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Letter

Active tuberculosis in a psoriasis patient treated with tumor necrosis factor inhibitors despite an initial negative tuberculin skin test and no known risk factors

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Abstract

Tumor necrosis factor (TNF) inhibitors are becoming more common in the treatment of moderate-to-severe chronic plaque psoriasis. These medications have a low incidence of serious adverse events and are generally considered safe; however, they do make patients more susceptible to tuberculosis (TB) infection both through latent reactivation and primary infection. We describe a case of a patient who had an initial negative tuberculin skin test (TST), began TNF inhibitor therapy, and then 11 years later was diagnosed with active TB. After the initial screening, the patient did not have any subsequent screenings for TB and no apparent change to his TB risk status. TB is still common in many areas of the United States and travel is not necessary to be exposed. Patients on TNF inhibitors that develop active TB have increased morbidity and mortality than those who are not. It is necessary that dermatologists limit the risk of TB to patients by screening them before initiation and annually when they are on the TNF inhibitor.

Keywords: Tuberculosis, psoriasis, tumor necrosis factor inhibitor, tuberculin skin test, risk factors, interferon-gamma release assay

Case synopsis

A 49-year old man with psoriasis was treated by an outside dermatologist with etanercept for eight years and switched to adalimumab for three years when he presented to the emergency department with fever, body aches, and non-productive cough for six days. He had no recent travel and no known tuberculosis (TB) exposure. A chest radiograph was suspicious for a focal pneumonia, for which he was treated with azithromycin 500 mg orally for six days. He returned to the emergency department two

months later with fevers, drenching night sweats, chills, weight loss, fatigue and a non-productive cough. Chest radiography and a T-cell interferon-gamma release assay (IGRA) confirmed the diagnosis of active pulmonary TB. Further work-up revealed he had extra-pulmonary TB in the form of terminal ileitis. After beginning antibiotic therapy for TB, he presented to us for the first time for treatment of psoriasis. It was confirmed that he had stopped using his adalimumab or any other tumor necrosis factor (TNF) inhibitor one month prior and alternative topical therapy was initiated. In review of his case, we discovered that in preparation of etanercept therapy 11 years prior, the outside dermatologist obtained a tuberculin skin test (TST) which was negative; however, no further TB testing was conducted over the course of his treatment with etanercept or adalimumab. He had no factors that put him at increased risk for TB exposure.

Discussion

TNF-α is involved in the pathogenesis of psoriasis. Inhibiting TNF-α with medications, like etanercept and adalimumab, has proven to be effective in the treatment of moderate-to-severe plaque psoriasis. However, TNF-α is also responsible for the mechanisms that the immune system employs to keep TB in a latent state. The National Psoriasis Foundation (NPF) released a consensus statement that recommends dermatologists screen for TB before initiation of therapy with any TNF inhibiting medication and at yearly intervals; however, some dermatologist still neglect this task [1]. The American College of Rheumatology (ACR) in 2008 and then the Center for Disease Control and Prevention (CDC) in 2010 released updates to their guidelines differing from the NPF's recommendations. Both recommend annual TB testing only be done in individuals who are considered at increased risk for TB infection [2,3]. A Recent comment and response by Duncan and Doherty, *et al.* respectively propose dermatologists adopt the ACR and CDC recommendations, but if a practitioner forgoes the annual TB screen, then an annual risk assessment to reevaluate the patients risk categorization should be added [4,5]. However, patient and practitioner error could lower the sensitivity of a risk assessment tool. TB is still prevalent in many parts of the United States, and exposure to TB could happen even without being at increased risk.

Patients on TNF inhibitor therapy who develop active TB are more likely to have a delayed diagnosis, extra-pulmonary manifestations, and TB refractory to treatment, all of which contribute to a higher degree of morbidity and mortality [6-9].

Therefore, to protect patients on TNF inhibitor therapy from delayed diagnosis and treatment of primary TB, dermatologists should still continue to screen for TB at initiation and annually using either a TST or IGRA.

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Conflict of Interest

Potential financial conflicts of interest: Dr. Wu received research funding from AbbVie, Amgen, Coherus Biosciences, Eli Lilly, Janssen, Merck, Novartis, Pfizer, Regeneron, and Sandoz; he is a consultant for AbbVie, Amgen, Celgene, Dermira, DUSA Pharmaceuticals, Eli Lilly, and Pfizer. The other authors do not have any potential conflicts of interest.