

A survey of Jordanian obstetricians and gynecologists' knowledge and attitudes toward human papillomavirus infection and vaccination

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Summary

Objective: To assess the knowledge and attitudes of Jordanian obstetricians and gynecologists toward human papillomavirus (HPV) infection and its vaccine. **Materials and Methods:** A self-administered, anonymous questionnaire was distributed to 400 participants attending scientific meetings. The survey focused on three areas: knowledge of HPV infection, vaccine, and attitude toward vaccination of female adolescents. **Results:** Survey response rate was of 72.3%. The vast majority knew most of the statements related to knowledge of HPV infection, 66% thought that conventional screening Pap test have a sensitivity of >75%, and only 44% of them knew that there are 13 to 17 HPV types that cause cervical cancer. The majority of the respondents (79%) knew that the vaccine would lead to long lasting immunity and 45% of the respondents thought that the vaccination would eliminate the need for regular Pap test. The majority (78%) indicated that the vaccine should be given to girls before the beginning of sexually active life. Overall, 67.5% of respondents intend to prescribe HPV vaccines and 79.6% of the respondents intend to recommend the vaccine if it is publicly funded. **Conclusion:** Most of the gynecologists in Jordan have the intention to recommend HPV vaccine, the deficit in their knowledge of HPV infection and vaccine must be corrected to assure acceptability of the vaccine.

Key words: Attitudes; Gynecologists; Human papillomavirus; Knowledge; Vaccine.

Introduction

Despite being a theoretically preventable disease, cervical cancer is the most common malignancy in women of developing countries [1], and second only to breast cancer worldwide [2]. There is now consistent and convincing evidence that cervical cancer is in fact a rare consequence of infection of the genital tract by some mucosatropic types of human papillomavirus (HPV) [3].

HPV is one of the most common sexually transmitted infections [4], with prevalence rate of 30-50% in sexually experienced young women [5,6]. Genital HPV types are categorized as low-risk types (e.g. 6 and 11), which may cause genital warts, or high risk/oncogenic types (e.g. 16 and 18), which cause virtually all cases of cervical cancerous and precancerous intraepithelial lesions [6-10]. In placebo-controlled trials, two prophylactic vaccines, a bivalent (types 16 and 18) [11,12] and a quadrivalent (types 6,11,16, and 18) [13, 14], have demonstrated almost 100% efficacy in preventing anogenital warts, persistent infection, and the development of precancerous lesions caused by the most prevalent HPV types (6, 11, 16, and 18).

It is well known that physicians can significantly influence patients' and parents' immunization decisions [15, 16]. In

Jordan, obstetricians/gynecologists seem to have an important role in promoting HPV vaccination, given that adolescents and young females are more likely to be seen by them than any other healthcare provider. In order to do so, they should have appropriate knowledge of HPV-related diseases and HPV vaccines. It is anticipated that obstetricians/gynecologists attitudes influence their communication to patients and parents. The willingness of gynecologists to recommend HPV vaccination will be one essential step for successful implementation of HPV immunization program.

This study was the first of its kind in Jordan and Middle East region overall. It provides the first estimate of Jordanian obstetrician/gynecologists' knowledge and attitudes about HPV infection and its prevention, as well as issues associated with willingness to prescribe HPV vaccines.

The objective of this study was to assess the knowledge and attitudes of a national representative sample of Jordanian obstetricians and gynecologists toward HPV infection and its vaccine.

Materials and Methods

From February to August 2012, a survey regarding knowledge and attitude toward HPV infection and vaccination was conducted among a national sample of obstetricians and gynecologists in Jordan. The study was approved by the institutional review board committee of the Jordan University of Science and Technology.

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Table 1. — The percentage of Jordanian gynecologist who answered “yes” with the statements related to human papillomavirus (HPV) infection.

Statement	n	%
HPV is the most common sexual transmitted infection	267	92.4
>70% of the people is infected with the HPV at some point in their life	266	92.0
Persistent HPV infection with the high risk subtypes is necessary cause of cervical cancer	260	90.0
Conventional screening Pap test have a sensitivity of >75%	191	66.1
There are 13 to 17 HPV types that cause cervical cancer	122	42.2
HPV 6 and 11 are responsible for >90% of anogenital warts	274	94.8
Anogenital warts induced by HPV 6 and 11 are not cervical cancer precursors	272	94.1
A regular Pap test with a frequency of ≤ 3 years reduces the life time risk of cervical cancer by: 71-90%	260	90.0
The proportion of cervical cancer related to HPV-16 and HPV-18 types is: 61-80%	273	94.5

Survey population and administration

The survey was distributed to 400 obstetricians and gynecologists attending one international conference and five national scientific meetings in obstetrics and gynecology held in different cities of Jordan that covered the whole country. According to the Jordanian Society of Obstetrics and Gynecology records in 2012, the total number of registered members was 580. The authors undertook the distribution and collection of the questionnaires to those eligible. The questionnaire was distributed to gynecologists of all health sectors (Ministry of Health, military medical services, university hospital, private practice, and others) in Jordan. In the first national scientific meeting, all those with at least six months experience in obstetrics were invited to participate, while at the following meetings only those who did not receive the questionnaire previously were invited to participate.

