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Human Papillomaviruses infection, complications, Risk factors, Prevention and Women's knowledge

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ABSTRACT
Human Papillomaviruses (HPV) is a significant source of morbidity and mortality worldwide. The primary risk factors for acquiring HPV are generally associated with sexual activity. Indeed, HPV is the widespread type of Sexually Transmitted Diseases (STD). So, women should be given appropriate education about HPV and the it's dangers and also be encouraged to obtain appropriate gynecological care after initiating sexual activity. This article discusses prevalence of HPV infection, the causal role that it plays in the development of complications, factors that increase risk of this infection, preventive actions and Women's knowledge about this infection.
Keywords*: Human Papillomaviruses (HPV), Sexually Transmitted Diseases (STD), Cervical Cancer*

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PREVALENCE

In recent years, genital Humman Papillomaviruses (HPV) is the widespread type of Sexually Transmitted Diseases (STD) in majority of countries [1]. 630 million persons worldwide are infected with it [2]. Over 50% were from Europe and the Middle East (38%) and North America (19%), with smaller proportions from Asia and Australia (21%), Central and South America (11%), and Africa (10%) [3]. Prevalence of HPV varied nearly 20 times between populations, from 1·4% in Spain to 25·6% in Nigeria [4]. So, worldwide variations in HPV prevalence appear to largely reflect differences in sexual behavior across geographical regions [3].

COMPLICATIONS

The WHO's International Agency for Research on Cancer (IARC) classified HPV infection as "carcinogenic" to humans _types 16 and 18_, "probably" carcinogenic _types 31 and 33_ and "possibly" carcinogenic _other types except 6 and 11_ [5]. HPV is now recognized as the main cause of cervical, vaginal, vulvar and anal intraepithelial lesions and cancer [6,7]. HPV related cancer is the second leading cause of cancer deaths in women worldwide [8]. Cervical cancer is the second cancer as the leading cause of cancer related mortality in women - estimated 190, 000 deaths every year- and about 80% of cases is seen in developing countries [9,10]. According to the American Cancer Society 11,070 cases of cervical cancer occurs in 2008 and that 3,870 women die from this it [11]. In addition concluded that cervical HPV related disease accounted for total healthcare costs of $3.4 billion, with expenditures for routine screening of $2.1 billion, false-positive Pap test results of $300 million, CIN 1 of $150 million, CIN 2/3 of $450 million, and invasive cancer of $350 million [10]. HPV 6 and 11 are responsible for genital warts [12]. Approximately 1.4 million individuals currently have genital warts in the United States, with 500,000 to 1 million new cases occurring annually and number of visits to health care providers for this condition is estimated at 300,000 [13,14]. The prevalent emotions felt at the time of the

diagnosis of this infection are fear and anxiety and having higher levels of obsessions, compulsions, behaviours and worries related to hygiene and improbable infections [15]. The psychological discomfort and stigma of genital warts, along with the physical discomfort associated with treatment, makes this condition a distressing one to most patients [13].

Risk factors

The primary risk factors for acquiring infection are generally associated with sexual activity [16]. 75% of sexually active adults will have had some form of infection _ within 1 to 2 years of onset of sexually active _ and it's prevalence in men is lower than women [17,18]. ''U'' shape of age specific prevalence occurring as if infection is predominantly acquired in adolescence, and peak prevalence in middle-age and 10% of infected women develop persistent it [19]. Factors such as young age _less than 25 years_, early age at first sexual intercourse _16 years or younger_, increasing number of sex partners, male partner has _or has had_ multiple sex partners associated with this infection [20]. Apart from sexual behaviour other individual, medical and reproductive factors for HPV transmission might include race, education level, poverty index, unmarried status, history of partner without Circumcision, smoking, alcohol consumption, history of tuberculosis; diabetes and non genital skin warts, use of steroid drugs, parity status, induced abortion, contraceptive usage, poor condom use, co-infections: genital HSV; Chlamydia; Trichomoniasis; HIV; urinary tract infections and renal failure [15,21,22,23,24, 25,26,27,28,29,30,31,32]. Result of studies about association between these factors and HPV infection is conflicting [17]. However study's authors express considerations to support of this association and their study's results. See below: Race seems to be could be related to the virus's ability to adapt to host immunity [21]. Unmarried status suggests that single women may have an increased likelihood of encountering more frequent sexual relationships, hence more HPV exposure, compared to their married counterparts [23]. Circumcision reduces the infection, probably due to the reduction of infection-prone noncornified epithelium [24]. Steroids, diabetes, renal failure and HIV infection, cigarette smoking compromise the immune system and may potentiate the problem [27]. Also, a simply explanation is that alcohol consumption might lead to unsafe sexual behavior and to less adherences to contraceptive methods [33]. History of the non genital wart indicates low immunity of body to counteract with HPV family in afflicted persons [28]. Induced abortion may be a surrogate of risker sexual behavior and/or potential iatrogenic transmission through insufficiently sterilized medical instruments [29]. Trichomoniasis, urinary tract infections, tuberculosis which are factors potentially related to relatively poorer socioeconomic status [23].

