A Comparative Evaluation Of Group B Strep Screening Media

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Overview

Purpose: Thermo Scientific™ Brilliance™ GBS Agar (Thermo Fisher Scientific) was compared to Primary Group B Strep Medium and Colorex™ StrepB Agar (E&O Laboratories Ltd.) for detection of Streptococcus agalactiae (group B Streptococci; GBS) from high vaginal swabs (HVS).

Methods: 250 HVS were inoculated onto the three media and incubated aerobically at 35-37°C for 20-24 hr. Coloured GBS colonies (according to manufacturers’ instructions) on the three media were confirmed using Thermo Scientific™ PathoDxtra™ Strep Group B Latex (Thermo Fisher Scientific) and Vitek® 2 (bioMérieux).

Results: Brilliance GBS Agar detected more GBS than Primary Group B Strep Medium and Colorex StrepB Agar, showing a higher sensitivity than the other two media. Brilliance GBS Agar also showed noteworthy inhibition of non-target organisms and the ability to detect non-beta-haemolytic GBS within 24 hr.

Introduction

Streptococcus agalactiae is a leading cause of neonatal sepsis, meningitis, and pneumonia, affecting 0.5 to 2 newborns/1,000 live births in Europe, although the true burden of GBS disease in newborns could be significantly higher than that reported in some European studies1. There is no UK national screening programme for GBS in pregnancy; hence UK colonisation rates are unknown2. Despite this, many laboratories do screen pregnant women on arrival in the labour ward.

Brilliance GBS Agar (figures 1 and 2) is a transparent screening media for the culture of GBS. GBS will grow as pink-coloured colonies on the medium. Brilliance GBS Agar contains a combination of antibacterial compounds including the proprietary Inhibigen™ technology, designed to inhibit the growth of a wide variety of organisms commonly associated with human carriage.

Method

Two hundred and fifty HVS taken from pregnant and non-pregnant women were streaked onto Brilliance GBS Agar, Primary Group B Strep Medium and Colorex StrepB Agar. All media were incubated aerobically at 35-37°C for 20-24 hr. Pink colonies on Brilliance GBS Agar, orange colonies on Primary Group B Strep Medium and mauve/red/pink colonies on Colorex StrepB Agar were confirmed using PathoDxtra Strep Group B latex. Any other coloured colonies (as well as all presumptive GBS colonies) seen on any of the plates were identified using Vitek 2 (bioMérieux).

Sensitivity and specificity of the three group B screening media were calculated and any statistical significant difference between the three media was determined using McNemar’s Chi squared test. The negative predictive value (NPV), positive predictive value (PPV) and percentage inhibition of non-target organisms was also calculated.

Results

Brilliance GBS Agar detected more GBS than either Colorex StrepB Agar and Primary Group B Strep Medium (94.6%, 95.5% and 97.9% respectively). The NPV of Brilliance GBS Agar was also higher than Primary Group B Strep Medium and Colorex StrepB Agar (99.0%, 95.5% and 97.9% respectively).

Conclusion

Brilliance GBS Agar proved to be a highly selective medium for the isolation of GBS and unlike Primary Group B Strep Medium and Colorex StrepB Agar, showed noteworthy inhibition of non-target organisms and the ability to detect non-beta-haemolytic GBS within 24 hr.

References