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ORIGINAL PAPER

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Evaluation of the knowledge of the issues related to human papillomavirus infections within young women

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Abstract

Introduction. Human papillomavirus infections are frequent in on average 9% to 13% of the female population, and the risk of infection throughout life exceeds 50%. The HPV virus causes changes in the mucous membranes and the skin of the genital area in both women and men.

Aim. This paper presents epidemiology, prophylaxis, diagnostics and treatment of HPV and cervical cancer infections. In addition, the knowledge of issues related to human papillomavirus infection among young women was assessed.

Materials and methods. The diagnostic survey method was used to carry out the research. The research tool was a questionnaire of own authorship consisting of 41 questions. The research group consisted of 240 women. The research was carried out from June to September 2016 at the Chodźki Medical Center and the Luxmed facility in Lublin.

Results. There is a relationship between the education of the respondents and their knowledge about the human papillomavirus infection. The studies did not show a significant relationship between the self-esteem of the studied women and whether they were vaccinated against the HPV virus (Chi-square = 0.362, p = 0.547).

Conclusions. The general level of knowledge on issues related to human papillomavirus infection among young women is at the secondary level. A higher level of general knowledge was shown by women with better education, related to the medical and biological sciences. The self-assessment of the respondents coincides with the general knowledge, based on detailed questions, on issues related to HPV infection. Promoting knowledge about HPV infection is unsatisfactory

Keywords. HPV virus, human papillomavirus, cervical cancer

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Introduction

Human papillomavirus infections are frequent, an average of 9% to 13%, and the risk of infection throughout life exceeds 50%.[1] HPV causes changes in mucous membranes and the skin of the genital area in both women and men. These can be mild as well as pre-cancer and cancer. There are three stages of infection: a clinically overt phase, a subclinical phase, a latent phase.[2] Mostly HPV infection occurs during sexual contact. This is the most common sexually transmitted infection. Vertical transmission from mother to fetus during vaginal birth is also possible. The risk factors for viral infection also include a large number of sexual partners as well as their frequent change and early initiation of sexual intercourse.[2] The development of cervical cancer is associated with infection with high-pathogenic types of human papillomavirus. It is one of the most frequent cancer malignancies in women. However, you can effectively prevent its development. The simple and cheap methods of its detection include performing regular cytological examination. It is a basic tool for the detection of precancerous and cervical cancer. [3,4]

Introduction of primary prophylaxis, which is vaccination against HPV, effectively prevents both the persistence of infection with the human papillomavirus and the formation of pre-cancerous changes on the cervix. Vaccines do not protect against all types of virus, therefore it is very important to continue screening programs.[5] HPV (Human Papilloma Virus) belongs to the family of Papovaviridae viruses. Almost 200 types of this virus are known so far. About 40 of them are so-called genital types. They show affinity for mucous membranes as well as epithelial cells of the skin. Among human papilloma viruses, we distinguish high and low-carcinoma types.[6,7] Human papillomavirus infection is one of the most common sexually transmitted infections, both in the world and in Poland. Human pregnant women and people with immunosuppression are particularly vulnerable to human papillomavirus infection.[8,9] About 50% of people who are sexually active are infected with genital HPV types. They can cause infections in the epithelium without causing inflammation and the spread of infection to other organs. Not every infection must cause clinical symptoms. The virus may remain in the latent phase. Quite often it also comes to spontaneous cure. [10,11] HPV virus is ubiquitous and easy to infect. Most often it comes to a person during the first sexual encounters. It can also be infiltrated through saliva, which may contribute to the development of head and neck cancer (cancer of the lip, mouth, salivary glands, tonsils, pharynx, paranasal sinuses, soft neck tissues and the outer ear region). Virus infection can also be associated with hospital and cosmetic procedures that pave the way for infection or insufficient hygiene. The presence of infection leaves no immunity, that is why reinfection is possible.[12-14] To prevent HPV infection include educating both women and men about the risks and consequences of infection, as well as vaccinations against genital HPV types.

