ESTABLISHMENT OF A MOLECULAR DIAGNOSTIC SYSTEM FOR DETECTING HUMAN PAPILLOMAVIRUSES IN CLINICAL SAMPLES

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Human Papillomavirus (HPV) is the most common cause of sexually transmitted disease in both men and women. Consensus primer-mediated PCR assays have enabled screening for a broad spectrum of HPV types in clinical specimens using a single PCR reaction. The main objective of this study was to establish a molecular diagnostic system for detecting HPV DNA in clinical samples and the second objective of this study was to compare the efficacy of three different primer sets, MY09/11 and GP5+/6+ primer sets for the L1 region and CPI/IIG primer set for E1 region for the detection of HPV genome in clinical samples and determine which primer set or combination of primers is most efficacious in screening for HPV.

Cervical and urethral swabs were obtained from 51 patients who are suspected of having HPV. The presence of HPV DNA in swabs was detected by MY09/11 PCR (33.33 %), GP5+/6+ PCR (72.55 %) and CPI/IIG PCR (56.86 %) out of 51 samples. In 23.53 % of samples HPV DNA was detected by three methods. In 43.13 % of samples HPV DNA was detected by two methods, whereas in 5.88 % only by the GP5+/6+ primer set.

The low cost molecular diagnostic system was developed in this study for the first time in Sri Lanka effectively detected HPV DNA. This system provides an affordable, cost effective routine screening method for patients who are suspected of having HPV infection at STD clinics. In this study, GP5+/6+ primer system alone was capable of detecting the most number of HPV positives. GP5+/6+ primer set is a potentially useful for HPV DNA detection in epidemiologic and clinical follow-up studies because it showed several advantageous features but, any single method for the detection of HPV may underestimate the true prevalence of HPV in cervical samples. The conclusion was that multiple consensus primers should be used in order to detect all patients harboring HPV. The nested PCR assay with MY09/11 and GP5+/6+ primer sets had higher sensitivities than that of singleplex PCR with MY09/11, GP5+/6+ and CPI/IIG primer sets. However, due to the risks of contamination in nested PCR, it was concluded that PCR with GP5+/6+ primer set is most suitable for community screening.