
RECENT ADVANCES IN THE DIAGNOSIS OF GENITAL HPV INFECTIONS

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ABSTRACT

Genomic typing is considered the method of choice for detection of genital infections with human papillomaviruses. Most assays are based on determination of DNA:RNA-hybrids by autoradiographic or enzymatic staining. According to our results, the sensitivity of a conventional dot-blot method was limited by the amount of cellular substrate gained for testing. In situ-hybridization applied to cytologic swabs was not useful, while applied to histological samples it allows direct assessment of the epithelial affection. Polymerase chain reaction dramatically increases the sensitivity and specificity of subsequent hybridization tests. It can be used in selected cases. Southern blot assays and other highly specific tests are exclusively performed to answer scientific questions. In contrast to that, a relatively new chemoluminescence assay can be recommended for routine use. It allows the differentiation between two viral groups of different malignant risk as well as the detection of single viral strains. Compared to other routine methods, the chemoluminescence assay combines the advantage of easy handling with high sensitivity in the high and low risk spectrum of viral strains.

KEY WORDS

human papillomavirus, hybridization, bio-molecular assays, chemoluminescence

INTRODUCTION

Soon after infection of genital epithelia with human papillomaviruses (HPV) the viral genome is inserted into the genome of host cells. (4,6,16) Therefore genomic typing remains the only way to verify a viral infection (1). Hybridization of viral sequences with RNA probes has turned out to be the method of choice (8).

HPV infections are widely spread within the population; therefore there is an epidemiologic interest for diagnostic assessment. (8,14,17). Furthermore,

high-risk strains (HRS) potentially can cause the onset of malignant tumors, especially in the susceptible region of the cervix uteri (4,8,9). Consequently routine screening in risk groups must be followed by specific tests for HPV infections in case of certain patients and their sexual partners (7,12).

Due to technical and financial aspects, among several methods available the most proper one is to be chosen (5). The present study gives a survey over these methods, for the most part based on own results.