Infections with microorganisms or chronic and recurrent vaginal inflammations should be diagnosed and treated as soon as possible because they can contribute to HPV infection.[15,16] Two vaccines are present on the market: quadrivalent and two-valent. Vaccination is prophylactic. It is not able to eliminate the existing infection and pathological changes.[17] Infection with human papillomavirus usually proceeds asymptomatically. In severe cases, local symptoms such as pruritus or discharge occur. The HPV virus has the ability to avoid being recognized by the body's immune system. This makes it difficult to diagnose. The infection is local.[8,18] Mild diseases caused by human papillomavirus infection include: condylomata acuminata, skin warts, laryngectomy of the larynx and respiratory tract. Genital warts occurring in the genital area in over 90% of cases are caused by HPV types 6 and 11. These changes can also be caused by other types of virus. They are difficult to treat and very often convert. In most cases, the resulting warts do not undergo any changes for a long period of time. Some people develop new ones that are located in a different place than the previous ones and have different sizes. In about 5-20% of patients, spontaneous regression is possible.[3,5] The formation of dermal warts is caused by stimulation of epidermal cells to proliferation. They can be located in different places. The incubation period for an infection ranges from a few to a dozen or so weeks. Changes may undergo spontaneous regression.[11,19]

The cancers and precancerous conditions associated with human papillomavirus infection include: cervical cancer, vulvar cancer, vaginal cancer, penile cancer, anal cancer, and head and neck cancer. HPV viruses are responsible for approximately 5.2% of all malignant tumors. In the case of the cervix it is a factor in the occurrence of cancer in more than 90%.[11] Treatment of HPV infection can be ineffective. Sometimes the body's immune system fights the virus itself. Spontaneous healing does not leave resistance, therefore it is possible to re-infect with the virus of the same type as before. In the case of persistent infection, it is not possible to eradicate HPV, due to the fact that medicine does not have any medicine that could destroy it. The only way to overcome the infection is immunomodulatory treatment. This treatment strengthens the immune response of the body, which helps to control the HPV infection. Even if this form of therapy does not help to get rid of the virus from the body, it has been proven that it effectively protects against the occurrence of lesions. We can also treat HPV-induced lesions by limiting ourselves to symptomatic treatment, which usually consists in removing lesions.[20,21]

Aim

The aim of the study is to assess the knowledge of issues related to human papillomavirus infection in a group of randomly selected young women. The issues of vaccination against human papillomavirus and sources of HPV infection were raised.

Materials and methods

The diagnostic survey method was used to carry out the research. The research tool was a questionnaire of own authorship consisting of 41 questions. The obtained results were subjected to statistical analysis based on chi-square tests, assuming p <0.05 as statistically significant. The results are presented in tables and figures. The analysis of the results was carried out using the IBM SPSS Statistica statistical package. Research for the purposes of this work was carried out from June to September 2016. The research was voluntary and anonymous. The survey was conducted among 240 women in Lublin at the Chodźki Medical Center and in the Luxmed facility.

Results

The study included 240 randomly selected young women between the ages of 19 and 29 years. The average age of the respondents was 24.19 (the youngest was 19 years old, the oldest was 29). Over half of the respondents (65%, n = 156) were between 19 and 24 years old, the others (35%, n = 84) were between 25 and 29 years old. The vast majority of respondents started intercourse (84.2%, n = 202). 15.8% (n = 38) of the respondents did not start their intercourse yet. The average age of sexual initiation was 18.96 years. Most of the surveyed women did not give birth yet (79.2%, n = 190). 20.8% (n = 50) of the respondents released offspring. The vast majority of respondents (85.4%, n = 205) were already at the gynecological visit. 14.6% (n = 35) of the respondents were not present at the gynecologist. More than half of the respondents (66.7%, n = 160) had cytology performed in their own studies. 33.3% of women (n = 20) did not have this test. Vaccination against HPV was carried out only by 5% of respondents (n = 12). 95% of the surveyed women (n = 228) were not vaccinated. By far the most common (78.2%; n = 179) reason for the lack of vaccination of women was the lack of knowledge about the existence of the vaccine. The next reason was the uncertainty about the effectiveness of this vaccine (7.4%, n = 17) and its high cost (7.0%, n = 16). The smallest percentage of respondents were not vaccinated for health reasons (3.9%, n = 9) and convictions about vaccines (3.5%, n = 8). Definitely the majority of respondents (90.8%, n = 218) claimed that dissemination of knowledge about HPV infection is not sufficient. The opposite opinion was 9.2% (n = 22) of the respondents.

The obtained results were subjected to statistical analysis based on chi-square tests. A 5% error of inference and associated significance level p <0.05 indicating a significant statistical relationship were adopted. The results are presented in tables and figures. The analysis of the results was carried out using the IBM SPSS Statistics statistical package.

