

A Review Paper on Tuberculosis in Pregnancy

Abhishek Bhardwaj¹, Prempati Mayanglambam², Abhishek Gaur³,
S P Subhashini⁴

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ABSTRACT

WHO declared tuberculosis (TB) a public health emergency in 2005. It is one of the top three causes of death among 15-45-year-old women in high-burden areas and contributes significantly to maternal mortality. Although an exact incidence of tuberculosis in pregnancy is not readily available, it is expected to be as high as in the general population. It can be challenging to diagnose tuberculosis in pregnancy, because the symptoms may initially be attributed to pregnancy, and normal weight gain in pregnancy may temporarily mask any associated weight loss. Some of the obstetric complications of TB include spontaneous abortion, small for date uteri, preterm labor, low birth weight, and increased neonatal mortality. Even though congenital TB is rare, it is associated with high perinatal mortality. Rifampicin, INH, and Ethambutol are the first-line drugs, while Pyrazinamide use during pregnancy is on the rise. WHO has developed an isoniazid preventive therapy that reduces the risk of HIV infection in pregnant women who are HIV positive.

This mother's babies will receive INH prophylaxis for six months, after which they will receive the BCG vaccine if they test negative. Improvements in living conditions, public education, HIV prevention, and BCG vaccination are necessary for TB control. Women experience two different types of stress during pregnancy and tuberculosis. Their simultaneous presence causes them to experience both physical and mental stress. Genital tuberculosis presents a diagnostic challenge to the physician, and managing the underlying condition in a pregnant woman requires great care. A strategy is required for the management of such cases within the context of the Revised National Tuberculosis Program and the adoption of the directly observed treatment short course (DOTS).

Keywords: Abortion; Pre term labour; Obstetric; Low birth weight; Mortality; Pregnancy; Primary prevention.

Author Affiliation: ¹B.Sc 4th Year Nursing Student, ²Associate Professor, ⁴Dean, Department of Obstetrics and Gynecological Nursing, Galgotias School of Nursing, Galgotias University, Greater Noida 201307, Uttar Pradesh, India.

Corresponding Author: Prempati Mayanglambam, Associate Professor, Department of Obstetrics and Gynecological Nursing, Galgotias School of Nursing, Galgotias University, Greater Noida 201307, Uttar Pradesh, India.

E-mail: aquariuspati@gmail.com

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INTRODUCTION

Tuberculosis continues to be a major health issue in a country like India with a large population. Tuberculosis and pregnancy are two different types of stressed experienced by women. Their simultaneous presence effects them both physically and mentally. Genital TB provides a diagnostic challenge to the concerned clinician, and managing the underlying condition in a pregnant woman necessitates particular caution. In the context of the Revised National Tuberculosis Program and the

adoption of the directly observed treatment—short course (DOTS), such cases require a strategy.

During the childbearing years of 15 (post-puberty) to 49, women have the highest risk of contracting tuberculosis (TB) (up to menopause). The risks of developing this condition are even increased during pregnancy, when the immune system is more sensitive to infections. If left untreated, tuberculosis in pregnancy might have catastrophic effects. Tuberculosis management in pregnancy remains a difficulty for even the most experienced clinicians, since the changing circumstances provide several hurdles for accurate diagnosis and treatment.

Mycobacterium Tuberculosis infects one-third of the world's population and around half of all adults in India. Tuberculosis kills two people every three minutes in India, resulting in about 1000 deaths every day. More women of reproductive age are killed by this disease than by all other causes of maternal mortality combined.

MICROBIOLOGY OF TUBERCULOSIS

Mycobacterium tuberculosis is one of five members of the Mycobacterium TB complex, the others being Mycobacterium bovis, Mycobacterium ulcerans, Mycobacterium Africanum, and Mycobacterium microti, albeit M. tuberculosis is the most common human pathogen. It is a member of the Mycobacteriaceae family. Other Mycobacterium species that may infect humans include Mycobacterium leprae, M. avium, M. Intracellulare, and M. scrofulaceum.

INCIDENCE OF TB IN PREGNANCY

In 2018, the global yearly incidence was projected to be 8.6 million. There haven't been many studies in this area. It was discovered to be 1% in one study conducted in several ethnic groups in London. In India, 2.3 million cases of tuberculosis were estimated to have occurred. (India is responsible for 30% of all tuberculosis cases worldwide.) Eighty percent of the patients are between the ages of 15 and 54, when they are most economically productive.

