

Contemporary OB/GYN

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IMPORTANCE OF SCREENING FOR Tuberculosis Infection in the Ob/Gyn Community



Importance of Screening for Tuberculosis Infection in the OB/GYN Community

Tuberculosis (TB) is a major worldwide health problem, with approximately 10 million cases reported by the World Health Organization in 2019. TB is one of the top 10 causes of mortality worldwide and the leading cause of death from a single infectious agent.¹

Although TB is a far less common disease in the United States compared to many other parts of the world (only 8000 reported U.S. cases in 2018), it can be particularly dangerous for pregnant women. TB is one of the leading causes of nonobstetric death worldwide in reproductive-age women. In women with active TB who are pregnant, there is a much higher risk of morbidity and mortality for both mother and baby.² There have been case reports of vertical transmission, by which the infection jumps from mother to fetus.³

TB most often affects the pulmonary system, but some women can develop pelvic tuberculosis, which can lead to dysmenorrhea, dyspareunia, infertility, and a variety of other conditions.⁴



test is administered through an intradermal injection into the volar surface of the forearm to produce a transient wheal. Results need to be interpreted 48 to 72 hours after the injection. Depending on a patient's baseline history and TB risk, a response of 5 mm or more is considered positive. Requiring patients to schedule two visits—the first for the injection and the second to assess any reaction—is one of the significant downsides to the TST.⁵

? Who should be screened?

Because of the low incidence of TB in the United States, community-based screening is not currently indicated. Several high-risk groups commonly seen in ob/gyn practices, however, should receive a TB screen.

The Centers for Disease Control and Prevention (CDC) has broken down TB risk into two primary categories: those who are at higher risk of initial TB infection and those who are at higher risk of transitioning from latent TB to active disease. A summary of these groups is included in Table 1.⁵ Patients who fall within either of these groups are typically recommended to receive TB testing if they have not recently been screened.

For the ob/gyn community, it is particularly important to be mindful of the risk of TB among women who are positive for human immunodeficiency virus (HIV). Regardless of whether or not they have active disease, AIDS, or are symptomatic, they should be screened for TB. It's especially imperative to test any women with a CD4 count < 200 cells/ μ L.^{6,7}

The number of high-risk patients in any individual ob/gyn practice will obviously vary, but roughly 2% to 10% of women in most practices will fall into this category.

Identifying women who are at high risk of acquiring or transitioning to active TB is fairly straightforward, requiring only a few simple questions at each visit (Are you HIV positive? Have you recently been exposed to anyone with TB? Have you ever been vaccinated for TB?) Women who respond yes to one or more of these and related questions, even if they have no apparent symptoms, should be educated about the importance of discovering the presence of latent TB. Many women with TB are unaware of the infection until it becomes an active, more serious condition, although generally it is easily treatable in latent stages.

It is unquestionably important to have a discussion about TB risk before or during pregnancy due to the possibility of maternal and fetal mortality and morbidity. These simple questions, however, can also be built into a discussion of social history any time a woman sees her ob/gyn.

↗ What are the screening options?

Two primary methods are available to screen patients for TB. Previously, the primary screening method had been the Mantoux tuberculin skin test (TST) with purified protein derivative. This

TABLE 1 High-risk TB subsets⁴

High-risk groups for acquiring TB infection	High-risk groups for transitioning from latent to active TB
<ul style="list-style-type: none"> • People who have spent time with someone who has TB • People who have recently immigrated from a country where TB is common • People who live or work in high-risk settings (i.e., correctional facilities, long-term care facilities or nursing homes, and homeless shelters) • Healthcare workers who care for patients at increased risk for TB • Infants, children, and adolescents exposed to adults who are at increased risk for latent TB infection or disease 	<ul style="list-style-type: none"> • People with HIV infection • People who became infected with TB in the last 2 years • Babies and young children • People who inject illegal drugs • People who are sick with other diseases that weaken the immune system • Elderly people • People who were not treated correctly for TB in the past

Abbreviations: HIV, human immunodeficiency virus; TB, tuberculosis.

