

Pregnancy and Tuberculosis

Information for Clinicians



When to suspect Tuberculosis (TB)?

Who is at risk of TB during pregnancy?

Recent research suggests that new mothers are at an increased risk of TB - including when they are pregnant.

However, the absolute risk of TB in pregnancy is related to whether the mother is likely to have been exposed to TB and become infected with it. Women who have lived in parts of the world where TB is endemic, those who have been in close contact with a case of active disease; or who are immunosuppressed with, for example, HIV infection or by drug treatments are at particular risk.

What are the symptoms of TB during pregnancy?

Symptoms of active TB in pregnant women can be non-specific and may mimic the physiologic changes that occur during pregnancy, for example increased respiratory rate, loss of appetite and fatigue. Pulmonary TB is common. This presents with symptoms similar to those in non-pregnant women such as cough, fever and weight loss. However TB can affect any organ and extra pulmonary disease such as lymph node swelling is also frequently seen.

Outcome

How does pregnancy affect TB?

Pregnancy has no adverse impact on TB provided there is no delay in diagnosis, but the risk of late diagnosis is elevated because pregnancy can mask symptoms. If anti-tuberculosis treatment is started early in pregnancy, the outcome is the same as for non-pregnant women.

How does maternal TB affect the foetus and neonate?

The chance of the baby getting infected with TB whilst in the womb is very small. Good outcomes for the baby can be achieved with early diagnosis and appropriate treatment. Substantial increased neonatal morbidity and mortality has been reported as a result of late diagnosis and treatment, and prematurity, growth retardation and low birth weight are seen, particularly in women with pulmonary disease. A mother with untreated pulmonary TB can infect their newborn baby.

How does maternal TB affect the mother?

Maternal outcome depends on the site of TB and the timing of the diagnosis in relation to delivery. Late diagnosis is associated with increased morbidity in pulmonary and extra-pulmonary TB. Increased obstetric morbidity and preterm labour are well documented complications.

Diagnosis

What tests should be performed in pregnant women suspected of TB?

Sputum microscopic examination and culture should be performed when a mother has respiratory symptoms suggestive of pulmonary TB. Women suspected of extra-pulmonary TB should be investigated in consultation with the local TB specialists.

Depending on the initial investigation (e.g. symptoms suggestive of TB or a positive tuberculin and interferon- gamma tests - IGRA), a plain chest radiograph with abdominal shielding should be carried out. Active TB should be excluded and a radiograph can be performed if indicated and delivers a very small dose of radiation to the foetus.

Is assessment for TB recommended in all pregnant women?

Any mother suspected of active TB or those at high risk of TB should be thoroughly assessed in a standard manner, being aware of the possibility of non-specific TB presentations.

Apart from those women who have symptoms that suggest active TB, investigation should be considered for pregnant women who: (a) have had recent exposure to tuberculosis such as household or occupational close or social contact; or (b) are HIV positive.

Recommended tests include assessment of BCG status followed by tuberculin testing and/or other TB-specific immune-based (interferon-gamma) blood tests and chest radiography where necessary. Further advice can be obtained from your local TB service.

If the skin test is negative should the mother be given BCG?

BCG is a live vaccine and is contraindicated in pregnancy. BCG is only provided to adults in specific risk groups (see Green Book) and in such circumstances BCG vaccination could be given after pregnancy, provided the women has not been infected in the meantime (e.g. a further test with a repeat negative tuberculin test may be required).

Treatment

Why is tuberculosis treatment important during pregnancy?

Taking tuberculosis treatment will cure TB and prevent its spread to others including children in the home or a new born child. Untreated TB represents a far greater hazard to a pregnant women and her foetus than does the medication to treat her disease.

Can TB drugs be safely used during pregnancy? What is the recommended treatment for tuberculosis?

The treatment for pregnant women is the same as for non-pregnant women and is usually organised by the TB team. The recommended standard treatment is a combination of four drugs: Isoniazid, Rifampicin, Pyrazinamide and Ethambutol; and is typically for a total time of 6 months. In most cases after 2 months the patient will have their treatment reduced to Rifampicin and Isoniazid for a further 4 months. This treatment regimen is perfectly safe in pregnancy for the mother and the baby. Although anti-TB drugs can cross the placenta and reach the baby, no adverse effects of these drugs on the foetus have been shown. Streptomycin should be avoided in pregnancy because it can damage the fetal VIII cranial nerve (responsible for hearing and balance).

What is tuberculin testing? Is it harmful for the mother or baby?