Survey design

The English-language structured questionnaire was anonymous and self-administered to protect confidentiality. Thus, non-responders were not identified. To establish the content validity of the questionnaire, the survey was piloted on 30 gynecologists who were excluded from the subsequent study. The two-page questionnaire focused on three conceptual areas: knowledge of HPV infection, knowledge of HPV vaccine, and attitude toward HPV vaccination of female adolescents.

The authors took the permission of Gilca *et al.* [17], to use their questionnaire for this study. Almost all items of knowledge of HPV infection and most of the items of attitude toward HPV vaccination were taken from the mentioned study and modified for the present population.

Nine questions of the survey focused on knowledge about HPV infection, four questions focused on knowledge about HPV vaccine, and seven questions focused on attitude toward HPV vaccination.

Nominal variables were numerically coded and entered into a database prior to analysis using Microsoft Excel program 2010. Percentages were based on the number of respondents for each variable.

Table 2. — The percentage of Jordanian gynecologist who answered “yes” with the statements related to human papillomavirus (HPV) vaccines.

Statement	n	%
Vaccine would lead to long lasting immunity	229	79.2
Vaccine would not cause adverse side effects	190	65.7
Vaccine would protect against genital warts in addition to cervical cancer	188	65.1
Vaccination would eliminate the need for regular Pap test	130	45.0

Results

Of the 400 obstetricians and gynecologists who received the questionnaire and agreed to participate in this study, 378 participants returned the surveys and 22 did not. Of those 289 surveys were complete and included in the analysis, giving a response rate of 72.3% and 91 surveys were excluded as incomplete.

Knowledge about HPV infection

Respondents' answers for items concerning the area of knowledge of HPV infection and screening of cervical cancer are shown in Table 1. The vast majority of the respondents (90% or more) knew the following items: HPV is the most common sexual transmitted infection, >70% of the people is infected with the HPV at some point in their life, persistent HPV infection with the high risk subtypes is necessary cause of cervical cancer, HPV 6 and 11 are responsible for >90% of anogenital warts, anogenital warts induced by HPV 6 and 11 are not cervical cancer precursors, a regular Pap test with a frequency of \leq three years reduces the life time risk of cervical cancer by 71-90%, and the proportion of cervical cancer related to HPV-16 and HPV-18 types is 61-80%. Sixty-six percent of respondents thought that conventional screening Pap test have a sensitivity of >75% and only 44% of them knew that there are 13 to 17 HPV types that cause cervical cancer.

Knowledge about HPV vaccines

Respondents' answers for knowledge about HPV vaccines are reported in Table 2.

The majority of the respondents (79%) knew that the vaccine would lead to long lasting immunity. Sixty-five percent of the respondents knew that the vaccine would protect against genital warts in addition to cervical cancer and it would not cause adverse side effects. Forty-five percent of the respondents thought that the vaccination would eliminate the need for regular Pap test.

Attitudes toward HPV vaccines

Table 3 shows the respondents opinions and attitudes toward HPV vaccine use. The majority of the respondents (78%) agreed with statement that HPV vaccines should

Table 3. — The percentage of Jordanian' gynecologists who agreed with the statements related to human papillomavirus (HPV) vaccines

Statement	n	%
HPV vaccines should be given to girls before the beginning of sexually active life.	226	78.2
The best age for a universal immunization program would be: <14 years	185	64.0
<i>In your opinion most:</i>		
Gynecologists will recommend HPV vaccination to their patients	194	67.1
Parents will accept the HPV vaccination for their daughters < 14 years of age	159	55.0
Adolescents and young adults will accept the HPV vaccination	181	62.6
Your patients will comply with the counsel regarding HPV vaccination	193	66.8
A vaccination program would eventually permit the reduction of the frequency of screening interventions in vaccinated females	188	65.1
<i>I will recommend the vaccine to my patients:</i>		
If it is publicly funded	230	79.6
Even if the patients have to pay for the vaccine (70 JD per dose)	140	48.4
If it protects against both cervical cancer and anogenital warts	233	80.6
If it protects against cervical cancer only	238	82.4
I will prescribe HPV vaccines	195	67.5

be given to girls before the beginning of sexually active life, and 64% of them agreed with statement that the best age for a universal immunization program would be below 14 years. Sixty-seven percent of the gynecologists agreed to recommend HPV vaccination to their patients.

