

MINI-REVIEW

Innovations in HPV Vaccination and Roles of Nurses in Cervical Cancer Prevention

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Abstract

The human papilloma virus (HPV) is the main aetiological agent for cervical cancer, one of the most frequent cancers observed in women throughout the world. There are effective programs for reducing the incidence of cervical cancer with HPV vaccination. The objective of this study was to discuss the applicability of the HPV vaccination and the role of nurses in prevention of cervical cancer. Use of bivalent and quadrivalent vaccines has been initiated against the types of HPV which are the primary cause of cancer. The quadrivalent HPV vaccination has entered into the routine vaccination schedule in many European countries for use in children and adolescents between 9-15 years of age and for women between 16-26 years of age, whereas it has been proposed that the bivalent vaccination should be given to girls between 9-18 years of age. While cervical cancer is among the cancers that can be prevented, it is essential to continue screening tests while introducing vaccination in a systematic manner for protection. On this subject, among the most important roles of nurses is to implement the screening programs by fulfilling the caregiving, training and consultancy roles for the society and especially, for high risk groups and to increase the awareness of the people.

Keywords: HPV vaccines - uterine cervical cancer - screening - nurse's roles - awareness

Asian Pac J Cancer Prev, **15** (23), 10053-10056

Introduction

Cancers are major public health problems because of the high incidence of mortality and morbidity (Bilir, 2007; Al-Darwish et al., 2014). Cervical cancer is caused by the sexually transmitted Human Papilloma Virus (HPV) and is the fourth most common life-threatening cancer in women and the seventh worldwide, with an estimated 528,000 new cases in 2012. Women can particularly benefit from the HPV vaccine. It was estimated that globally cervical cancer accounted for 7.5% of the female cancer deaths in 2012 and almost 87% of the deaths occurred in low-income countries (IARC, 2012). Turkey's rate of incidence is 4.3/100,000 people, which is a low prevalence of cervical cancer among the countries (IARC, 2012). In developed countries, the incidence of cervical cancer is mostly observed in the 45-69 years of age group and the mortality rate occurs at 70 years of age and older. The incidence and mortality rate in developing countries are more frequent in the group 70 years of age and older (TNSCCS, 2007). The World Health Organization (WHO) noted that the HPV vaccine has reduced the incidence of cervical cancer and the WHO recommended girls 9-13 years of age who have not yet become sexually active as the target group for vaccination (WHO, 2013). Nurses and other health professionals can implement effective screening programs and cost-effective vaccinations to

reduce the rates of cervical cancer (Bilir, 2007; Brabin et al., 2011). In this study, we evaluated the role of nurses in order to ensure the feasibility and effectiveness of the HPV vaccine in protecting against cervical cancer.

Background

In recent years, the knowledge, awareness, attitude, behaviors and beliefs of youths were examined in the studies on the effectiveness of the HPV vaccination (Waller et al., 2003; Akyuz et al., 2006; Uysal and Birsal, 2009; Wong et al., 2009; Ak et al., 2010; Duran, 2011; Arabaci and Ozsoy, 2012; Ortashi et al., 2014; Al-Darwish et al., 2014; Wang et al., 2014; Yilmazel and Duman, 2014).

Educational needs

Various studies showed the importance of the role of nurses and have assessed the awareness and knowledge of HPV among adolescents, young adults, students (Waller et al., 2003; Al-Darwish et al., 2014; Wang et al., 2014; Yilmazel and Duman, 2014) and women who have past experience with abnormal Pap test results and colposcopy (Waller et al., 2005; Akyuz et al., 2006; Uysal and Birsal, 2009; Wong et al., 2009; Ak et al., 2010; Duran, 2011; Arabaci and Ozsoy, 2012; Ortashi et al., 2014).

Some studies showed the importance of insufficient

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knowledge levels and awareness about cervical cancer (Wong et al., 2009; Duran, 2011; Yilmazel and Duman, 2014); that academic grades were an efficient factor for defining their knowledge levels about cervical cancer and HPV vaccination (Yilmazel and Duman, 2014); and that knowledge was insufficient among undergraduates (71.05%). Undergraduates from high-level universities, at a lower year of study or with greater prior knowledge of the HPV vaccines displayed higher acceptability ($p < 0.001$) of the HPV vaccination (Wang et al., 2014). Al-Darwish et al., (2014) found that 43.7% of the male and 56% of the female students were not aware of the early warning signs, symptoms and risk factors.

Of the students, 67% were not aware and only 27.2% of the female students and 52.5% of the fifth year students were aware about the availability of vaccine against cervical cancer. Ortashi et al., (2014) indicated in their research that 37% of women were aware of the HPV vaccination.

