Recovery of N. gonorrhoeae from Amies Clear Transport Media Following Storage at Room Temperature or at 4°C.

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ABSTRACT

Objective: To determine the survival of *N. gonorrhoeae* in clinical genital specimens using Amies transport media without charcoal (Starplex Scientific, ON) following storage at room temperature or at 4°C.

Method: For periods between June 1999 and December 2000, genital swabs were returned to the Amies Zransport media following routine plating and stored at either room temperature or at 4°C. If a culture was positive for *N. gonorrhoeae*, the stored swab was replated on Martin-Lewis media and incubated in CO_2 for up to 72 hours.

Results: Repeat processing of positive swabs stored at room temperature yielded *N. gonorrhoeae* in 10/49 (20%) and those stored at 4°C yielded *N. gonorrhoeae* in 25/54 (46%) (p=0.01).

Conclusion: The data suggests that contrary to recommended practice, it may be preferable to store genital swabs in Amies transport media without charcoal at 4°C rather than at room temperature for optimum recovery of *N. gonorrhoeae* if there is a delay between collection and processing.

INTRODUCTION

Clinical microbiology textbooks[1] and manuals[2, 3] state that culture swabs for the isolation of *Neisseria gonorrhoeae* should be kept at room temperature before processing rather than refrigerated, as is recommended for specimens from sites such as throats. Recent papers[4] and abstracts[5, 6, 7] in the microbiology literature dispute this practice, suggesting that genital swabs for *N. gonorrhoeae* should also be refrigerated.

In our outpatient laboratory, a variety of microbiology specimens on swabs are received from branch collection stations and from individual physician offices in the late afternoon and are processed the same evening. Due to difficulty separating genital specimen swabs for storage at room temperature from other specimen swabs which are refrigerated at 4°C, a study was undertaken to look at the effect of storage temperature on the viability *N. gonorrhoeae* in clinical specimens.

MATERIALS AND METHODS

Genital specimen swabs for culture are delivered by patients to branch collection stations or are picked up at individual physician offices. Specimens are then transported to a central laboratory for testing. Most specimens are processed within 12 hours of collection. All specimens were refrigerated prior to processing.

The transport system used was manufactured by Starplex Scientific, Ontario, consisting of Amies transport media without charcoal with a rayon tipped plastic swab. Specimens positive for *N. gonorrhoeae* were used in the study. Martin-Lewis media incubated at 37°C in 5% CO_2 was used for primary isolation.

PROCEDURE

From June 1999 to December 2000, all genital swabs were stored after processing at either room temperature or at 4°C. If the original swab grew *N. gonorrhoeae*, the stored specimen was then re-planted to Martin-Lewis media.

RESULTS

From 49 positive specimens stored at room temperature for 48 to 72 hours, *N. gonorrnoeae* was subsequently recovered from 10 [20%]. From 54 positive specimens stored at 4°C for 48 to 72 hours, N. gonorrhoeae was recovered from 25 [46%] [p=0.01].

DISCUSSION

While molecular methods are available for the detection of *N. gonorrhoeae*, culture is still the most common method to detect this organism. Culture will continue to be important as it allows antibiotic susceptibility to be performed.

Historically, because *N. gonorrhoeae* is temperature sensitive, it has been recommended that genital specimens be stored at room temperature prior to processing. Specimens which have been plated and then transported have better recovery of *N. gonorrhoeae* at 37°C than at room temperature or at 40C[8, 9]. However, it is becoming clear from recent literature[4, 5, 6, 7] that *N. gonorrhoeae* on transport swabs survives better at 4°C than at room temperature. The improved survival at 4°C varies somewhat with different swab systems. In almost all these studies, swabs have been inoculated with pure cultures of *N. gonorrhoeae*. The effect of other organisms and cellular and chemical constituents present in the clinical specimen were not taken into consideration. We evaluated the viability of *N. gonorrhoeae* during the storage of actual clinical specimens that had initially been positive for *N. gonorrhoeae*.

The ability to recover *N. gonorrhoeae* from 46% of positive swabs stored at 4°C and only 20% of positive swabs stored at room temperature supports the growing data that genital swabs in Amies transport media should be transported and stored at 4°C.

Our results are indirect as we measured the ability to re-culture the organism after initial isolation and did not test the same specimen under different conditions.

However, we did use only clinical specimens. With further work being done to investigate the optimal storage temperature with various transport systems, new recommendations should emerge for the optimal handling of specimens for the isolation of *N. gonorrhoeae*.

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