Section 11: Pediatric Tuberculosis

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Introduction

Pediatric tuberculosis is defined by the World Health Organization (WHO) as TB in persons less than 15 years of age. The diagnosis of TB is often based on a clinical case definition, which usually relies on a positive TST or IGRA, either an abnormal chest x-ray and/or physical examination and the discovery of a link to a known or suspected case of infectious TB.

Key Messages

- Active TB or latent TB infection in children is a sentinel event usually indicating recent transmission that should prompt a search for the source case.
- TB diagnosis in children, especially those under 5 years of age, can be difficult because they often have nonspecific signs and symptoms and a small number of mycobacteria.
- In children under the age of five there is a high risk of progression from infection to severe forms of TB.

Continuum of TB in Children

Exposure:

- Contact with an infected individual, usually an adult.
- Tubercle bacilli are inhaled and invade the body in the same way as adults**.**

Primary Infection:

- The child is usually asymptomatic and has a positive TST. The chest X-ray may be normal.
- There is enlargement of the lymph nodes and some coughing may occur.

Progressive TB Disease:

- Six to 18 months after primary infection, TB may progress and spread throughout the lungs or to other organs. This occurs in 40-50% of infants.

- 25-35% of children develop extrapulmonary TB, making it more difficult to identify. Some examples are lymphadenopathy, dissemination to abdominal organs and osteomyelitis.

- If left untreated, children have a higher likelihood of developing severe forms of TB such as miliary TB, TB meningitis and disseminated TB.

- Children (age 12 and under) with TB are **RARELY** infectious because they have a relatively ineffective cough and few bacteria in their sputum.

    - **Clinical Findings:**

        - Positive TST.

        - Abnormal chest X-ray: hilar and paratracheal lymphadenopathy, segmental hyperinflation, atelectasis of the contiguous parenchyma, linear, interstitial and nodular densities, and pleural effusion. Cavitation is rare in young children but may occur in adolescents.

        - Signs and symptoms: fever, weight loss, fatigue, loss of appetite, cough, and failure to thrive.

Reactivation TB:

- Tubercle bacilli may lie dormant after primary infection has resolved but reactivate if conditions that lower immunity occur.

- Most prominent symptoms include persistent fever, night sweats, fatigue and weight loss.

- If left undiagnosed, may progress to lung cavitation, coughing, and hemoptysis.

All children less than 12 years old must have anterior/posterior AND lateral chest X-ray done.

Treatment

Young children can develop very dangerous forms of active TB (e.g. TB meningitis) within weeks of exposure to infectious TB. Careful and frequent monitoring for TB signs/symptoms is especially important when WPP is indicated but declined or is started and then discontinued prematurely. If treatment is prescribed it is important to recognize that isoniazid and rifampin can be supplied in suspension form. The volume of medication in suspension form may be quite large given the bi-weekly schedule. Consult with the TB physician or the CDCN with regards to dividing the dosage up over the days.

See **Section 7: Care of Clients with Active TB Infection** for more information on treatment of active TB in children.

See **Section 8: Care of Clients with Latent TB Infection (LTBI)** for more information on treatment of LTBI in children.

See **Section 12: Contact Investigation, Window Period Prophylaxis (WPP) and Source Case Investigation** for information on Window Period Prophylaxis.

Refer to Chapter 9: Canadian Tuberculosis Standards 7th edition for recommended management of perinatal clients and neonates.

Perinatal Issues

Management should proceed according to the following principles:

- Untreated TB presents a far greater hazard to a pregnant woman and her fetus than does the treatment of the disease.
- Administration of first line TB drugs is not an indication for termination of pregnancy.
- If second line drugs are used, advice from a TB expert should be sought.

- HIV-negative women receiving first line agents, including INH and rifampin, may continue to breastfeed.

The evaluation of an infant for congenital TB should include:

- Clinical examination
- TST
- Chest radiography
- Appropriate cultures, including lumbar puncture
- Abdominal ultrasound