protein level.

F. Obtain radiologic studies of long bones; may show sclerotic changes of metaphysis and diaphysis and widespread osteitis and periostitis.

G. Blood culture prior to initiation of PCN on any infant with risk factors for sepsis.

H. Order other tests as clinically indicated: may include chest xray, liver function tests, ultrasonography, ophthalmologic examination, and auditory brainstem response test.

I. Pathologic examination of placenta if available.

VI. Treatment: Infants with proven or probable disease:

A. Proven or highly probable disease includes the following:
   1. Abnormal physical examination that is consistent with congenital syphilis
   2. Serum quantitative NTA titer that is fourfold higher than the mother’s titer, (Absence of a fourfold or greater titer for an infant does not exclude congenital syphilis).
   3. Positive FTA-ABS test of body fluid(s).

B. Probable disease includes the following:
   1. Infants who have a normal physical examination.
   2. Serum quantitative NTA titer the same or less than fourfold the maternal titer.
   3. Mother was not treated, inadequately treated, or has no documentation of having received treatment.
   4. Mother was treated with erythromycin or other nonpenicillin regimen.
   5. Mother received treatment <4 weeks before delivery.

C. Recommended Regimens:
   1. Aqueous crystalline penicillin G 100,000 units/kg/dose administered IV every 12 hours during the first 7 days of life and then every 8 hours.
   2. If VDRL on CSF is negative decrease dose to 50,000 units/kg/dose.
   3. If VDRL on CSF is positive continue dose as 100,000 units/kg/dose and continue treatment for 14 days.
   4. If >1 day of therapy is missed, the entire course should be restarted.
   5. Data are insufficient regarding the use of other antimicrobial agents (e.g., ampicillin). When possible, a full 10-day course of penicillin is preferred, even if ampicillin was initially provided for possible sepsis.

D. Standard universal precautions. Parents and health professionals should wear gloves until antibiotic treatment administered for 24 hours

E. If the mother has no suspicious breast lesions, breast feeding is acceptable after effective therapy for 24 hours for mother and infant. Discard expressed breast milk for 24 hours. Breast feeding is compatible with penicillin.

F. If open skin lesions on breast or nipple, breast feeding is contraindicated.

G. Consultation and follow up with specialist may be needed if infant has systemic involvement: Infectious disease, neurology, orthopedics, ophthalmology and developmental specialist.

H. All cases of congenital syphilis must be reported to local public health officials.

VII. Treatment of Infants with the following:

A. Infants proven to be at minimal risk must have the following:
   1. Normal physical examination.
   2. Serum quantitative NTA titer the same or less than fourfold the maternal titer.
3. Mother was treated during pregnancy, treatment was appropriate for the stage of infection, and treatment was administered >4 weeks before delivery.
4. Mother has no evidence of reinfection or relapse.
5. Mother’s treatment was adequate before pregnancy and mother’s nontreponemal serologic titer remained low and stable before and during pregnancy and at delivery (VDRL <1:2; RPR <1:4).

B. No evaluation is required.
C. Follow up observation by pediatrician.

VIII. Treatment of infant with mother of positive NTA test (RPR or VDRL) but negative STA test (FTA):

A. If maternal NTA test low positive (and infants may be too) but STA test is negative, she does not have syphilis and infant does not need treatment.
B. No evaluation is required.
C. Follow up observation by pediatrician.

IX. Follow up with pediatrician:

A. Treated infants should have follow up evaluations at 1, 2, 4, 6 and 12 months.
B. Serologic NTA tests should be done at 2, 4, 6, and 12 months until results become nonreactive or the titer decreased fourfold.
C. NTA tests should decrease by 3 months of age and should be nonreactive by 6 months of age if the infant was infected and treated or was not infected and initially seropositive because of transplacentally acquired maternal antibodies.
D. Patients with increasing titers or persistent stable titers 6 to 12 months after treatment should be evaluated including CSF examination and treated with 10 day course of parenteral PCN G.
E. Treated infants with congenital neurosyphilis and initially positive VDRL of CSF or abnormal CSF cell counts and/or protein concentrations should undergo repeated clinical evaluations and CSF examinations at 6 month intervals until CSF is normal. Reactive CSF VDRL at 6 month interval is indication for retreatment.
References:


