Use of Interferon Gamma Release Assays (IGRA) for the detection of tuberculosis (TB) infection in the New York City (NYC) health department clinic population

Natalie S. Levy, Lisa Trieu, Shama D. Ahuja, Tiffany G. Harris
New York City Department of Health and Mental Hygiene, New York City

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Background:
Interferon gamma release assays (IGRA) are more specific tests for TB infection compared to the tuberculin skin test (TST). From 2002-2004, NYC health department TB clinics, with >60,000 patient visits annually, had an estimated positive TST prevalence of 8.8% among US-born and 39.5% among foreign-born. The clinics began using QuantiFERON®-Gold (QFT-G) as the diagnostic test for TB infection in October 2006. In November 2009, the clinics switched to the QuantiFERON®-Gold In-Tube (QFT-GIT) test.

Methods:
We evaluated all QFT-G and QFT-GIT tests conducted at NYC clinics from October 2006-December 2011. The study population included individuals tested for work, school, or contact investigation, and others at high risk for TB infection. In 2009, testing was limited to those covered by the NYC Health Code (e.g., health care workers, contacts to TB cases). QFT-GIT test results for general population patients were stratified by demographic, social, and clinical characteristics. Adjusted odds ratios and 95% confidence intervals were calculated by patient characteristics comparing individuals with a positive QFT-GIT result to those with an indeterminate or negative result.

Results:
From October 2006-December 2011, 69,273 IGRA tests (48,495 using QFT-G, 20,778 using QFT-GIT) were conducted at NYC clinics. Overall, 9% tested positive (7% QFT-G, 16% QFT-GIT); 89% tested negative (91% QFT-G, 83% QFT-GIT); and 2% had an indeterminate result (2% QFT-G, 1% QFT-GIT). Of 18,481 general population patients who received QFT-GIT testing, 9% of US-born patients (751/8,689) tested positive compared to 19% of foreign-born patients (1,893 /9,972). Increasing age, birth in a high-incidence country, and history of injection drug use were factors associated with a higher likelihood of having a positive QFT-GIT result.

Conclusions:
This is the largest clinical sample of IGRA results presented to date. The lower prevalence of TB infection among foreign-born using IGRA compared with historical TST data suggests that IGRA use reduced false-positive results and unnecessary medical evaluations. The percentage of individuals testing positive increased after the introduction of QFT-GIT. Further evaluation is needed to determine whether this reflected policy changes that decreased testing of low-risk individuals, a changing population, or differential performance of the test.