Evaluation of a new reagent for preservation of sputum samples for diagnosis of *Mycobacterium tuberculosis*

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Introduction

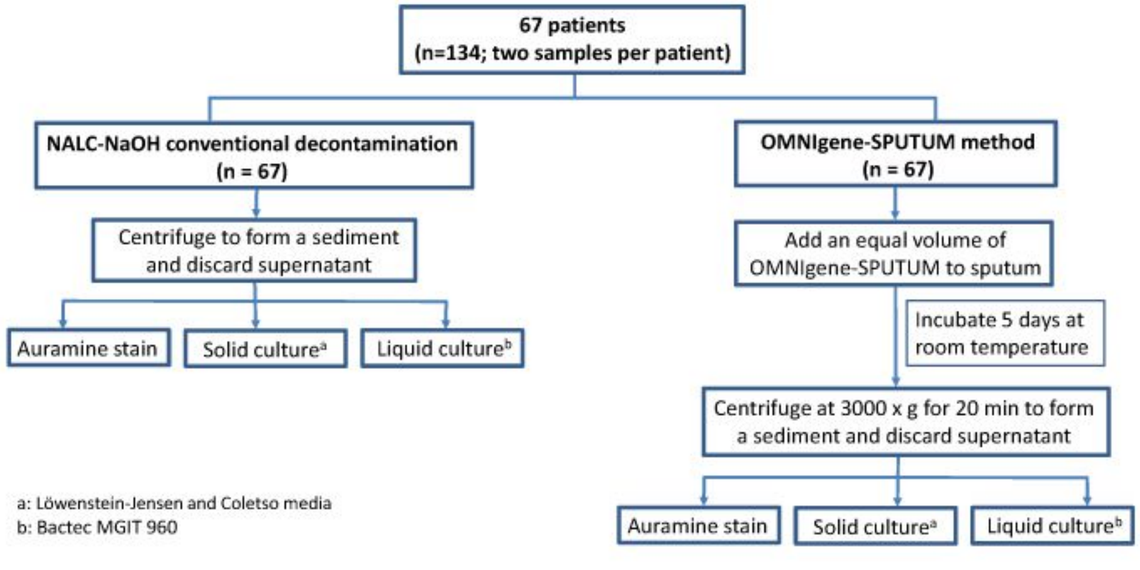
Tuberculosis remains one of the major public health problems worldwide, with 95% of cases and 98% of deaths occurring in developing countries. The transportation of sputa for *Mycobacterium tuberculosis* culture from these countries to laboratories located abroad usually takes more than one week and results in increased contamination and loss of positive cultures.

Purpose

The aim of this study was to evaluate recovery of *M. tuberculosis* from paired sputum samples that were subjected to different conditions: i) multi-day storage in the OMNIgene-SPUTUM reagent (DNA Genotek), or ii) immediate processing using the NALC/NaOH method.

Materials and Methods

Patients were enrolled at time of initial diagnosis or during treatment. One hundred thirty-four sputum samples from 67 patients (each pair of sputa collected consecutively during the same day) were analyzed.



a: Löwenstein-Jensen and Coletso media
b: Bactec MGIT 960

Results

The results obtained by auramine staining and solid/liquid media for both NALC-NaOH and OMNIgene-SPUTUM decontamination procedures are shown in Table 1.

Table 1. Results obtained for both NALC-NaOH and OMNIgene-SPUTUM decontamination procedures.

		NALC-NaOH n=67 (%)	OMNIgene-SPUTUM n=67 (%)
AURAMINE STAINING	POSITIVE	13 (19.4)	8 (11.94)
	NEGATIVE	54 (80.6)	59 (88.06)
SOLID MEDIA	POSITIVE	7 (10.45)	5 (7.46)
	NEGATIVE	59 (88.05)	61 (91.04)
	CONTAMINATED	1 (1.5)	1 (1.5)
LIQUID MEDIUM	POSITIVE	8 (11.94)	6 (8.96)
	NEGATIVE	58 (86.56)	58 (86.56)
	CONTAMINATED	1 (1.5)	3 (4.48)

Conclusions

Sputum samples retain viable *M. tuberculosis* after being stored in OMNIgene-SPUTUM for 5 days at room temperature. Compared to the sputa processed with NALC-NaOH immediately post-collection, those stored in OMNIgene-SPUTUM for 5 days exhibited slightly lower rates of positivity in liquid and solid culture; however, this could be attributed to the study design (i.e. the individual specimens in each sample pair had potentially different quantities of *M. tuberculosis).*

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