The role of human papillomavirus Infection in prostate carcinoma

A. Aghakhani1, R. Hamkar2, M. Parvin3, M. Banifazl4,5,6, A. Eslamifard1, A. Ramezani1

1 Pasteur Institute of Iran, Tehran, Iran, Islamic Republic of
2 Tehran University of Medical Sciences, Tehran, Iran, Islamic Republic of
3 Shahid Beheshti University of Medical Sciences, Tehran, Iran, Islamic Republic of
4 Iranian society for support patients with infectious diseases, Tehran, Iran, Islamic Republic of

Background: Human papillomavirus (HPV) infections are frequently associated with benign, pre-malignant and malignant lesions of the female genital region and male anogenital tract. One potential etiological factor of interest for prostate carcinoma (PCA) in light of the associations with sexual practices is exposure to HPV. Currently the possible role of HPV infections in prostate carcinogenesis is a subject of great controversy. In this study we aimed to investigate the role of HPV infection in prostate carcinoma.

Methods: Formalin-fixed and paraffin-embedded tissue samples of 104 primary prostate adenocarcinoma cases with varying degrees of differentiation and 104 control tissues of benign prostatic hyperplasia (BPH) were provided for analysis. HPV-DNA was purified and amplified through MY09/MY11 and GPS-+/GP6+ primers and subsequently subjected to sequencing.

Results: HPV-DNA was found in 11 of 104 (10.58%) PCA and 7 of 104 (6.73%) BPH samples. There was not any significant difference between PCA and BPH specimens regarding HPV-DNA presence. High-risk HPVs (type 16&18) were detected in all of the PCA and 6 of 7 (85.7%) BPH samples (not significant) and low-risk HPV (type11) were detected in none of the PCA and 1 of 7 (14.2%) BPH specimens (not significant). HPV-16 was the predominant HPV type in both PCA and BPH samples.

Conclusion: Our study showed that there was not any significant difference between PCA and BPH specimens regarding HPV-DNA presence. Our data do not support the hypothesis that HPV infection is related to the development of prostate cancer. However, as with other HPV-associated diseases, attributing a role to the virus in the etiology of prostatic carcinoma will require further detailed studies.

doi:10.1016/j.ijid.2010.02.657