Sensitivity of the TST is high, typically hovering between 95% and 98% among “clinical well” persons with previously treated TB, although false-negative results are higher among young children, patients with HIV, and other groups. Another drawback of the TST is that it is largely inaccurate in patients who have received the Bacillus Calmette-Guérin (BCG) vaccination, which is administered in most countries around the world, with the exception of the United States.⁵

Because of these factors, the introduction of interferon-gamma release assay (IGRA) testing has been embraced by many as a more efficient and accurate TB screening option. IGRA testing involves a one-time blood draw that can be performed either in the hospital or at a local lab. These assays primarily reflect a CD4 immune response to antigens that are specific to the *Mycobacterium tuberculosis* (MTB) infection.⁵

Currently, two commercially available IGRA tests have been approved by the U.S. Food and Drug Administration: the QuantiFERON®-TB Gold Plus and T-SPOT®.TB tests. These tests both measure interferon-gamma release in response to MTB-specific antigens. Unlike the TST, IGRA tests are evaluated in the clinical laboratory. Test results will either come back positive, negative, or indeterminate and are typically available within a week and often sooner. In patients with an indeterminate result, a follow-up TST or second IGRA test is usually warranted.

In almost all cases, the CDC recommends IGRA testing instead of TST in patients who are age 5 years or older, although guidelines note that a TST is an acceptable alternative, especially in situations in which an IGRA is not available or is too costly or burdensome. Due to the difficulty of obtaining a blood draw in young children, TST is recommended over IGRA testing in children younger than age 5 years (the American Academy of Pediatrics suggests IGRA testing as an option starting at age 2).^{5,8} Advantages of IGRA testing include the need for only a single patient visit (results can be communicated via email or over the phone, with follow-up for any positive or indeterminate result), interpretation of results in an objective fashion, and the viability of the test in individuals who have received BCG vaccination.

In case of a positive result

Here is perhaps the most common scenario for the practicing ob/gyn: An asymptomatic, nonpregnant woman comes in for a routine visit and it is determined that, for whatever reason, she should be screened for TB. The test comes back positive. She then undergoes a chest X-ray, which shows suspicious lesions, confirming the diagnosis.

The CDC updated their TB treatment guidelines in February 2020, offering three preferred and two alternate regimens for the treatment of latent TB that is presumed to be susceptible to isoniazid or rifampin (Table 2). These regimens include use of isoniazid and rifampin individually, as well as in combination, for a duration of 3 to 9 months. Because approximately 5% to 10% of patients with latent TB will transition to the active form of the disease during their lifetime, providers should stress the importance of treatment that can prevent this progression.⁹

TABLE 2 Recommended regimens for the treatment of latent TB⁷

Preferred regimens	Target population
<ul style="list-style-type: none"> • Three months of weekly isoniazid plus rifapentine 	<ul style="list-style-type: none"> • Adults and children aged > 2 years, including HIV-positive persons as drug interactions allow
<ul style="list-style-type: none"> • Four months of daily rifapentine 	<ul style="list-style-type: none"> • HIV-negative adults and children of all ages
<ul style="list-style-type: none"> • Three months of daily isoniazid plus rifampin 	<ul style="list-style-type: none"> • Adults and children of all ages, including HIV-positive persons as drug interactions allow
Alternative regimens	
<ul style="list-style-type: none"> • Six months of daily isoniazid 	<ul style="list-style-type: none"> • HIV-negative adults and children of all ages; conditionally recommended for HIV-positive adults and children of all ages
<ul style="list-style-type: none"> • Nine months of daily isoniazid 	<ul style="list-style-type: none"> • Conditionally recommended for adults and children of all ages, both HIV negative and HIV positive

Abbreviations: HIV, human immunodeficiency virus; TB, tuberculosis.

In women who are pregnant, isoniazid daily or twice weekly for a duration of 9 months with pyridoxine (vitamin B6) supplementation is considered a safe and effective regimen. These agents are believed to cross the placental barriers but do not appear to have harmful effects on the fetus, and any risks are outweighed by the benefits of treatment. Women being treated with first-line antituberculosis drugs can still breastfeed, because the concentrations of these drugs in breast milk are too small to produce toxicity in the nursing newborn.²

The treatment of active TB, of course, is much more involved for any patient and typically involves a multi-drug regimen administered for 6 to 9 months. Except in rare cases in which the ob/gyn has experience and deep knowledge of the treatment of active TB, a referral to an infectious disease specialist is the most prudent course of action.

Conclusion

Although uncommon in the United States, TB should be an important consideration for ob/gyns, especially when dealing with patients who fall within the category of high risk. Because of its high rate of morbidity and mortality when progressing to active disease, screening and appropriate treatment of any woman who tests positive for the infection is paramount.

The performance of the USA format of the QFT-Plus test has not been extensively evaluated with specimens from pregnant women.

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