

US soldiers in high-tuberculosis areas face new epidemic: false positives

30 May 2008

U.S. Army service members are increasingly deployed in regions of the world where tuberculosis (TB) is rampant, such as Iraq and Afghanistan, and the military now faces a growing medical problem. But it is not TB itself that is on the rise—instead, the problem lies with the growing number of “pseudoepidemics,” or clusters of false-positives for TB that are the result of universal testing with a notoriously inaccurate tuberculin skin test (TST) and inconsistent procedures for interpreting those tests in low-risk populations.

These false positives tests have become more than a mere institutional inconvenience or a momentary medical scare for Soldiers being tested. They are a real financial and medical burden because they inappropriately diverting limited funds and resources.

A recent study, published in American Thoracic Society’s first issue for June of the American Journal of Respiratory and Critical Care Medicine, describes eight outbreaks of false-positive TB tests between 1983 and 2005. The study was led by U.S. Army Major James Mancuso, M.D., of the Uniformed Services University of the Health Sciences.

Recent deployments to Iraq and Afghanistan, which are reported to have among the highest rates of active TB in the world, have raised concerns about TB exposure. However, many service members do not have sufficient contact with locals to raise their risk of contracting TB. As a consequence, “testing after recent deployments to the endemic and hyperendemic areas has occasionally resulted in large numbers of U.S. Army service members with [positive tests] and massive efforts aimed at preventing active TB,” wrote Dr. Mancuso.

Because the positive-predictive value of a test—that is, the likelihood of a positive result indicating an actual case—is dependent on the prevalence of

disease in a population. The lower the prevalence of a disease, and the higher the variability in the test and testing procedures, the less the positive-predictive value of a test will be. “This may dramatically reduce the positive-predictive value of the test to below 50 percent,” said Dr. Mancuso.

Dr. Mancuso and his colleagues conducted outbreak investigations in deployed locations such as the Balkans and Afghanistan, where they collected and reviewed medical records of reported active and latent TB cases in deployed U.S. Army service members. They then obtained the medical histories of these soldiers, including prior diagnoses and treatments, determined current symptoms and interviewed the subjects to identify other possible risk factors. Finally, they retested all available skin test converters.

“Repeat testing of converters (positives) found that 30 to 100 percent were negative on retesting,” wrote Dr. Mancuso. In one case, 95 percent of positive TB tests (38 of 40 tests) from Army National Guard servicemen in Kosovo were subsequently found to be negative, and the pseudoepidemic was primarily attributed to variability with the test administration and reading, as well as to the specific type of test used.

“The testing of [a] predominantly low-risk population leads to false-positive results in individuals and pseudoepidemics of false-positive TST conversions in U.S. Army populations,” Dr. Mancuso concluded, recommending three actions to reduce the occurrence of false positive skin tests and these apparent outbreaks: test only truly high-risk personnel; standardize testing procedures; and use the more reliable of the TST tests, Tubersol, in lower-risk populations such as the U.S. Army.

“As always, an individualized assessment of each patient’s risk of tuberculosis should be used to target testing and treatment of latent tuberculosis infection. In the absence of other risk factors,

clinicians and public health officials should interpret reported skin test conversions after deployment with caution,” he added.

Source: American Thoracic Society

APA citation: US soldiers in high-tuberculosis areas face new epidemic: false positives (2008, May 30) retrieved 30 September 2022 from <https://medicalxpress.com/news/2008-05-soldiers-high-tuberculosis-areas-epidemic-false.html>

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