Summary and Conclusion
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This study was focused on various aspects of laboratory diagnosis of *Mycobacterium tuberculosis* with special emphasis on multi-drug resistant tuberculosis. The study highlights the following findings.

- Maximum patients enrolled in the study were previously treated cases of TB (77.5%) as compared to newly diagnosed cases (22.5%).

- Most of the patients were males (73.5%) and of young age group (21-40 years).

- The positivity rate of concentrated smear was higher (78%) as compared to direct smear (66.5%).

- As compared to L-J culture taken as “Gold Standard”, the sensitivity of direct smear was 78.76%, whereas the sensitivity of concentrated smear was significantly higher 92.9%. However the specificity remains unchanged 86.6%.

- The positivity rate of L-J culture was quite high 81.25%. The breakthrough contamination rate was very low 3.7%.

- There were only 20% total resistant strains from newly diagnosed cases.

- Primary Multi-drug resistance was found to be low (3.3%).

- There were 71.06% total resistant strains from previously treated cases.

- Acquired Multi-drug resistant TB was found to be higher (47.23%).
In newly diagnosed cases, resistance to Rifampicin alone was low (4.4%) whereas in previously treated cases Rifampicin resistance was alarmingly high (52.76%).

In a comparative study of phenotypic drug sensitivity test and genotypic assay (Genoty MTBDR Assay), successful results were achieved in 80% of culture isolates of *M. tuberculosis*. All MDR strains were correctly identified by Genotypic assay. However discrepancy in results was found in 6 isolates, with resistance to Rifampicin and Isoniazid alone. It has been concluded that the test results of genotypic assay must always be confirmed by the phenotypic drug sensitivity methods.

Prevalence of HIV in TB patients in a two year study (2008-2009) was found to be 6.33%.