

Performance of Tuberculin Skin Test and QuantiFERON®-TB Gold In-tube Test for Latent Tuberculosis Detection in Thai HIV-infected Patients

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Background: There is limited data on the performance of QuantiFERON®-TB Gold In-tube test (QFT-IT) in comparison to tuberculin skin test (TST) for detecting latent tuberculosis (LTB) in HIV-infected patients from TB-endemic settings.

Methods: A cross-sectional study of Thai HIV-infected adult patients without history of or current tuberculosis and without prior LTB treatment was conducted between March 2012 and March 2013. Each patient underwent simultaneous TST and QFT-IT. Multivariable logistic regression was used to determine factors associated with differences in test results.

Results: A total of 150 patients were enrolled: median age was 40 (range 17-65 years), 53% were male, 73% reported receiving BCG vaccination, median CD4 count was 367 (range 8-1290 cells/μl), 75% were on antiretroviral therapy and 73% were HIV RNA suppressed. TST (using ≥ 5 mm cut-off) and QFT-IT results were positive in 16% and 13% of the patients, respectively with low level of agreement between both tests (kappa = 0.25). There was no indeterminate QFT-IT result among these patients. Correlation between TST reaction size and level of interferon-γ (IFN-γ) was moderate (r = 0.34). Neither TST reaction size nor level of IFN-γ was correlated with CD4 count (r = 0.09 and r = 0.04). Independent factors associated with each test's positivity and discordant results are shown in Table. Using QFT-

IT positivity for diagnosis of LTB, the false positive and false negative rates of TST was 12% and 60%, respectively.

Conclusions: In this population with high CD4 counts, the low level of agreement between QFT-IT and TST results may reflect false positivity and false negativity of TST. Current and long-term smoking may be associated with non-tuberculous mycobacteria asymptomatic acquisition and resulted in TST false positivity while female sex and advanced age may be associated with less response to TST and resulted in TST false negativity.

Results		N	Factors	Adjusted odds ratio (95% confidence interval)	P
TST	QFT-IT				
Positive	Positive	8	Male sex	6.81 (0.82-56.75)	0.07
Positive	Any	24	Current and long-term smoking	3.70 (1.35-10.11)	0.01
Any	Positive	20	None	--	--
Positive	Negative	16	Current and long-term smoking	5.74 (1.88-17.53)	0.002
Negative	Positive	12	Female sex	4.64 (1.13-19.03)	0.03
			Age	1.08 (1.01-1.15)	0.03