

Similarity in the Isolation Rate of *Mycobacterium tuberculosis* for New and Treated Cases of Tuberculosis in Sputum Specimens Preserved Under Cetylpyridinium Chloride

Sir,

Isolation of *Mycobacterium tuberculosis* from biological samples is essential in drug resistance survey and initiating treatment for cases suspected to developed drug resistance. In cases like treatment after default, failure and relapse, it is important for clinicians to know the status of drug resistance to previous treatment before the initiation of alternative anti-TB regimens. In most of the earlier studies, cetylpyridinium chloride (CPC), was used to preserve and transport sputum specimens for mycobacterial culture and this experience has shown good isolation rate of *M. tuberculosis*.^[1-3] In this study, the effect of CPC was studied to determine the isolation rate of *M. tuberculosis* from three different categories of tuberculosis attending ten designated microscopic centers (DMC) of Gulbarga district.

A total of 259 sputum specimens were collected during February 2005 to March 2006. Based on the treatment history collected from the available data at the DMC, the patients were grouped into three categories; Category I-new cases, Category II-treated cases, and Category III-suspected TB cases. Smear microscopy by Ziehl-Neelsen (ZN) method was performed on all sputum specimens at the DMC. Equal volumes of 1% CPC-2% NaCl solution was added to the remaining specimen, stored at room temperature for four to five days and then carried to National JALMA Institute for Leprosy and Other Mycobacterial Diseases (NJIL and OMD), Agra, India. The total time taken from specimen collection to processing was eight days. The cultures of *M. tuberculosis* from these specimens were recovered by the method developed by Smithwick *et al*,^[1] and the cultures were identified by standard methods. Of the 259 sputum specimens new, treated and suspected TB cases were 110 (42.47%), 50 (19.30%), and 99 (38.22%), respectively. Category wise isolation rate showed 75.45% for new cases and 74% for treated cases and 33.33 for suspected TB cases showing an overall isolation rate of 59% [Table 1].

Table 1: Smear and culture results

Smear	Culture			Total (%)
	Positive (%)	Negative (%)	Contaminated (%)	
Positive	139 (77.65)	32 (17.88)	8 (4.47)	179 (69.11)
Negative	14 (17.50)	59 (73.75)	7 (8.75)	80 (30.89)
Total	153 (59.07)	91 (35.14)	15 (5.79)	259 (100)

Sputum is the only source of specimen for the diagnosis of pulmonary tuberculosis. Most of the studies so far reported used CPC for the transport of sputum specimens collected only from new cases. However, it is also important to know the effect of CPC on sputum collected from patients with previous history of anti-tuberculosis treatment (ATT). In this study, on comparison of the isolation rates of *M. tuberculosis* from new and treated cases, the percentage observed was almost similar (75.45% and 74%). On comparison of methods used for the isolation of *M. tuberculosis* from new and treated cases of tuberculosis, it is noticeable that the specimens transported in CPC yielded higher isolation rate than NaOH method. Studies from Malawai and Gujrat showed an isolation rate of 36% and 55.84% (46.4% for failure and 67.22% for relapsed cases), respectively for treated cases by NaOH method.^[4,5] While, the present study reports almost similar percentage of *M. tuberculosis* isolation rate for new and treated cases and reinforces the fact that CPC preserves the viability of AFB that is previously exposed to ATT. Another important finding of this study is the distance of transportation. In most of the resource limited settings like India, the specimens are transported to referral laboratories from remote locations. In the present study, an attempt was made to transport the sputum specimens from a distance of 1600 km. This is the highest distance so far reported from India and the isolation rate of *M. tuberculosis* was found to be satisfactory. Finally, the observations of this study shows that there is no significant difference in the isolation rate of *M. tuberculosis* from new and treated cases; it was found to be same in both the categories of TB. Hence, CPC-NaCl method is of great importance for the isolation of *M. tuberculosis* irrespective of the treatment status.

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ACKNOWLEDGEMENTS

We thank District Tuberculosis Officer, Gulbarga for permitting collection of specimens for this study and also thank all the laboratory technicians of DMC, Gulbarga and NJIL and OMD, Agra for the technical help in specimen collection and processing.

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Quick Response Code: 	Website: www.jgid.org
	DOI: 10.4103/0974-777X.93771