The Asian HPV 52/58 variants

Prof. Paul KS CHAN

MBBS (HK), MSc (Virology) (Lond), MD (CUHK), FRCPath, FHKCPath, FHKAM (Pathology), Professor (Clinical), Department of Microbiology, CUHK, Hong Kong

Biography:

Professor Paul CHAN is Clinical Professor and Chairman of the Department of Microbiology, and Deputy Director of the Stanley Ho Centre for Emerging Infectious Diseases, Faculty of Medicine, The Chinese University of Hong Kong. He is also an Honorary Consultant in Microbiology for the New Territories East Cluster Hospitals of the Hong Kong Hospital Authority. Professor Chan is a renowned clinical virologist with special interest in tumour virology and human respiratory viruses. He serves many key professional bodies in Hong Kong, including the Scientific Committee on Emerging and Zoonotic Diseases of the Centre for Health Protection, the Grant Review Board for Medical and Health Research Fund. Professor Chan is Editor-in-Chief of the Journal of Virological Methods. He has published 14 book chapters and more than 330 scientific papers, and attained an H-index of 51.

Abstract:

To date, about 200 different types of human papillomavirus (HPV) have been identified. HPVs infect keratinocytes and cause lesions over the mucosal and cutaneous surface of the body. The consequence of infection ranges from completely asymptomatic to cancer development. At least 8 HPV types carry a clear carcinogenic potential (HPV16, 18, 31, 33, 35, 45, 52 and 58). While HPV16 and 18 account for about 70% of cervical cancer cases and with little variation across the world, other high-risk types show geographical variation in disease attribution. For instance, HPV58 only ranks the sixth or seventh in cervical cancer worldwide, but ranks the third in East Asia. For instance, HPV58 has been found in 29% of cervical squamous cell carcinoma (SCC) in Shanghai (East China), 21% in Taiwan, 19% in South Korea, and 14% in Japan. These are well above those reported outside East Asia (0.8-2.8%). Such ethno/geographical predilection in disease burden attributed to HPV58 deserves attention. From the study on 2,790 Hong Kong women, HPV58 was found in 13% of SCC, 18% of CIN III, 22% of CIN II and 20% of CIN I. These data confirmed the importance of HPV58 in Hong Kong (South China). A meta-analysis including both English and Chinese reports found that, even after adjustment of bystander effect in multiple-type infections, the attribution of HPV58 to cervical cancer was still 3.7-fold higher in East Asia than elsewhere. Another study on 1,924 Hong Kong women found that the variant E7 T20I/G63S conferred an odds ratio of 26.8 for the development of CIN III or SCC, which was 6.9-fold higher than other variants. To explore the reasons for a higher prevalence of HPV58-associated cervical cancer in East Asia, an international study to examine the geographical distribution and risk association of HPV58 variants was conducted. That study with 401 cases from 15 sites across 4 continents arrived a similar conclusion that E7 T20I/G63S variant carried 7-9 folds higher risk for CIN III / invasive cancer. More importantly, there was geographical predilection in the distribution of HPV58 variants, with the "epidemiologically high-risk variant E7 T20I/G63S" being more commonly found in East Asia. These data together with recent findings on the molecular epidemiology of another type (HPV52) that are more prevalent in Asia will be presented.