

Screening of Latent Tuberculosis using Quantiferon Gold Test among Saudi Kidney Transplant Patients

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INTRODUCTION

Tuberculosis is an infectious disease carrying significant morbidity and mortality burden. Saudi Arabia is currently listed among countries with high incidence of tuberculosis. Screening and targeted testing for tuberculosis is a key strategy for controlling and preventing infection. Current diagnostic methods include tuberculin skin testing (TST) and interferon gamma release assays (IGRA), however, the research on the latter remains scarce in certain diseased population. Screening and targeted testing for tuberculosis is a key strategy for controlling infection.

This study aimed to detect latent tuberculosis among transplant patients.



METHODS

Multicenter prospective study supported by King Saud University and King Abdulaziz City for Science and Technology investigated all kidney transplant patients seen and treated at two tertiary hospitals in Riyadh, Saudi Arabia.

Whole blood samples were taken for Quantiferon–TB Gold In–Tube Test (QFT) Tuberculin test (TST) was done in all patients. Demographics, laboratory tests, chest radiography and BCG vaccination status were collected. Patients followed-up for 2 years.

RESULTS

141 participants. Age 44.5 (SD 12.8) years. Male Gender 102 (72%).

TB profile:

Eleven (7.9%) reported previous TB, and 7 (5.2%) reported TB exposure. BCG vaccination was reported by 69 (50.4%) while the BCG scar was found in 99 (76.7%). DM (%) 50 (35.5); 12 patient had HCV infection.

QFT & TST results:

Prevalence of latent TB using the QFT-GIT in 24 participants (17%); positive TST was found in 17 (12.2%) participants.

There was no significant association and poor agreement found between QFT and TST ($p=0.405$, $\kappa=-0.053$).

Previous TB was reported with lower frequency in QFT positive (2 [18.2] vs 9 [81.8], $p=0.595$), BCG

vaccination was reported with lower frequency among QFT positive (18 [18.2%] vs 81 [81.8%]) No

participants with reported TB contact had a positive QFT or TST result. Smoking, and cough all remained significant a of positive QFT after controlling for confounding factors ($p=0.02$; $p=0.041$, respectively)

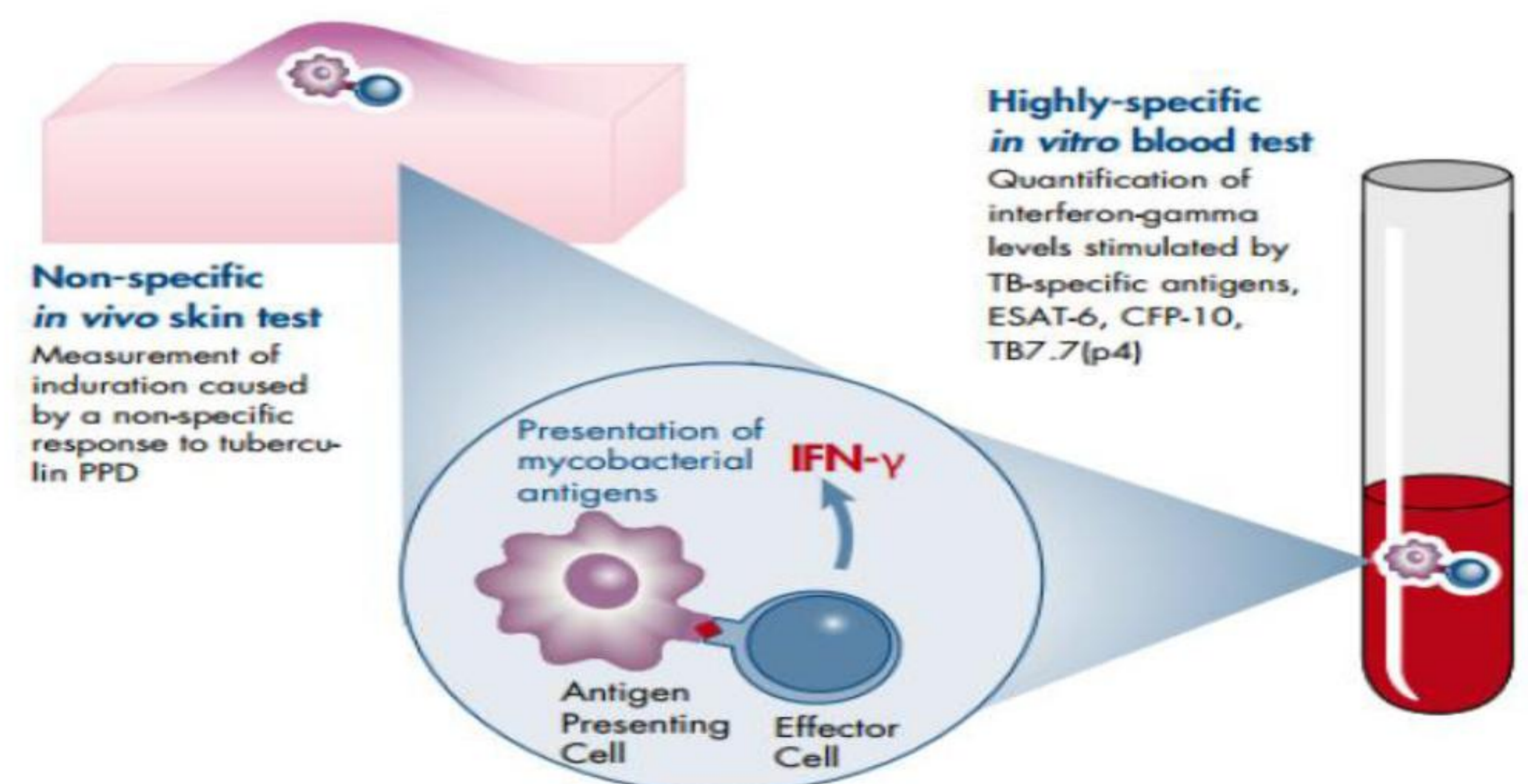
Patients with HCV had a lower frequency of positive QFT ($p=0.342$)

- Sensitivity (95% CI) QFT-GIT 31.82% (14-55%)
- Specificity (95% CI) 85.71%(78-91.5)
- PPV (95% CI) 29.17% (12.7-51%)
- NPV (95% CI) 87.18(80-92.6%)

Variable	Total N=141
Age (years \pm SD)	44.5 (12.8)
Male Gender (%)	102 (72)
BCG Scar (%)	99 (76.7)
Previous TB (%)	11 (7.9)
TB Now (%)	6 (4.4)
QFT + ve (%)	24 (17)
TST + ve (%)	17 (12.2)
Abnormal CXR (%)	6 (6.1)

CONCLUSION

Due to low of Quantiferon TB Gold in-tube test sensitivity and low positive predictive value (PPV) , we recommend its use for its negative predictive value (NPV) and to use either TST or QFT in screening latent TB.



QFT contains TB mycobacterial proteins which are not found in the BCG vaccine. Because of this highly-specific composition, QFT overcomes virtually all of the shortcomings of the TST, with the added benefit of providing a laboratory-based, objective result.

