

Multiple human papilloma virus infections predominant in squamous cell cervical carcinoma in Bandung

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ABSTRACT

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BACKGROUND

Persistent infection of high risk genotypes of human papilloma virus (hrHPV) has been established as the etiological cause for cervical cancer, and the most prevalent genotypes that infect the cervical tissue are HPV-16 and HPV-18. However, HPV genotype profile has been shown to differ according to geographical distribution across the globe. The present study aimed to determine the HPV genotype distribution in cervical cancer patients from Bandung, Indonesia.

METHODS

During the period of July – November 2010 viral DNA was extracted from randomly chosen cervical cancer biopsies and subjected to genotype determination using the diagnostic linear array genotyping test (Roche). The distribution of HPV genotypes was explored and the prevalence of HPV genotypes was mapped.

RESULTS

Of 96 cervical cancer tissue samples, 76 (79.2%) were histopathologically classified as squamous cell cervical carcinoma. Due to the high cost of HPV genotyping tests, only twenty-five samples were randomly genotyped. Almost 90% of the cervical cancer patients were multiply infected with HPV-16 in combination with HPV-18, HPV-45, or HPV-52. The HPV-16 genotype had the highest prevalence, all samples being infected with HPV-16.

CONCLUSION

The cervical cancer cases were predominantly infected by multiple hrHPVs with HPV-16 as the major genotype among other hrHPVs, supporting the carcinogenic role of this hrHPV. Therefore, screening for hrHPVs in the general population is urgently needed as a means of early detection of cervical cancer.

Keywords: Cervical cancer, HPV-16, multiple HPV infections, Bandung

Infeksi multipel human papilloma virus mendominasi kanker serviks tipe sel skuamosa di Bandung

ABSTRAK

LATAR BELAKANG

Infeksi virus human papilloma (HPV) tipe risiko tinggi yang kronik merupakan salah satu penyebab kanker serviks pada wanita. Genotipe yang tersering menginfeksi jaringan serviks adalah HPV genotipe 16 dan 18. Walaupun demikian, profil genotipe dapat berbeda-beda di seluruh dunia, tergantung dari geografinya. Penelitian ini bertujuan untuk menentukan distribusi genotipe HPV yang menginfeksi jaringan kanker serviks di Bandung, Indonesia.

METODE

Selama periode Juli – November 2010, dilakukan isolasi DNA virus HPV dari biopsi jaringan kanker serviks yang diambil secara acak, kemudian genotipe HPV ditentukan dengan menggunakan linear array HPV genotyping test (Roche). Selanjutnya dilakukan penelusuran distribusi genotipe HPV dan dibuat peta prevalensi genotipe HPV.

HASIL

Dari sejumlah 96 jaringan kanker serviks, 76 (79.2%) terdiagnosis secara histopatologis sebagai tipe squamous cell cervical carcinoma (SCC). Karena tingginya biaya uji genotipe HPV, penentuan genotipe HPV hanya dapat dilakukan pada 25 sampel SCC yang diambil secara acak Hampir 90% SCC terinfeksi secara multipel oleh HPV-16 dengan kombinasi HPV-18, HPV-45, atau HPV-52, sedangkan prevalensi HPV-16 pada jaringan kanker serviks mencapai 100%.

KESIMPULAN

Infeksi multipel HPV dengan genotipe risiko tinggi mendominasi jaringan kanker serviks, sesuai dengan peran genotipe HPV risiko tinggi sebagai agen karsinogenik, dengan prevalensi tertinggi untuk HPV-16. Untuk itu skrining genotipe risiko tinggi HPV menjadi hal yang sangat dibutuhkan sebagai upaya deteksi dini kanker serviks.

Kata kunci: *Kanker serviks, HPV-16, infeksi multipel HPV, Bandung*

INTRODUCTION

Cervical cancer is the second most prevalent female cancer after breast cancer, affecting more than 150,000 women worldwide annually, of which 80% occur in developing countries.⁽¹⁾ This cancer continues to impose a significant health burden in low- and medium-resourced countries of sub-Saharan Africa, Latin America, and South and South East Asia.⁽¹⁾ In Indonesia, cervical cancer ranks first among gynecological cancers and has become a major health problem in this country.⁽²⁾

Chronic human papilloma virus (HPV) infection is strongly associated with the development of cervical cancer. HPV infections in the cervix are frequently associated with intraepithelial neoplasia and invasive squamous cell carcinomas (SCC) with all their different histological variants i.e. large-cell keratinizing, large-cell nonkeratinizing and small-cell carcinoma.⁽³⁾ HPV types 16, 18, 31, 52, and 58 are considered carcinogenic or high-risk types, including other HPV types such as HPV type 33, 35, 39, 45, 51, 56, 59, 68, 73, and 82.⁽⁴⁾ Other HPV types 26, 53, and 66 are considered