

Expression of HPV L1 Capsid Protein in Cervical Specimens with HPV infection

[Kyung-Ji Lee], Gyeongsin Park, Tae-Jung Kim, Youn-Soo Lee, Jae-Hwa Hong, Chan-Kwon Jung, Chang-Suk Kang, Kyo-Young Lee
Department of Hospital Pathology, College of Medicine,
The Catholic University of Korea, Seoul, Korea

Background : It is well known that most of cervical cancers are caused by HPV. However, not all HPV infection could give rise to cervical dysplasia and promote the progression to carcinoma. Many of cervical lesions associated with HPV could be expected to regress spontaneously, somehow by the action of host immunity. The immune response to HPV is directed against the capsid proteins, late gene proteins. HPV L1 capsid protein, a potential target of host immune response, has been spotlighted as a predictive factor.

Aims : We studied to investigate the expression rate of HPV L1 capsid protein in uterine cervical specimens and correlate to grades of dysplasia, HPV genotypes and age group of patients.

Materials and Method : Among uterine cervical specimens proved to have HPV by DNA genotyping tests, eighty cytology-biopsy paired cases were selected and entered into the current study. They consist of 58 cases with high risk group HPV (72.5%) and 22 cases with low risk group HPV (27.5%). 3 squamous cell carcinoma, 9 HSIL, 24 LSIL, 13 ASCUS, 6 ASCH and 25 negative in cytological diagnosis. Mean age was 38 year-old (22 to 88 year-old). Immunohistochemical staining (IHC) for L1 capsid protein was performed on both cervical smear and paraffin tissue section slides.

Results : The L1 capsid protein was expressed mainly in nuclei, but occasionally in cytoplasm of cells located at superficial layer of the epithelium. The IHC for L1 capsid protein showed positive in 34 cases (42.5%) of cervical smears and in 10 cases (2.5%) of tissue sections. The concordance rate of cytology(C) and tissue(T) was 67.5% (9 C+/T+, 25 C+/T-, 1 C-/T+ and, 45 C-/T-). According to the cytologic diagnosis in LSILs, it showed higher expression in low risk group (7/8; 87.5%) (56.3%) (50.0%) than in over 40 year-old age group (31.3%) ($p=0.097$).

Conclusions : Cytology smears were superior to tissue sections in IHC for L1 capsid protein. L1 capsid protein showed relatively higher expression in LSIL, in low risk group and in younger age group, which suggest that L1 capsid expression might be related with favorable disease biology.