Evaluation on the prevalent of human papillomavirus infection in breast tissues from Thai women

Jarunya Ngamkham[1], Anant Karalak[2], Akrom Chaiwerawattana[3], Somchai Thanasutthichai[1,3], Adisak Sornprom[3], Saowakorn Sukarayodhin[1], Vimol Sultangmon[2], Maneerut Mau-u-dee[2], Nattapon Laochan[4], Kittika Boonmark[1], Thainsang Phansri[1]

[1]Research Division, [2]Pathology Division, [3]Surgery Division, [4]Cancer Screening Section, Policy and Strategy Development Division, National Cancer Institute, Bangkok 10400 Thailand

Abstract

Breast cancer is the leading female cancer worldwide and Thai women. Its potential etiologic had not been clearly identified. Recent studies could detect human papillomavirus (HPV) infection in breast cancer or benign tumor. HPV infection considered suggests being one of many risk factors for cancer development. The aim of this study was determine the frequency of HPV infection in both breast cancer and benign tumor. Seven hundred samples from Thai women were collected during 2013-2015 and statistically correlation between HPV infection and histopathology parameters was also analyzed. HPV DNA detection and genotyping were performed by polymerase chain reaction and enzyme immunoassay (PCR-EIA) using GP5+/bio6+ primers and HPV specific probes, respectively. The results showed that mean age of the patients were 41.76±12.53 and 52.73±11.68 years for benign tumor and breast cancer samples, respectively. HPV DNA was detected in 25/700 (3.5%) samples, in which 10/350 (2.857%) from benign tumor and 15/350 (4.285%) from breast cancer. Single type and multiple type infection were found in both groups. HPV 16 was the predominant types of this study, followed by HPV 33, 18, 35 and 52. Most of HPV type detection samples belong to the high risk types, expect 1/25 sample could detect low risk; HPV 6 which was presented as co-infection with the other high risk type. From histopathology correlation analysis, found that the tumor grade was significantly correlated with HPV infection (P=0.036), whereas the other parameters such as hormone receptor status etc. did not show statistically significant correlated with HPV infection (P>0.05). In conclusion, the low frequency detection in this study suggested that HPV did not play the main important role for breast cancer development in Thai women, but it may be causative agents of only a relative small proportion of all breast cancer or benign breast tumor and it is the interesting data of Thai women for further study in virus-associated cancer.

Keywords, human papillomavirus, benign breast tumor, breast cancer, Thai women