RISK OF TUBERCULOSIS IN PREGNANCY

Tuberculosis (TB) in pregnancy provides a significant risk of morbidity for both the pregnant woman and the foetus if it is not detected and treated promptly. It's critical to assess the

risk of Mycobacterium tuberculosis infection before deciding whether or not further testing is necessary. Obstetrician-gynecologists are in a unique position to detect infection and permit additional assessment and follow-up, if necessary. A TB evaluation includes a risk assessment, medical history, physical examination, and symptom screen; if the TB evaluation suggests it, a TB test should be performed. Active TB disease must be ruled out before birth if a pregnant woman has signs or symptoms of TB or if a TB infection test result is positive.

SYMPTOMS OF TB IN PREGNANCY

Tuberculosis symptoms in pregnant women are often non-specific. Cough that lasts for more than a few weeks is a sign of active tuberculosis and should be investigated further.

Fever that does not go away (a high temperature)

- Excessive nocturnal sweating
- Anorexia nervosa
- Unprecedented weight loss

A general and peculiar feeling of exhaustion and malaise Consistent swellings in the glands of the neck (or sometimes other glands).

CONSEQUENCES OF TB IN PREGNANCY

If a mother is infectious, she can infect her newborn; this is frequently the case if she has a cough and is not receiving treatment. If the mother has active tuberculosis, the baby is quite unlikely to be born with it. Breastfeeding is advised, and TB medications have no negative effects on the newborn. There is no increase in maternal or neonatal problems in pregnant women with pulmonary tuberculosis who get timely and effective TB treatment. Therefore it is important to:

- Prevent TB in pregnancy
- Diagnose and treat TB in pregnancy

Mother & new born A neonate having congenital TB may present with respiratory distress, fever, poor feeding, lethargy, irritability, abdominal distention, lymphadenopathy and hepato-splenomegaly A fetus can get TB infection either by haematogenous spread through umbilical vein to fetal liver or by ingestion or aspiration of infected amniotic fluid. True congenital TB is believed to be rare. The risk to neonate of getting TB infection shortly after the birth is greater.

EFFECTS OF TB ON MOTHER AND BABY

- Low birth weight.
- Prematurity.
- Congenital Tuberculosis.
- Increased neonatal and maternal mortality.
- Increased pregnancy complications.
- Miscarriage.
- PPH.
- Pre-eclampsia.

Diagnosis

- A pregnant woman with a two-week cough, with or without other symptoms, is suspected of having tuberculosis.
- **Cough of any length:** If she is a family member of a sputum smear positive case.
- If she has haemoptysis.
- If she has extrapulmonary tuberculosis, whether suspected or confirmed.
- If she is also HIV-positive.
- Depending on the site involved, histopathology or FNAC is used to diagnose extrapulmonary tuberculosis.
- Loss of weight or no weight gain corresponding to gestational age is also a symptom for Tuberculosis screening in pregnancy.

First Line Treatment

This guideline supports the use of standard first-line drug regimens in pregnant women with tuberculosis. Although isoniazid, rifampicin, pyrazinamide, and ethambutol are not contraindicated in pregnancy, treatment during pregnancy necessitates close clinical monitoring, including at least monthly liver function tests due to the increased risk of hepatotoxicity.

Treatment

- ATT should be initiated as soon as possible because untreated disease poses a risk to the mother and foetus.
- Except for the withholding of Streptomycin, the same regimens are recommended for use in pregnancy as for non-pregnant women.
- Concerns about the use of Pyrazinamide during pregnancy have since been dispelled.

- Currently, an intermittent regimen (thrice weekly on alternate days) under the RNTCP's DOTS strategy is being used more widely in the world for pregnant women with tuberculosis.

Multi Drug Resistant Tuberculosis in Pregnancy

Pregnant women with MDR-TB have a poor prognosis. They may occasionally require second-line treatment with cycloserine, ofloxacin, amikacin, kanamycin, capreomycin, and ethionamide. Unfortunately, the safety of these drugs in pregnancy is not well established. In the past, para-amino salicylic acid was used in pregnancy as a combination therapy with INH with no significant teratogenic side effects, though maternal gastrointestinal side effects may be severe. In animal studies involving rats and rabbits, ethionamide has been linked to growth retardation, central nervous system dysfunction, and skeletal abnormalities. Human studies have also revealed an increase in central nervous system defects as a result of its use during early pregnancy. As a result, its use during pregnancy is not advised. Therapeutic abortion has been proposed as a treatment option for these women, as MDR-TB poses a greater risk to the woman and society as a whole. Another option is to postpone treatment until the second trimester if possible. Individualised Treatment Regimen (ITR) based on susceptibility profile had been tried in some pregnant women with no adverse obstetric outcome.

The prognosis for those patients is expected to improve as experience and knowledge in managing the condition grow.

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