P0446
Paper Poster Session
Tuberculosis - diagnosis and drug resistance

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

Esther García[1], Lucia Haba[2], Miguel Pérez[2], Yoel González[3], Israel Molina[3], J. Santiago[3], Raquel Villar Hernández[2], M. Montes[3], N. Suárez[3], Neus Altet[3], José Maldonado[3], Juan Ruiz-Manzano[4], Joan Pau Millet[3], Cristina Prat[5], Jose Dominguez*[2]

[1]*Servei de Microbiologia. Hospital Universitari Germans Trias I Pujol. Institut D'investigació Germans Trias I Pujol. Universitat Autonòma de Barcelona, Badalona, Spain*

[2]*Servei de Microbiologia. Hospital Universitari Germans Trias I Pujol. Institut D'investigació Germans Trias I Pujol. Universitat Autonòma de Barcelona. Ciber Enfermedades Respiratorias., Badalona, Spain*

[3]*Serveis Clínics, Barcelona, Spain*

[4]*Servei de Pneumologia. Hospital Universitari Germans Trias I Pujol. Institut D'investigació Germans Trias I Pujol. Universitat Autonòma de Barcelona. Ciber Enfermedades Respiratorias., Badalona, Spain*

[5]*Servei de Microbiologia, Hospital Universitari Germans Trias I Pujol, Institut D'investigació Germans Trias I Pujol, Universitat Autonòma de Barcelona, Ciber Enfermedades Respiratorias., Badalona, Spain*

Background:

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. The objective 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

Material/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. One sample of each pair was processed immediately after collection using the conventional decontamination procedure (NALC/NaOH) and then centrifuged to form a sediment. The other had OMNIgene-SPUTUM added to it using the manufacturer's methods (i.e., approximately equal volume of OMNIgene-SPUTUM added, tube inverted vigorously 10 times to mix, incubation at room temperature) and was stored unrefrigerated for 5 days, followed by centrifugation at 3000 x g for 20 min. For all 134 samples, sediment was prepared for auramine stain and solid and liquid culture

Results:

Thirteen (19.4%) of the 67 NALC/NaOH-treated samples were smear positive and 8 (11.9%) of the 5-day OMNIgene-SPUTUM-stored samples were smear positive. Some culture results were pending at time of writing. Of the 57 pairs with solid culture results, 4 (7.01%) NALC/NaOH-treated samples were positive, and 3 (5.3%) OMNIgene-SPUTUM-stored samples were positive and 1 (1.8%) was contaminated. Of the 65 pairs with liquid culture results, 6 (9.2%) NALC/NaOH-treated samples were positive and 1 (1.5%) was contaminated, and 4 (6.2%) OMNIgene-SPUTUM-stored samples were positive and 3 (4.6%) were contaminated.

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*)