

Comparison of Sensitivity and Specificity of Pap Smear and Polymerase Chain Reaction Methods for Detection of Human Papillomavirus: A Review of Literature

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Abstract : Human papillomavirus (HPV) is one of the most common sexually transmitted infection, which may lead to cervical cancer as the main cause of it. With early diagnosis and treatment in health care services, cervical cancer and its complications are considered to be preventable. This study was aimed to compare the efficiency, sensitivity, and specificity of Pap smear and polymerase chain reaction (PCR) in detecting HPV. A literature search was performed in Google Scholar, PubMed and SID databases using the keywords 'human papillomavirus', 'pap smear' and 'polymerase chain reaction' to identify studies comparing Pap smear and PCR methods for the detection. No restrictions were considered. 10 studies were included in this review. All samples that were positive by pap smear were also positive by PCR. However, there were positive samples detected by PCR which was negative by pap smear and in all studies, many positive samples were missed by pap smear technique. Although The Pap smear had high specificity, PCR based HPV detection was more sensitive method and had the highest sensitivity. In order to promote the quality of detection and high achievement of the maximum results, PCR diagnostic methods in addition to the Pap smear are needed and Pap smear method should be combined with PCR techniques according to the high error rate of Pap smear in detection.

Keywords : human papillomavirus, cervical cancer, pap smear, polymerase chain reaction

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