Prevention

HPV infection is difficult to prevent in sexually active adults, and preventing transmission is much more difficult to achieve with HPV infection than with other STIs [27]. This stage of prevention covers all activities designed to reduce the risk of HPV acquisition and thus is important to reduce the burden of disease such as genital warts, abnormal Pap tests, and cancer [20]. Considering that HPV is acquired early after sexual debut, primary prevention should start early [27]. One approach to HPV prevention that was found to be successful in Uganda in the late 1980s and 1990s is the 'ABC' approach, an acronym that stands for Abstain, Be faithful, use Condoms [34]. Population-based preventive measures should include dissemination of general information about HPV. There are many useful tools to prevent HPV infection, but they need to be tailored to patients' needs. More than one method may apply to each individual, and the approach may need to change over a person's lifetime, since HPV infection can recur even in stable partnerships. Practitioners need to engage patients in regular reevaluation of their prevention needs. Vaccination may represent the best primary prevention method, as condoms have limited efficacy without consistent use, and abstinence is unacceptable to many [27,35]. In the first vaccine against this infection, Gardasil®, a quadrivalent prophylactic vaccine _6, 11, 16 and 18 VLPs_ was approved for use in North America and later in over 100 countries worldwide. A second vaccine, Cervarix® a bivalent vaccine _16 and 18 VLPs_ was first approved in 2007 in Australia, then Europe, with just over 60 countries approved and currently undergoing regulatory review in many countries. Both vaccines are designed with the goal of preventing three out of four cervical cancer cases. In a round table discussion, eight experts from countries in the Asia-Pacific region answered questions and expressed their opinions, as follows. Garland Manufacturer's information on the effectiveness of these vaccines shows a prevention rate of more than 90% with HPV types 6, 11, 16, and 18 _quadrivalent_ and 16 and 18 _bivalent_ in patients not previously exposed to HPV. The duration of protection seems to be longer than 4 years, but the exact duration of protection is still not known. Some details on the future of the vaccine, such as ideal age of initial dosing, use in boys, and boosters, are still not clear, but current trials are under way to answer these questions [36]. Considerable pressure has been put on the FDA to add a warning to condom labels stating that condoms do not protect against HPV infection. In June 2000, the CDC, NIH, FDA, and

USAID convened a workshop to evaluate published evidence on the effectiveness of latex male condoms in preventing sexually transmitted infections. A summary report from that workshop stated that "there was no epidemiological evidence that condom use reduced the risk of HPV infection, but study results did suggest that condom use might afford some protection in reducing the risk of HPV-associated diseases, including warts in men and cervical neoplasia in women. Now, investigators from the University of Washington have provided the best evidence to date that condoms do, in fact, reduce the risk for HPV infection in women [37]. However, regular and consistent condom use is necessary to achieve about 60% protection against infection; HPV can still be transmitted through contact with areas of unprotected genital skin such as the vulva or scrotal sacs [38]. So, prevention programs involving men should not be neglected as they may reduce genital disease burden in women [39]. Pap testing may represent the best secondary prevention method. Secondary prevention covers activities aimed at reducing the risk of complications of HPV infection, shortening the time that patients are contagious, and reducing the number of new cases. These activities include identification, referral, and screening of partners. In the context of HPV infection, tertiary prevention activities aim to reduce the incidence of chronic incapacity due to warts, precancerous conditions, and cancers, as well as their recurrence in a population. We also want to reduce the functional consequences sexual, societal, familial, mental, and physical of all manifestations of HPV infection [27]. These findings highlight the importance of both primary and secondary prevention [40].

Women's knowledge

Although HPV is the most prevalent sexually transmitted infection in the United States, fewer than one-third of men and women in the general population have heard of it and similarly low awareness has been reported among women in high school and college settings. While nearly all surveyed university students have heard of genital warts, between 28% and 67% have never heard of HPV. University students have also reported that they know less about HPV than about other common sexually transmitted infections [41]. Also, incidence data on HPV infection are limited, and risk factors for transmission are largely unknown [25]. Overall, the knowledge of the general public about HPV infection is poor. Efforts should be increased to give sufficient and unbiased information on it to the general public [42]. This information will contribute to elucidating the epidemiology of HPV infection across subpopulations, and it will also be helpful in the implementation of future prevention strategies [43,44]. In addition medical care providers desire more detailed information about HPV in order to answer the questions frequently being posed by their patients and their patient's parents or guardians. It is important to have a thorough and accurate understanding of the incidence/prevalence; risk factors for infection; pathophysiology; disease consequences of infection; updated screening guidelines for disease detection; and the latest information about HPV immunization [45]. So, this knowledge has empowered practitioners to develop prevention strategies related to lifestyle modifications and to streamline secondary prevention programs [36,46].

In conclusion, outcomes of HPV infection disrupt psychical and physical functions so reduce life quality and threaten women, family and community health. In addition, because of cultural burden of unsafe sexual behaviours, reported results of studies are conversial. Therefore, by conducting more comprehensive studies in order to assess the factors associated with HPV infection in the general populations of every country exclusively, more clear information can be provided about HPV infection which may improve the strategies for prevention. Also the knowledge of the general public and medical care providers about HPV infection is poor. Thus actions should be increased to give adequate information on it to them for favorable lifestyle changes and to sufficient prevention programs.

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