The questionnaire contained 27 questions on the knowledge of issues related to human papillomavirus infection, therefore the women surveyed could get just that number of points. The average number of points scored by the respondents was 15.55 points (SD = 5.99). The minimum number of points received was 0, and the maximum was 27. Due to the number of points received by the respondents, they were divided into three groups: people with low level of knowledge, average level of knowledge and a high level of knowledge. (Table 1,2)

Table 1. The level of respondents' knowledge

Level of knowledge	n	%
Low knowledge (0-13 points)	78	32.5
Average knowledge (14-20 points)	104	43.3
Knowledge (21 -27 points)	58	24.2
Totality	240	100.0

Table 2. Dependence between age, actual knowledge plate of the surveyed women

Age	Level of knowledge		
	Low knowledge	Average knowledge	Knowledge
19-24	49	63	44
	31.4%	40.4%	28.2%
25-29	29	41	14
	34.5%	48.8%	16.7%
Chi-square=4.065; p=0.131			

As a result of the statistical analysis, it was found that more women in the younger age group had high knowledge of HPV. In both age groups, the majority of respondents had average knowledge. (Table 3)

Table 3. Relationship between education and the actual level of knowledge of the surveyed women

Education	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Basic / vocational	18	12	0
	60.0%	40.0%	0%
Average / higher	60	92	58
	28.6%	43.8%	27.6%
Chi-square=16.352; p<0.001*			

People with higher / secondary education statistically more often characterized the average and high level of knowledge than those with basic / vocational education. Interestingly, no one with basic or vocational education had a high level of knowledge.

There is a relationship between the education of women surveyed and their knowledge. Women with education related to medical and biological sciences had much more knowledge about HPV infection. Only 9.7% of respondents had low knowledge. Women who had no education related to medico-biological sciences had this knowledge lower. (Table 4)

Table 4. Relationship between education related to medico-biological sciences and the actual level of knowledge

Did you educate yourself with medico-biological sciences?	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Yes	7	23	42
	9.7%	31.9%	58.3%
No	71	81	16
	42.3%	48.2%	9.5%
Chi-square=69.184; p<0.001*			

There is no statistical relationship between the fact of coexistence and the level of knowledge. Both women who have begun intercourse, as well as those who have not started it yet, mostly have average knowledge.

Table 5. Relationship between the place of residence of the respondents and the level of knowledge

Place of residence	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Village	24	19	13
	42.9%	33.9%	23.2%
A city below 100,000 residents	45	57	26
	35.2%	44.5%	20.3%
A city over 100,000 residents	9	28	19
	16.1%	50.0%	33.9%
Chi-square=11.553; p=0.021*			

Statistically, more women living in the countryside have a low level of knowledge. Most women living in cities have average knowledge. (Table 5) In a difficult / average financial situation, the approximate number of women has low knowledge. Only 16.1% of women have high knowledge. In the case of women with a good or very good material situation, this percentage is twice as high, and low knowledge has 24.1% of respondents.

In both cases, the most women have average knowledge, and the least high. Among women who gave birth is more than four times smaller percentage of respondents with high knowledge than women who did not give birth. There is no significant statistical relationship between the knowledge of the surveyed women and the fact whether they were already at the gynecological visit. In both cases, the highest number of respondents has average knowledge, and the lowest. Whether a woman had a cytological examination does not significantly affect the level of her knowledge. In both cases, the majority of women were characterized by an average level of knowledge, and the smallest percentage of respondents had high knowledge. The statistical surveys carried out did not show any dependence (p>0.05) between the level of knowledge of the respondents and whether they were vaccinated against the HPV virus. In both cases, most women had average knowledge. Statistical research has shown that women who were subject to HPV infection during the education have a definitely higher level of knowledge than women whose subjects were not discussed during the study. In women with only 7.7% of these issues, they have low knowledge. In women whose topics have not been raised high knowledge has only 8.7%. (Table 7)

Table 6. Relationship between the time of delivery and the level of knowledge

Did you give birth?	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Yes	21	26	3
	42.0%	52.0%	6.0%
No	57	78	55
	30.0%	41.1%	28.9%
Chi-square=11.474; p=0.003*			

Table 7. The relationship between the level of knowledge and the subject of HPV infection during the education of subjects was discussed

Do you have any issues related to HPV infection during your life?	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Yes	7	39	45
	7.7%	42.9%	49.5%
No	71	65	13
	47.7%	43.6%	8.7%
Chi-square=66.537; p<0.001*			

In both cases, the majority of respondents have knowledge on an average level. Only 13.6% of women who say that spreading knowledge about HPV infection is sufficient has high knowledge. However, this is a smaller percentage than for women who believe that the promotion of knowledge is insufficient (Table 8).