With regard to respondents opinion on parents and female acceptance of the vaccine: Fifty-five percent of the respondents thought that parents will accept the HPV vaccination for their daughters below 14 years of age, 62% thought that adolescents and young adults will accept the HPV vaccination, and 67% agreed with the statement that their patients will comply with the counsel regarding HPV vaccination.

Almost two-thirds (65%) of respondents expect that the vaccination program would eventually permit the reduction of the frequency of screening interventions in vaccinated females. Overall, 67% of the respondents intend to prescribe HPV vaccines. The majority of the respondents (82%) agreed to prescribe the HPV vaccine if it protects against cervical cancer only, 79.6% of the respondents agreed to recommend the vaccine to their patient if it is publicly funded, and 48% of them will still recommend the vaccine even if the patients have to pay for the vaccine (70 JD per dose).

Discussion

The survey had an adequate response rate (72.5%) for a national sample of obstetricians and gynecologists. The findings of this study demonstrate that Jordanian gynecologists have excellent knowledge of HPV infection, general characteristics of HPV, and its role in causing diseases. The vast majority of the respondents correctly identified the vital role of infection with HPV in the development of pre-invasive and invasive cervical cancer. Lack of precise knowledge of 66.1% of the respondents, of the sensitivity of conventional screening Pap test, and poor knowledge (42.2% of them) concerning the number of oncogenic types of HPV may have only marginal effect on the use of the vaccine.

This study found that the majority of respondents have a good knowledge about HPV vaccine. Most of the respondents (79.2%) knew that the vaccine would lead to long lasting immunity; 65.7% of them knew that the vaccine would protect against genital warts in addition to cervical cancer and it would not cause adverse side effects. Forty-five percent of the respondents thought that the vaccination would eliminate the need for regular Pap test. This represented a sound knowledge of the vaccine immunity, side effects, and protection against HPV infection. The authors suggest that it is still important that educational efforts in Jordan should maintain and improve the knowledge in this area.

Independent of the knowledge level, the majority of gynecologist (78.2%) intend to recommend HPV vaccines before the beginning of sexually active life and 64% of them believe that the best age for a universal immunization program is 14 years or younger. However, an important minority (21.8 %) preferred immunization at an older age. This is in line with the results of other surveys of gynecologists, pediatricians, and family physicians in Western countries [16-22]. In order to obtain the best protection against HPV diseases; immunization is required before the beginning of sexual activity. This finding might be explained through socio-cultural perspective; in Jordan it is not accepted and unusual for females to have sexual activity before marriage.

The present findings show that HPV vaccines will be reasonably accepted (67.1%) for use by gynecologists. In general, respondents did not strongly believe that HPV vaccines will be accepted by parents, adolescents, and young adults. This might be explained by the clinicians' concern about negative parental reaction to a discussion of STIs with their daughter or their hesitancy to discuss issues related to sexuality with preadolescent girls.

The majority of the respondents intend to prescribe HPV vaccines either for protection against both cervical cancer and anogenital warts or for protection against cervical cancer only. It indicates that the gynecologists' knowledge and their theoretical attitude toward HPV vaccines were congruent. This confirmed that respondents' practice was a reflection of their belief and knowledge. It is therefore suggested

that improving gynecologists' attitudes toward HPV vaccine would be achieved by enhancing their knowledge.

Most of the gynecologist (79.6%) intend to recommend the HPV vaccine if is publicly funded and only 48.4% of them intend to prescribe the vaccine if the patients have to pay for it. This is an expected finding because, in Jordan, HPV vaccine is not part of the government-funded, school-based immunization program, and the three-dose series of the Merck quadrivalent vaccine will cost an estimated \$360. It is assumed that the cost of HPV vaccines is the biggest barrier of population vaccination in the developing world.

The authors believe that this study reflects the opinion and practice of Jordanian gynecologists, and is valuable in assessing the status of knowledge HPV infection and attitude toward its vaccine in the country and could also serve as a foundation for improvement. Obstetricians and gynecologists need to be targeted because of their pivotal role in any planned future vaccination programs against HPV.

Strengths of this study are that it had a good response rate 72.5%, the respondents were anonymous, and were all obstetricians and gynecologists.

The limitations of this study are: it only assessed the knowledge and attitudes of gynecologists, although other specialists such as pediatricians and general practitioners and family physicians also play important roles in national HPV vaccination program. Secondly, although this study was designed to be representative of Jordanian Society of Obstetricians and Gynecologists, it is possible that the knowledge and attitudes of the enrolled participants are different from Jordanian gynecologists in general.

This study clearly shows that, although most of the Gynecologists in Jordan have the intention to recommend HPV vaccine, it is essential that the deficit in their knowledge of HPV infection and vaccine must be corrected to assure an adequate degree of acceptability of the HPV vaccines by the adolescents' patients and their parents.

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