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Antimicrobial Susceptibilities of Group B *Streptococcus* Isolates from Prenatal Screening Samples

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Previous published reports have shown that group B *Streptococcus* (GBS) isolates were 100% susceptible to both penicillin (1, 2) and vancomycin (1); however, reduced susceptibilities to penicillin have been documented (3–8). GBS susceptibilities to clindamycin and erythromycin have varied (2, 9–12), and data regarding inducible clindamycin resistance are not always reported (2). We examined GBS susceptibilities to clindamycin, erythromycin, penicillin, and vancomycin from isolates obtained from prenatal screening samples.

Vaginal/rectal ESwab (Copan Diagnostics Inc., Murrieta, CA) samples submitted for routine prenatal GBS screenings were evaluated. GBS was isolated and identified using Strep B Carrot Broth (Hardy Diagnostics, Santa Maria, CA) subcultured to GBS Detect (Hardy Diagnostics, Santa Maria, CA) as previously described (13). GBS Detect is a selective medium, and it allows for the isolation of GBS, including strains that are typically nonhemolytic on sheep blood agar. Immediately following isolation, GBS isolates were subcultured to sheep blood agar plates (Remel, Lenexa, KS) and incubated aerobically for 18 to 20 h at 35°C. Antimicrobial susceptibility testing (AST) was performed according to 2013 CLSI guidelines (14) on 102 GBS isolates using vancomycin and benzylpenicillin G (0.016 to 256 µg/ml) Etest strips (bioMérieux, Durham, NC) and on 387 GBS isolates using clindamycin (2 µg) and erythromycin (15 µg) BBL Sensi-Discs (Becton, Dickinson, and Company, Sparks, MD) placed 12 mm apart to detect inducible clindamycin resistance.

A total of 102/102 (100%) GBS isolates examined were susceptible to penicillin and vancomycin (Table 1). Both the MIC₅₀ and MIC₉₀ for penicillin were 0.064 µg/ml, and both the MIC₅₀ and MIC₉₀ for vancomycin were 1.0 µg/ml (data not shown). GBS isolates were susceptible to both clindamycin and erythromycin in 195/387 (50.4%) isolates and resistant to both clindamycin and erythromycin in 106/387 (27.4%) isolates (data not shown). An additional 8% (31/387) of isolates had a positive D-test, indicating inducible clindamycin resistance. The overall susceptibilities of GBS isolates to clindamycin were 62.8% (243/387) or 70.8% (274/387), accounting for or not accounting for inducible clindamycin resistance, respectively. The overall susceptibility of GBS isolates to erythromycin was 51.7% (200/387) (Table 1).

Current recommendations for GBS in pregnant women include AST of GBS strains isolated from penicillin-allergic women at high risk for anaphylaxis, screening for inducible clindamycin resistance when AST is performed, and reporting GBS isolates with inducible clindamycin resistance as clindamycin resistant (15). However, penicillin allergy may not always be known at the onset of labor. Our laboratory routinely performs clindamycin and erythromycin susceptibility testing on all GBS strains isolated from prenatal screening samples. Here we report rates of susceptibility of GBS to clindamycin, erythromycin, penicillin, and vancomycin that are very similar to those of the 2010 Active Bacterial

TABLE 1 Antibiotic susceptibilities of GBS isolates

Agent	No. (%) of isolates			No. of isolates tested
	Susceptible	Intermediate	Resistant	
Clindamycin ^{a,b}	243 (62.8)	2 (0.5)	142 (36.7)	387
Clindamycin ^{a,c}	274 (70.8)	2 (0.5)	111 (28.7)	387
Erythromycin ^a	200 (51.7)	12 (3.1)	175 (45.2)	387
Penicillin ^d	102 (100)		0	102
Vancomycin ^d	102 (100)		0	102

^a Testing was performed by disk diffusion.

^b D-test-positive isolates are reported as resistant.

^c D-test data are excluded.

^d Testing was performed with Etest.

Core (ABC) surveillance report by the CDC (2), although that report did not account for inducible clindamycin resistance and only 396/1,427 (28%) GBS isolates were resistant to clindamycin. In this study, without accounting for inducible clindamycin resistance, only 111/387 (28.7%) GBS isolates would be reported as resistant to clindamycin. However, 31/387 (8%) isolates had a positive D-test and 142/387 (36.7%) isolates were reported as clindamycin resistant. Finally, 102/102 (100%) GBS isolates examined were susceptible to penicillin and vancomycin; both the MIC₅₀ and MIC₉₀ for penicillin were 0.064 µg/ml, and both the MIC₅₀ and MIC₉₀ for vancomycin were 1.0 µg/ml. Monitoring the antimicrobial susceptibilities of GBS isolates remains important considering the extensive use of antibiotics used for prophylaxis during the labor of pregnant carriers. These data also demonstrate the importance of including methodologies such as the D-test in AST of GBS isolates to detect inducible clindamycin resistance.

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We have no conflicts of interest to declare.

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