Camp Test Versus Dc-PCR in Diagnosis of Group B Streptococcus Infection in Pregnant Women

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Group B *Streptococcus* (GBS) colonizes in the gastrointestinal and genitourinary tract of pregnant women and infect babies during labor. Thus, prenatal GBS screening of pregnant women at term is recommended. Culture based Christie, Atkins, Munch-Petersen (CAMP) test has been using as gold standard in detection of GBS. However, it has drawbacks like longer turn over time and false negative results. Therefore, we aimed to develop a duplex colony polymerase chain reaction (DC-PCR) to detect GBS specific genes: *atr* (encodes protein amino acid transporter gbs0538) and *cfb* (encodes CAMP factor) for rapid diagnosis of GBS while comparing the outcomes with CAMP test. First using *Streptococcus agalactiae* ATCC 12386, the DC- PCR was established to detect the *atr* and *cfb* genes using gene specific primers. Thereafter recto-vaginal swabs were taken from women over 35 weeks (n=150) at term pregnancy who were admitted to Teaching Hospital, Peradeniya. Swabs were transferred to laboratory in Todd-Hewitt broth and cultured on blood agar plates supplemented with gentamycin. Suspected colonies were tested with established DC-PCR and CAMP test. Antimicrobial resistant profiles of GBS isolates were detected. CAMP test, DC-PCR:*cfb*, DC-PCR:*atr* identified GBS colonization as 21.33% (32/150), 28% (42/150) and 30.67 (46/150) respectively. Presence of *atr* gene and CAMP test results and presence of *cfb* gene and CAMP test results were used for calculation of sensitivity, specificity, positive predictive value and negative predictive values separately; those values were 100%, 88.14%, 69.57%, 100% and 100%, 91.53%, 76.19%, 100% respectively. The GBS isolates demonstrated resistant to chloramphenicol (17.40%), ampillicin (41.30%), cefotaxime (43.48%), erythromycin (56.52%), and clindamycin (56.52%). Overall, results suggest that the use of *atr* gene detection is better than use of *cfb* gene in PCR and both targets can perform well over CAMP test. Further AMR data highlight the necessity of practicing prudent use of antimicrobials in the clinical settings.

Keywords: Group B Streptococcus, *atr* gene CAMP Test, *cfb* gene, AMR Profile