Extended Abstract

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HUMAN PAPILLOMAVIRUS INFECTION IN GENITAL WOMEN IN FOUR REGIONS OF SENEGAL

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Introduction:

Cervical cancer is the most commonly occurring form of cancer among women in Senegal. However, there are little information concerning the HPV types inducing neoplasia and cervical cancers and their prevalence, in the general population of Senegal.

Aims:

The aim of this study is to determine the prevalence of HPV infection in Senegalese women aged from 18 years and older.

Abbreviations:

HPV, human papillomavirus; HR-HPV, high risk human papillomavirus; LR-HPV, low risk human papillomavirus; OR, odds ratio; pHR-HPV, probable high risk human papillomavirus

Materials and Methods:

A brief study was performed on 498 cervix samples collected from healthy women aged 18 and older in Dakar. 438 other samples were collected from three other regions, Thies, Saint Louis and Louga. In Senegal, pathologies such as cervical cancer are one of the top causes of death and the Human papillomavirus (HPV) is its aetiological agent. The samples were screened for 21 HPV genotypes using an HPV type-specific E7 PCR bead-based multiplex genotyping assay (TS-MPG) which is a laboratory-developed method for the detection of HPV.

In Senegal, cervical cancer is the most commonly occurring form of cancer with the majority of infections occurring in the 15–24 years age range. The incidence rate of cervical cancer in Senegal is estimated to be 37.8 per 100,000 women. The prevalence of high-risk HPV ranged from 12% to 14%, and these prevalence estimates are representative of reports from other West African countries. Reports implicated roughly 3.2 million females aged 15 and older is at risk of developing cervical cancer. Various risk factors, some of which promote HPV acquisition and others that propagate the oncogenesis of cervical cancer are rampant in Senegal. High parity, early pregnancies, and sexual activity at a young age are all common practices in these countries and have been shown to increase the risk of cervical cancer. Recent studies have implicated other STIs besides HPV with cervical cancer; Herpes simplex type 2, Chlamydia trachomatis and Neisseria gonorrhea have all been linked to an increased risk of cervical cancer. Infections increase the risk of cancer through the induction of chronic inflammatory responses, which generate free radicals that promote oncogenesis. Seventy percent of the world's cases of HIV are diagnosed in Sub-Saharan Africa. The prevalence of cervical intraepithelial neoplasia (CIN) has been estimated to be as high as 20–40% in HIV-positive women. HIV-positive women are more likely to have persistent Human papilloma virus infections than HIV-negative women. In Senegal found invasive cervical cancer in 0.3% of HIV-negative women, compared with in 1.9% of HIV-1-positive women, 4.5% of HIV-2-positive women, and 6.9% of dually infected women. There is a significant shortage of trained healthcare personnel, which affects access to health services in Sub-Saharan countries.

HPV Vaccination in Senegal :

Anti-HPV immunization has been conducted in urban areas of Senegal, however, the short-term or long-term impact on the incidence of cervical cancer is not yet known. This program has provided Gardasil vaccine since September 2012 for girls aged 9 to 13 years. A pilot study for the introduction of HPV vaccines has been conducted in two districts, one in an urban area of Bamako and another in a rural area of the Fana district. The results of these studies are not yet available. Similarly, the Senegalese government has also launched an HPV vaccination campaign with the support of GAVI, which started in November 2017. However, HPV vaccines are not yet widely available for the implementation of population-based vaccination programs. Few data are available regarding the prevalence and distribution of HPV types in Senegal. These epidemiological studies have potential implications for vaccination programs.

Cervical Cancer Screenings in Senegal:

Random screenings are occasionally performed in urban areas and less frequently in rural areas of senegal. It is estimated that 4.43 million females over the age of 15 are at risk of contracting cervical tumors. About 2.3% of women in the Senegalese general population are estimated to harbor cervical HPV-16/18 infections at a given time, and many of them will develop invasive cervical cancer. These kinds of data can be useful in the triage of the most at-risk populations and provide insight as to which screening and intervention efforts are focused on.

A higher proportion of sex workers in urban areas of Dakar, the capital of Senegal, is affected by HPV infection; these rates are estimated to be nearly 10 times higher than the general population. It was recently shown that high-risk HPV genotypes affecting at least 10% of sex workers in order of decreasing frequency were HPV genotypes 52, 16, 35, 51, 33, 31, 18, and 45. It has been established that a higher number of lifetime sexual partners facilitates co-infection with multiple types of HPV and other STIs. An estimated percent of 0.5% of women aged from 15 to 49 in Senegal was reported to be infected with HIV (total population of 15.85 million). Clearly, a high burden of HPV infection is seen in sex workers with a high frequency of coinfection with HIV and multiple HPV genotypes.

Results:

The prevalence for pHR/HR-HPV in the region of Dakar was 20.68%. HPV 52 (3.21%) was the most prevalent HPV type, followed by HPV 16 (3.01%) and HPV 31 (3.01%). In the regions of Thies, Louga and Saint Louis, the prevalence for pHR/HR-HPV was 29.19%, 23.15%, and 20%, respectively.

Conclusion:

The research revealed the specificity of the HR-HPV prevalence in Dakar and other regions, Thies, Saint Louis and Louga of Senegal. The patterns differ from the one observed in the other regions of the world and raise the issue of the development of vaccination program in the country. Such a program should take into account the real HPV prevalence for an effective protection of HPV-associated diseases. National Human papilloma virus vaccination and screening programs could significantly decrease the incidence of cervical cancer.

Recently, the Price of vaccines and screening tests is beyond the reach of the majority of Senegal citizens, and in fact, cervical cancer is considered as a disease of poverty. It can be hoped that through the collective efforts between governments, donors, the private sector, innovators, researchers, and pharmaceutical companies, could save thousands of lives from a cancer.