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Comparison of diagnostic methods and analysis of socio-demographic factors of *Trichomonas vaginalis* infection

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Trichomonas vaginalis causes trichomoniasis, the most common non-viral sexually transmitted disease. Trichomoniasis is often neglected due to nonspecific clinical presentation and the lack of sensitive laboratory tests for diagnosis in clinical settings. Hence, this study was designed to compare the sensitivity and specificity of microscopy and culture with PCR. The socio-demographic factors associated with the disease is also explored.The study was carried out at the National STD/AIDS Control Programme (NSACP), Colombo and STD/AIDS Control Programme in Kandy. Three hundred eighty-five patients (244 patients from NSACP and 136 patients from STD/AIDS Control Programme in Kandy) were tested for the wet mount, Giemsa staining, culture and PCR using a genus-specific primer set (TFR1/ TFR2) and two species-specific primer sets (TV16Sf-2/ TV16Sr -2 and TVK3/7). The culture was performed using commercially available *Trichomonas* culture medium 2 (Oxoid 2) and incubated at 37^0c in the 5 % CO_2 jar for 3 – 5 days. Patients' demographic data and sexual behaviour were obtained with the standard interviewer-administered questionnaire by the clinicians. The sensitivity and specificity of diagnostic tests were calculated compared to the expanded gold standard (PCR). Of the study population, 272 (70.7%) were females, 253 (65.7%) were married and 163 (42.3%) were aged between 26 to 35 years. Of these, six (1.6%) were positive for both wet mount and Giemsa staining, seven (1.8%) were positive for culture, and 17 (4.4%) were positive for PCR. Four out of 17 tested positive patients had trichomoniasis co-infection with non-gonococcal urethritis following 3/17 candiditis, 2/17 bacterial vaginosis, 2/17 syphilis and 1/17 pelvic inflammatory disease. Sensitivities of the wet mount, Giemsa staining and culture were 35.3%, 35.3% and 41.2% respectively and specificities were 100% for all three methods against the expanded gold standard. Trichomoniasis was associated with age over 36 years (p = 0.033), not using condoms (p = 0.039), multiple sex partners (p = 0.013) and presence of other STDs (p = 0.001). The study highlighted that age over 36 years, having multiple sex partners, not using condoms, having other STDs increased the risk of acquiring trichomoniasis. Further, the study confirmed that PCR was superior to microscopy and culture methods.

Keywords: *Trichomoniasis, PCR, risk factors, sensitivity*

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