Behavior

Yilmazel and Duman (2014), indicated that university students displayed risky behaviors, such as unsafe sexual intercourse, which cause health problems and sexually transmitted diseases (e.g., HIV, HPV, syphilis, gonorrhea and chlamydia). It was observed that students' beliefs about risk factors, vaccination protection and condom use differed among the academic departments and these beliefs were higher/stronger among students who studied in the health department. Ortashi et al., (2014) reported adjusting for some factors affected the behaviors about vaccination. Of the women, 80% would consider getting vaccinated themselves and 87% would recommend vaccination to relatives or friends. Of the women, 69% had a positive attitude towards vaccination and nationality and husband's education was effective in associating with a positive attitude towards the HPV vaccine.

Beliefs

Women have almost no fear about the prevention and early diagnosis of cervical cancer due to insufficient awareness (Duran, 2011). The acceptability rates for the HPV vaccination among women were found to be similar to those in the vaccination programs of developed countries (Haesebaert et al., 2012; Molokwu et al., 2013; Ortashi et al., 2014). Ortashi et al., (2014) indicated that overall, 69% of women had a favorable opinion about the HPV vaccination. Some of them (17%) reported that it might not be culturally acceptable and 1% felt that there might be religious objections to the HPV vaccination. Only 18% of women defined uptake of culture as a barrier to the HPV vaccination. Wang et al., (2014) reported that undergraduate students were more willing to accept the HPV vaccination due to fear of HPV-related diseases.

HPV vaccine

Currently, two types of HPV vaccines are marketed internationally. Both vaccinations are obtained with the purification of major capsule (L1) proteins by implementing the recombinant technology, which does not contain viral DNA, but contains particles (VLP) similar

to the specific virus. These vaccinations that are inorganic and do not have infectious attributes are for prevention, but do not have curative attributes (Alhan, 2009). The first cancer vaccine, a quadrivalent HPV vaccine called Gardasil (Merck & Co., Inc.), which protects against HPV types 6, 11, 16 and 18, was approved by the US Food and Drug Administration (FDA) in 2006. However, other than cervical cancer, Gardasil is licensed for protection against lesions, such as vaginal and vulvar intraepithelial neoplasia and genital warts. Worldwide, HPV vaccination has now been implemented in more than 150 countries (Alhan, 2009; Schiller et al., 2012). Subsequently, Cervarix® (GlaxoSmithKline Biologicals, Rixensart, Belgium), a bivalent HPV vaccine containing VLP for types 16 and 18, was approved and licensed in 2007. This vaccine is used for the prevention of pre-cancer and cancer lesions in adolescent girls as of 10 years of age. The efficacy of both vaccines are reported to be more than 98% for protection against cervical cancer in females (Saslow et al., 2007; Brabin et al., 2011; Schiller et al., 2012). HPV vaccines must take their place as a part of a coordinated strategy constituted to prevent cervical cancers. These strategies should include education (increased risk of HPV infection, which is transmitted by the reduction behavior), diagnosis and knowledge about treatment of pre-cancerous lesions. In Kothari's (2014) study, it was reported that a three-dose HPV vaccination program in 2008 from the Joint Committee on Vaccination and Immunization was recommended to be offered routinely to girls 12-13 years of age and a time-limited catch-up vaccination for females 13-18 years of age. The quadrivalent vaccination was given to over 20,000 women between 16-26 years of age and the bivalent vaccination was given to 18,000 women. It was found that it was 92% protective for new infections connected to 16/18 of HPV and that it was 100% protective in the prevention of persistent infections (WHO, 2013).

Protection against cervical cancer, HPV programs and nurses' roles

It is important for women to protect themselves against carcinogenic factors for primary prevention of cervical cancer and can be provided with individual preferences and by changing lifestyle. The purpose of secondary prevention is to prevent mortality and morbidity that can be provided by using screening tests for early diagnosis (e.g., Pap test) and should be applied for early treatment (Fidaner, 2007; Ardahan and Temel, 2011). Nevertheless, nurses have rather important roles in making the public conscious by communicating with people for protecting against sexually-transmitted diseases (STDs) through the use of contraception, such as condoms and diaphragms, which constitute a barrier between the cervix and penis. It was found that the risk of cervix cancers in women who protected against pregnancy by using hormones was high compared to women who did not use any method. Since the cause of cervical cancers are due to an HPV infection caught sexually, the elimination of factors should be recommended, such as the regulation of sexual life, a decrease in multi-partners, sexual activity at an early age and not having a safe sexual life, a decrease in prolificacy and an improvement in nutrition (consuming vitamins A

and C) are significant measures.

Experience has shown that because the vaccine is new, people in some countries question its efficacy or they believe that vaccination will result in increased sexual activity. Gynecologists or religious leaders in some countries misunderstand the purpose or value of the HPV vaccine (WHO, 2013).

