Comparison of nested and ELISA based polymerase chain reaction assays for detecting \textit{Chlamydia trachomatis} in pregnant women with preterm complications

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Abstract. Identification of pregnant women infected with \textit{Chlamydia trachomatis} is essential to allow early antibiotic treatment in order to prevent adverse pregnancy outcomes. In this study, two nucleic acid amplification tests (NAAT) namely nested PCR (BioSewoom, Korea) and Amplicor CT/NG (Roche Diagnostic, USA) were evaluated in terms of sensitivity and specificity for the detection of \textit{C. trachomatis} DNA in pregnant women with preterm complications. A cross-sectional study was carried out in two public hospitals in Southern Selangor, Malaysia. Endocervical swabs obtained were subjected to DNA amplification using nested PCR (BioSewoom, Korea) and Amplicor CT/NG (Roche Diagnostic, USA). A total of 83 endocervical swabs obtained from pregnant women of less than 37 weeks gestation and presented with preterm complications were subjected to chlamydial DNA detection using both assays. The study shows that Amplicor CT/NG assay is more effective in the detection of \textit{C. trachomatis} DNA from endocervical swabs compared to Biosewoom nested PCR kit. Agreement between the two assays were poor (kappa=0.094) with nested PCR showing a low sensitivity of 10.81% and a 97.83% specificity when compared to Amplicor CT/NG. The results obtained indicated that BioSewoom nested PCR was less sensitive than Amplicor CT/NG for detecting \textit{C. trachomatis} in endocervical specimens and that another more reliable test is required for confirmatory result.

INTRODUCTION

\textit{Chlamydia trachomatis} is known as the chief etiological agent of sexually transmitted diseases (STDs) in women, which leads to urogenital infections. \textit{Chlamydia trachomatis} infections are asymptomatic in 70% of women, and untreated infection can cause serious sequelae, such as pelvic inflammatory disease, ectopic pregnancy, infertility and reactive arthritis. In the past few decades, there has been an increasing emphasis on bacterial infections as a probable etiology of preterm delivery and its classical clinical manifestations such as preterm contractions, preterm premature rupture of membranes (PPROM) and preterm labour among pregnant women (Vaitkiene \textit{et al.}, 2002; Pararas \textit{et al.}, 2006; Hitti \textit{et al.}, 2007; Baud \textit{et al.}, 2011). Presence of \textit{C. trachomatis} has been associated with the risk of preterm birth and PPROM among pregnant women in Hungary and Rotterdam (Nyári \textit{et al.}, 2001; Rours \textit{et al.}, 2011). Nonetheless, there has been no information as yet on \textit{C. trachomatis} infection in pregnant women with preterm complications in Malaysia.