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Evaluation of micronuclei and nucleus/cytoplasm ratio of patients with Human papillomavirus type-16 infected cervical epithelial cells using liquid based cytology

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Human papillomavirus virus (HPV) is the main causal factor of cervical carcinoma. The oncogenic human papillomavirus (HPV) types are the most significant risk factors in its aetiology. HPV 16 is one of the important oncogenic types. Micronuclei (MN), cytoplasmic fragments of DNA have been reported as a marker for high cancer risk as it arises in response to carcinogens. MN scoring can be used in various clinical settings such as disease biomonitoring, genotoxicity, screening of cancer and diseases related to genetic causes. The aim of this study was to evaluate the nucleus/cytoplasm ratio and micronucleus frequency of HPV type 16 positive exfoliated epithelial cells prepared via liquid based cytology. In the present study, 30 HPV-16 infected patients' cervical smears and 30 control smears' with no infection agent prepared via liquid based system were evaluated for MN frequency and also cellular and nuclear size. Micronucleated cells were counted in each smear. Also nuclear and cellular areas were evaluated using image analysis software at a magnification of $\times 400$. The frequency of micronucleated epithelial cells was higher in the HPV-16 infected group compared with the control group ($p < 0.05$). The mean nucleus/cytoplasm ratio in HPV-16 patients was higher than the value in the control group but the difference between the groups was not statistically significant. HPV type 16 affects the frequency of micronucleated cells and nucleus/cytoplasm ratio. Light microscopic analysis of MN in cervical smears increases the sensitivity and specificity of cytology in the evaluation of micronuclear pictures due to HPV type-16.

Biography

Zehra Safi Oz has completed her PhD from Hacettepe University. She is the Director of Bulent Ecevit University, Faculty of Medicine, Department of Medical Biology. She has published more than 10 papers in reputed journals.

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