HPV Vaccine Programs

The WHO recommends early diagnosis and screening programs against cervical cancer and demonstrates that it is a cancer type with negative outcomes, which can easily be prevented through preventive medicine (Fidaner, 2007). Over 40 countries had introduced national HPV vaccine programs and other countries had introduced or planned to introduce pilot or demonstration programs as of December 2012. The following play a role in the lower uptake of some vaccines: a lack of knowledge about the threat of vaccine-preventable diseases, risks and benefits of vaccines, mistrust of government and health workers, poor service delivery and alternative health or religious beliefs. These challenges emphasize the importance of early integration and investment in immunization programs with a thoughtful communications plan (WHO, 2013). The NHS cancer screening program cervical screening: The facts leaflet is available in 23 languages and is useful in understanding the HPV vaccination and can create community-awareness about the cervical cancer screenings (NHS, 2012). Some countries within the Gardasil Access Program used schools and clinics and vaccination based on school-based, health facility-based, and mixed strategies (Lander et al., 2012). Some of the national programs (TNSCCS, 2007; Ogilvie et al., 2010; Limia and Pachon, 2011; Binagwaho et al., 2012) and regional level programs (Brabin et al., 2008; Watson et al., 2009) indicated efficient vaccination to prevent cervical cancer through a national media campaign. In Turkey, the routine screening program for cervical cancer started with the "National Standards for Cervical Cancer Screening" published in 2007. In the screening, it has been targeted that the family medicine physicians take a Pap test a minimum of 1 time from all of the women registered between the ages of 30-65 years of age at the community health centers and the cancer screening centers and that a screening program based on the society is continued by repeating it once every five years and that training is given (TNSCCS, 2007).

The combined HPV vaccine coverage was 93.8% in the school-based, 93.0% in the mixed strategies and 77.1% in the health-facility based program. In Spain, the eleven regions administering the HPV vaccines at schools had a 14% higher coverage compared to the eight regions utilizing health facilities (Limia and Pachon, 2011). In Uganda, the school-based vaccine delivery strategy was higher than the Child Days Plus strategy (LaMontagne et al., 2011). In Vietnam, the health facility-based programs had higher coverage than the school-based programs (LaMontagne et al., 2011). India's demonstration project utilized a mixed school and health facility-based approach. Vaccine delivery was compared using fixed-time points

based on vaccination campaigns and monthly vaccine delivery that complements routine EPI immunizations. Coverage was 68% in an urban setting, 83% in a rural setting and 71% in a tribal setting for the routine approach. Similar findings ranging from 77 to 88% were observed for the campaign approach by geographical setting (LaMontagne et al., 2011).

Implications for practice and nurses' roles

Education of providers, policy-makers, parents, adolescents and young women about cervical cancer prevention and early detection, including the need for regular screening even after vaccination is a critical need (Saslow et al., 2007).

Nurses serve a key role for protecting against and detecting cervical cancer. Screening and HPV vaccine present nurses with exciting opportunities as well as communication opportunities for public health nurses, which are important roles for creating awareness of the HPV vaccination. Nurses can recognize some factors in women and teenage girls, such as improvement of the perceived benefit perceptions, can recognize socioeconomic, ethnicity factors, history of health status and mother's screening history, can influence the knowledge levels to change health behaviors, can apply the screening program by implementing different methods, such as the Pap test technique, acetic acid, etc. (Ardahan and Temel, 2011; WHO, 2013; Casciotti et al., 2014; Kothari, 2014; Paul and Fabio, 2014).

Countries considering HPV vaccine delivery strategies that use schools can utilize the information summarized and discussed here to move forward with planning for HPV vaccine introduction. However, further research is needed to develop standardized methods for estimating coverage of adolescent immunizations, so that HPV vaccine programs can be appropriately evaluated (Paul and Fabio, 2014). The role of nurses is important for primary prevention strategies and for multiple health preventive roles that assist parents and adolescents in making informed decisions about new preventive health recommendations against risky sexual behaviors in the society, such as safe sexual life, monogamy and condom use, development and popularization of cost-effective HPV vaccinations and prevention of smoking. Furthermore, nurses promote messages for media use about new health products and policies that stress areas of consensus rather than controversy, reduce health inequalities, promote social inclusion and raise educational standards (Kaya, 2009; Brabin et al., 2011; Casciotti et al., 2014).

Conclusion

Cervical cancer is an important public health problem due to the fact that it is the fourth most frequently observed type of cancer observed in women throughout the world and that it has a rising trend in Turkey among the top ten types of cancer. Screening programs have been proven to be effective and cost-effective in reducing the incidence and mortality of cervical cancer. It is necessary to continue the Pap test and vaccination regularly for protecting against cervical cancer and to treat the programs with integrated

approaches that will contribute to the improvement of female health. In this context, the matters that should not be forgotten by the decision-makers in particular are giving priority to services, such as the raising of the status of women, preventing societal sexual discrimination, treating within a whole the reproductive health service programs, early diagnosis and family planning and to evaluate all of the applications with monitoring programs. On this subject, one of the most important roles of nurses is to increase the awareness of the public by fulfilling the caregiving, training and consulting roles, especially to the group under risk in the society.

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