Document Type : Thesis

Document Title : *Early Diagnosis Of Human Papillomavirus (Hpv)Infection By Molecular Tests And Its Relation To The Prevention Of Cervical Cancer*

التشخيص المبكر لعدوى فيروس الورم الحليمى البشري بالفحوصات الجزيئية و علاقته بمنع الإصابة بسرطان عنق الرحم

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Abstract : The aim of the study was to improve the screening of cervical neoplasia by adding molecular testing of human papillomavirus (HPV) to cytological screening by Papanicolaou (Pap). The Hybrid Capture 2 (HC2) tests and Polymerase Chain Reaction (PCR) were used to screen women with either normal initial cytology for cervical precancerous or cancerous lesions. The study was conducted on a total of 100 women with age range 27-65 years. The HC2 technology is a signal amplified, hybridization microplate assay using chemiluminescence for the qualitative detection of 18 types of HPV DNA in cervical specimens. It accurately detects the HPV types, conclusively shown to be involved in the development of cervical neoplasia and allows simultaneous HPV and Pap testing. HPV HC2 test can differentiate between low-risk and high/intermediate risk HPV types. Results obtained by HC2 for detection of HPV for 100 patients were 5 high-risk, 1 low–risk and 94 were negative. Patients having positive HPV DNA result on routine screening with a negative Pap test defined as the absence of any atypical Squamous cells (ASC) or less severe lesions, and patients having abnormal Pap with negative HPV DNA had repeat HC2 and Pap tests within a year. By using PCR test 4% were detected, 1% marked inflammation with marked cellular changes, 2% ASC-US, and 1% atypical endocervical cells. Those four plus two extra, 1% as marked inflammation and 1% as Koilocytotic changes with HPV infection were detected by HC2. Repetition of Pap smear significantly improved its correlation with molecular testing. The efficacy of the results was tested and compared to HC2, where the sensitivity, specificity, positive and negative predictive values as well as accuracy of Baseline Pap were 50%, 85%, 17.7%, 96.4% and 83%; for Final Pap smear were 100%, 96.8%, 66.7%, 100%, 97%, and for PCR were 66.7%, 100%, 100%, 97.9%, 98%, respectively. Our findings indicate that 100% of those who positively tested for high-risk types of HPV and reported as within normal limit (WNL) in the baseline Pap test started to develop clinically significant cervical abnormalities with Pap test within a year. This study indicated that molecular testing of HPV DNA improves the prediction of disease occurrence in women with positive HPV, while a negative test provides reassurance that they are unlikely to develop cervical cancer for several years. It is recommended that HC2 or PCR be used in conjunction with the Pap test in the screening program for cervical cancer, and that women with double negative results at baseline be screened at three years instead of the annual single Pap test.

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