

Evaluation of two real-time PCR methods to direct detection of group B Streptococci against conventional chromogenic cultures

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Objectives. Group B streptococcal disease remains a leading infectious cause of morbidity and mortality among newborns. Asymptomatic carriage of group B streptococci (GBS) in the maternal genitourinary tract or gastrointestinal tract commonly leads to colonization of the neonate. Real-time PCR (PCR) methods that offer the ability to detect GBS colonization within 1 h of sample receipt have also been developed. The aim of this study was to assess the use of these 2 new molecular methods in comparison with conventional culture methods for the isolation of GBS from vaginal-rectal swabs.

Methods. A total of 103 consecutive vaginal-rectal swabs from distinct pregnant women were included in this study. Any red colonies on Granada Agar agar were regarded as presumptive GBS. Such colonies were confirmed as GBS using latex agglutination for group B antigen. Two commercial PCR was tested: i) BD GeneOhm StrepB Assay (Becton Dickinson, USA) based in the amplification of *cfb* gene sequence of GBS and fluorogenic target-specific hybridization for the detection of the amplified DNA; and ii) Speed-Oligo Group B Streptococcus (Vircell, Spain), that use a real-time PCR method and detection of DNA through hybridization in a dipstick device based in reactive lines with colloidal gold technology. All methods follow the manufacturing recommendations.

Results. Twenty-one GBS strains could be isolated by culture from 103 samples. BD GeneOhm StrepB Assay detects DNA in 16 samples with positive culture and one sample with negative culture. However, Speed-Oligo Group B Streptococcus could detect DNA in 19 samples with culture positive and 4 samples with negative culture. Sensitivity, specificity, positive and negative predictive values was respectively 76.1, 98.7, 94.1, and 94.1 for GeneOhm versus 90.4, 95.1, 82.6, and 97.5 for Speed-Oligo. Analyzing the discrepancies there was a close correlation between CFU in the culture and false negative in molecular test. In false-positive we cannot exclude the further possibility that PCR was detecting the presence of nonviable.

Conclusions. The PCR assay is rapid (<1 h) and is, therefore, particularly useful if testing needs to be performed during labor. This is an attractive option because colonization with GBS may be transient, and results achieved weeks before labor may no longer be relevant at time of delivery. Although routine use of PCR during labor would require a local availability of a 24-h service, and a greater expense per test.