Abstract 1.6

The Top 3 Most Common Human Papillomavirus Oncogenic Types and Their Integration State in Thai Women with Cervical Precancerous Lesions and Carcinomas

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Background: Uncontrolled expression of E6/E7 oncogenes of different high risk human papillomavirus (HR-HPV) genotypes are critical events in cervical cancer development and mostly depend on integration of viral genome in cellular genome. To know the common HPV genotypes in cervix and understand their potential role in cancer development, this study investigated for HPV genotype in tissues from cervical lesions and physical status of the third most common HR-HPV. Age-related prevalence of HPV was also determined.

Methods: Cervical tissues consisting of no evidence for intra-epithelial lesion (NILM=84 cases), cervical intraepithelial neoplasia I (CINI=176 cases), CINII-III (91 cases) and squamous cell carcinoma (SCC=66 cases) were subjected for DNA and RNA extraction. DNA was used for HPV detection by PCR and HPV genotyping by reverse line blot hybridization assay. The HPV physical status was investigated by APOT assay using the extracted RNA.

Results: HPV prevalence was 28.6%; 40.3%, 70.3%, and 86.4% in NILM, CINI, CINII-III and SCC cases, respectively. The three most common HR-HPV types which were distributed in all cervical lesions were HPV16 (45.28%), 18 (12.58%) and 58 (20.75%). The prevalence of HPV infection in NILM and CINI group was higher in women aged < 40 years old and decreased in women over 40 years old. HPV physical status could be investigated in 4 NILMs, 25 CINIs, 28 CINII-III and 31 SCCs. The frequencies of HR-HPV integration were found 40%, 100%, 20% of HPV 16, 18, 58 in SCC, respectively. The integrate-derived transcripts were found 3.6% in CINII-III and 48.4% in SCC, whereas no viral genome integration was found in NILM and CINI.

Conclusion: These results demonstrate the three most common oncogenic HPV types that showed different potential roles in cancer progression and might be benefit to predict women who are at risk to progress to cervical cancer and vaccine application in Thai women.