DOI Number: 10.5958/2321-1032.2019.00014.7

Comparison of Tuberculin Skin Test Versus Newer Quantiferon TB Gold Assay Method in Screening for Latent Tuberculosis Infection in Various High Risk Groups

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ABSTRACT

Aim: The aim of present study to evaluate the QuantiFERON-TB gold assay and tuberculin skin test to recognize tuberculosis infection amongst tuberculosis patient contact.

Methodology: A total of 55 tuberculosis patients contacts were utilized for research, blood were pinched and practices by utilizing the QuantiFERON-TB gold assay pursue by insistent management of tuberculin skin test solution in subjects forearm.All accessible associates were asked to giveblood samples for Latent tuberculosis infection intest.

Results: QuantiFERON-TB gold assay distinguishLatent tuberculosis infection with sensitivity of 88.81% and specificity of 89.9%. Tuberculin skin test: Sensitivity 67.9%, Specificity 15.9%.

Conclusion: Equallytuberculin skin test and QuantiFERON-TB gold assay can be utilized to recognize TBdisease or Latent tuberculosis infection. The present assessment of tuberculin skin test&QuantiFERON-TB gold assay consequence bears thatQFT-G assay supply additional accurate results than tuberculin skin test in revealing of Latent tuberculosis infection.

Keywords*: Communicable disease, Sensitivity, Specificity, Tuberculosis*

INTRODUCTION

Tuberculosis is the largely recurring cause of mortality in developing countries. The illness accounts for 1/5thof worldwide incidence in developing countries like India and its subcontinent.[1]Close contacts is describe as all contacts that have least of 40 hrs of coverage to their particular index case.[2,3] Close contacts with active tuberculosis patients is one determinant that directs to positive QFT-GIT test conclusion amid TST positive subjects owing to unmitigated close contact with communicable patients grounds elevated tempo of positivity of QST-GIT and TST.[4]The establishment of message can be abridged by punctual appreciation & management of LTBI as a effect tumbling the jeopardy of development of disease, thus plummeting the risk of growing the disease hence promoting positive health of being and the community.

Two renowned investigations for gratitude of LTBI, tuberculin skin test & IGRA, to assess cell mediated immunity, but none of the both can distinguish between concealed and active tuberculosis. TST mainly consists of delayed type of oversensitive rejoinder. Small quantity PPD imitative from MTB bacteria is injected intradermally, there happens a contained swelling manifestingas indurations of skin at intradermal site within 48-72hrs, which is CMI to tubercles antigens.[5,6]

The QFT-IGRA is in-vitro blood tests to evaluate Cell mediated immunity. This test measures interferon gamma motivation by antigen specific to MTB premature secretary antigenic target 6k Da(ESTA)[6] protein &the

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culture filtrate 10kDa pathogenic M. boviesdamage but not there in BCG vaccine strain &all non–tuberculosis bacteria of technical implication. The TST evaluates CMI to PPD, which is polyvalent antigenic combination of protein derived from M.TB culture. The PPD used in TST is also there inBCG vaccine strain.[7]The present study was performed to assess & evaluate the TST against newer QFT-Gmethod in transmission for LTBI in diverse groups at high jeopardy for TB to decide which method is improved for use in a supply imperfect

MATERIALS AND METHOD

The present research was performed at Department of respiratory medicine. A total of 55 participants were included in the study, which were all person at danger of being infected with tuberculosis. All household associates who incorporated family & friends resides in the equal house with the index case were incorporated in the study. The research details were enlightened to all family contacts. All obtainable contacts were inquired to give blood samples for LTBI test. Demographic characteristics were collected.

Whole blood specimen was pinched in heparin tubes from all subjects for testing with QFT-G assay, followed straight away by management of TST via an intradermal injection at the lateral upperpart of subjects forearm. QFT-G assay and Mantoux TST were performed.[8] The diameter of theresulting wheals reactions were measured 72 hours afterpuncture. All results obtained were recorded as eitherpositive (if > 10mm) or negative (<10mm).[9] Testwas performed and results were read by highly qualified certified nurses.

STATISTICAL ANALYSIS

Qualitative data will be expressed as percentages and proportions. Quantitative data will be expressed as mean and standard deviation. The differences between two groups with respect to continuous variables will be analyzed using t-test while categorical variables will be analyzed using chi-square test. All the statistical tests will be performed in SPSS version 15 software.P value <0.05will be considered as statistically significant while P value<0.01 will be considered as statistically highly significant.The between group comparisonof compressive strength of samples in Group A and B was done using One-way ANOVA test. Within group comparison was done using Bonferroni correction test. In the tests, p value of ≤0.05 was considered as statistically significant.

RESULTS AND DISCUSSION

A total of 55 patients were enrolled inthe study to conclude the agreement between QFTG/TST. QFT-Sensitivity was 88.81% and specificity 89.9%. TST sensitivity was 67.9% and specificity15.9%.

The role of QFT/TST executed in high risk group to make out the disease. Weobtained the sensitivity of QFT-G- 88.8% & specificity of89.9%. Outcomes were comparable to the outcome asstudy of et al [10] as contrast to the TST result we attained the sensitivity of67.9% & specificity 15.9% as we obtained in the research as Sohairet al., TST Sensitivity of 66%.The QFT had revealed the superior positive discovery rate as contrast to TST, the outcome were similar as study program UNAIDS Geneva.[12]

Positive QFT-GIT & negative TST was observed in the present research as seen in different study also. Positivity of equally tests specifies eminent likelihood of tuberculosis.TST has little specificity and sensitivity owing to dilemma of cross reactivity with other mycobacteria & difficulty in understanding & recur call to read the test, acquired in the present research.

Table 1: QFT-G

Test	**True +ve**	**True –ve**	
QFT-G	23	27	
	3	2	55

Sensitivity = 88.8%

Table 2: TST

Test	**True +ve**	**True –ve**	
TST	13	30	
	7	5	55

Sensitivity = 88.8%

CONCLUSION

Together TST and QFT-GIT can be utilized to spot TB infection or LTBI. The tests do not compute the similar apparatus of the immunological reply, they are not

identical. The QFT-GIT test can be particularly obliging and supplementary accurate than TST in recognition of LTBI in developing countries like the India.

Ethical Clearance- Taken from institutional ethical committee of the institute and written informed consent was taken from the participants

Conflict of Interest: None declared.

Sources of Funding: Nil

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