Pediatric Tuberculosis

What is pediatric tuberculosis?

Tuberculosis (TB) is a chronic infection caused by bacteria. The most common organ of involvement is the lung, however any other organ may be involved like kidneys, spine, brain, liver, spinal cord lymph nodes etc.

How does it spread?

Pulmonary tuberculosis is contagious and spreads through air borne droplets. A child can have TB infection and not have an active disease.

What are the different stages of TB?

Various stages of Tb are:

- ✓ **Exposed**

  When a child has been exposed to an infected patient, but is asymptomatic, Mantoux test is negative and has a normal chest X-ray.

- ✓ **Latent TB infection.**

  The child after exposure has the TB bacteria in his / her body**,** but is asymptomatic. Mantoux test is positive but chest x ray is normal.

- ✓ **TB disease.**

  The child has signs and symptoms of an active infection in the lungs or another site. They can be contagious and spread the disease in case of pulmonary TB if not treated.

How is pediatric tuberculosis different from adult tuberculosis?

- Quite Pediatric tuberculosis (TB) is different in following ways:
- The diagnosis of TB is difficult as they may be completely asymptomatic or have non-specific symptoms
- Confirming the microbiological diagnosis is difficult
- Very often extrapulmonary and disseminated TB is present
- Treatment in children is challenging

- Fortunately, children tolerate the treatment well

What are the symptoms of TB?

Symptoms can vary as per the site of involvement and the age of the child. The most common symptoms in a younger child are:

- Fever which is low grade and has an evening rise of temperature
- Cough with or without expectoration
- Weight loss and loss of appetite
- Enlarged glands in the neck
- Blood in sputum or hemoptysis

The most common symptoms in an older children are:

- Low grade fever with evening rise of temperature
- Persistent cough lasting more than 3 weeks
- Chest pain
- Blood in sputum
- Weakness
- Lethargy
- Sweating at night
- Enlarged glands in the neck
- Weight loss
- Loss of appetite

Diagnosis of pulmonary TB

- Chest x ray – It will usually be diagnostic by involvement of the lung tissue or by involvement of the lymph nodes
- Sputum analysis for TB bacteria – This is possible in older children who can expectorate. Nowadays GeneXpert or CBNAAT is done which are PCR based tests and give an accurate diagnosis quickly.
- Induced sputum – in cases of newborns and younger children when sputum cannot be expectorated, induced sputum is collected
- Gastric aspirates – Early morning collection of secretions from stomach are collected and analysed. Sputum which is swallowed into the stomach is the one which is actually collected by passing a thin tube into the stomach.

- Mantoux test – This is a hypersensitivity reaction to the tuberculin antigen injected subcutaneously with a standardized dose. Reading is taken after 72 hours. If wheal produced is more than 10mm in horizontal length, it is considered to be positive.
- Computerized tomography (CT) chest may be done in some cases
- Flexible bronchoscopy is done when the diagnosis is uncertain. Visualization of the airways is done for any caseating focus and bronchoalveolar lavage is collected for analysis.

How is lymph node TB diagnosed?

Lymph node aspiration is done and the sample is sent for examination

How is abdominal TB diagnosed?

This is done by doing an ultrasound of the abdomen to see enlarged lymph nodes. CT abdomen may sometimes be required.

What is the treatment?

The usual treatment is a combination of 4 drugs – isoniazid, rifampicin, ethambutol, and pyrazinamide. Duration depends on the site of involvement. Sometimes steroids may have to be given in addition. If the child has resistant TB, second line drugs are used.