Tuberculin skin testing (TST) uses purified protein derivative of *M. tuberculosis* (PPD). If the immune system of the patient has encountered mycobacteria (usually TB) in the past, it will typically react to an injection of PPD into the skin. This is represented by the injection site becoming red and swollen within 1-2 days of administration. The standard skin test used now is the Mantoux test. As PPD is not an infectious agent there is no risk of infection transmission to the mother or baby. Pregnancy does not alter the results or interpretation of tuberculin testing.

Tuberculin testing is less specific than interferon- gamma blood tests for TB infection. However the latter (which measure the production of interferon-gamma from cells that respond specifically to mycobacterial antigens) have only been introduced recently. Current guidance is to

use the better-understood Tuberculin test (Mantoux) before proceeding to the blood test if required.

If the mother's tuberculin skin test and/or interferon blood test are positive but there are no symptoms what should be done?

Pregnant women with latent TB infection (i.e. those without symptoms and normal CXR but with positive PPD skin test or interferon blood test) should be treated with TB preventive therapy if they are HIV positive, or are at high risk of having acquired the TB infection recently (e.g. contacts of known TB cases). This treatment is usually 6 months of single isoniazid or 3 months of isoniazid plus rifampicin. Supplemental Pyridoxine (vitamin B6) should be considered. Isoniazid and rifampicin are generally safe for the baby and the mother. Very rarely these drugs can affect the liver; this is more common in the third trimester.

Is breastfeeding ok if the mother is being treated for tuberculosis?

Breastfeeding should always be encouraged for women being treated with first-line anti-tuberculosis drugs because the concentrations of these drugs in breast milk are too small to produce toxicity in the nursing newborn. Although drugs in breast milk are not an effective treatment for TB disease in a nursing infant, breastfeeding of a mother on TB treatment could have some protective effect to the neonate. Breastfeeding women taking Isoniazid should also take pyridoxine (vitamin B6) supplementation (10-25 mg per day). The child cannot be infected by the mother via breastmilk, unless she has tuberculous mastitis.

Mother and new born

Is the mother an infectious risk to the new-born baby?

Only patients with tuberculosis of the airways are potentially infectious. The presence of visible organisms in the sputum sample when viewed under the microscope (sputum smear positivity) suggests a greater infection risk. Patients with pulmonary TB are usually non-infectious after two weeks of treatment if this includes rifampicin and isoniazid.

Do new born infants need to be separated from their mother if the mother has TB?

This is a rare situation and only occurs when, after careful risk assessment, there is felt to be a significant risk of transmission to the newborn which cannot be otherwise managed. It is only likely to be an issue for mothers with resistant types of TB or those diagnosed very close to the date of delivery.

What happens if the mother has had less than 2 weeks of treatment following confirmation of tuberculosis?

Infants who have been exposed to a mother with infectious TB (sputum smear positive) should be treated prophylactically with isoniazid (5mg/kg) and pyridoxine (5-10 mg daily) for three months, once active TB is ruled out. A tuberculin test should be also performed at 3 months. If this is positive, the child should be assessed for active TB. If active TB has been ruled out, isoniazid should be continued for 6 months. Contact tracing among the rest of the family and other close contacts must also be performed. This is to ensure that others are not infected with TB.

If the month 3 tuberculin test is negative and a subsequent tuberculin and IGRA test are also negative, isoniazid can be stopped and BCG should be provided.

Is BCG vaccination effective in young infants?

BCG is effective at preventing severe disease in infants and young children. In the UK it is estimated to be between 70 – 80% effective at reducing the chance of a child developing severe TB disease (e.g. miliary or meningeal TB, as well as pulmonary TB).

For more information please go to the following websites:

HPA website :

www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Tuberculosis/

National Knowledge Service – TB Pilot:

www.hpa.org.uk/Topics/InfectiousDiseases/InfectionsAZ/Tuberculosis/NationalKnowledgeServiceTB/ResourcesDevelopedByNKSTB/

UK Obstetric Surveillance System (UKOSS):

[www.npeu.ox.ac.uk/UKOSS/index.php?content=TBiP.inc&mx='sub_](http://www.npeu.ox.ac.uk/UKOSS/index.php?content=TBiP.inc&mx='sub_menu)
[menu](http://www.npeu.ox.ac.uk/UKOSS/index.php?content=TBiP.inc&mx='sub_menu)

Royal College of Obstetricians and Gynecologists

www.rcog.org.uk/news/rcogrcm-joint-press-release-midwifery-treasures-and-library-get-new-home

Tuberculosis – NICE Guidance

<http://guidance.nice.org.uk/CG117>

Immunisation against infectious disease - 'The Green Book' - 2006 updated edition, Department of Health

www.dh.gov.uk/prod_consum_dh/groups/dh_digitalassets/@dh/@en/documents/digitalasset/dh_134734.pdf

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