There is a statistical relationship between the self-assessment of knowledge about HPV infection and its actual level. Women who assess their knowledge on good or very good really have a high knowledge. Over half of the respondents who recognized that their knowledge is average has an average level of knowledge. One-third of the respondents who rated their knowledge as poor have low knowledge. (Table 9)

Table 8. Relationship between the level of knowledge and the impression of the respondents on the propagation of knowledge about HPV infections

In your opinion, is spreading knowledge about HPV infection sufficient?	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Tak	4	15	3
	18.2%	68.2%	13.6%
Nie	74	89	55
	33.9%	40.8%	25.2%
Chi-square=6.090; p=0.048*			

Table 9. Relationship between the self-assessment of the level of knowledge and factual knowledge

How do you rate your knowledge about HPV?	Level of knowledge		
	Low knowledge	Average knowledge	High knowledge
Bad	49	26	3
	62.8%	33.3%	3.8%
Average	26	67	23
	22.4%	57.8%	19.8%
Good/very good	3	11	32
	6.5%	23.9%	69.6%
Chi-square=105.199; p<0.001*			

The highest level of knowledge is given to women who receive information about HPV from professional literature or from a doctor or nurse. The lowest level of knowledge has been surveyed, which the media chose as the source of information. Women whose main source of information is the Internet and family and friends mostly have average knowledge. (Table 10)

Table 10. Relationship between the source of knowledge and the level of knowledge

Sources of knowledge	Level of knowledge			Chi-square
	Low knowledge	Average knowledge	High knowledge	
Internet	54	80	32	8.260
	32.5%	48.2%	19.3%	p=0.016*
Media (radio, magazines, television)	26	25	4	13.292
	47.3%	45.5%	7.3%	p=0.001*
Family, friends	10	15	4	2.045
	34.5%	51.7%	13.8%	p=0.360
Doctor, nurse / professional literature	8	19	33	43.027
	13.3%	31.7%	55.0%	p<0.001*

There is no statistical relationship between the material situation of the women surveyed and whether they were vaccinated against the HPV virus. In both cases, the approximate percentage of respondents received vaccination. There is no statistical dependence between whether during the training of the surveyed women there were topics related to HPV infection and whether they were vaccinated against the human papillomavirus. In both cases, the number of respondents was approximated. No woman with primary or vocational education assessed her knowledge as good or very good. One fifth of women with secondary or higher education found their knowledge good / very good. The rest assessed her as bad or average. More than half of the respondents whose education is related to medical and biological sciences assessed their knowledge as good or very good. Almost all respondents whose education was not associated with medico-biological sciences recognized that their knowledge is bad or average.

Table 11. Relationship between self-knowledge and the fact of being vaccinated

Have you been vaccinated on HPV?	Self-assessment of knowledge	
	Bad / average	Good / very good
Yes	11	1
	91.7%	8.3%
No	183	45
	80.3%	19.7%
Chi-square=0.362; p=0.547		

Table 12. The relationship between self-assessment of knowledge and that during education were discussed topics related to HPV infection

Did you discuss topics related to HPV infection during your education?	Self-assessment of knowledge	
	Bad / average	Good / very good
Yes	51	40
	56.0%	44.0%
No	143	6
	96.0%	4.0%
Chi-square=55.589; p<0.001*		

The research did not show the relationship between the self-esteem of the knowledge of women surveyed and the fact whether they began to live together. In both cases, the majority of respondents rated their knowledge as bad or average. Regardless of the place of residence, the surveyed women mostly assessed their knowledge as bad or average. Both women who had a cytology test and those who never had cytology assessed their knowledge about HPV virus comparatively. The studies conducted did not show a significant relationship between the self-esteem of the surveyed women and whether they were vaccinated against the HPV virus. In both cases, the vast majority judged their knowledge as bad or average. (Table 11)

Almost all women who were never touched on topics related to HPV during their education assessed their knowledge as bad or average. Only 4% of the respondents have rated themselves good or very good.

It is ten times lower self-esteem than the respondents who were subject to these topics during the education (Table 12).

Discussion

In the conducted research, 84.2% of the respondents started life and the average age of sexual initiation was 18.96 years. In studies carried out by Kempińska, the average age of sexual initiation was 17.05 years.[22] According to studies by Filipp, the average age of women and men in the first relation in Western Europe is 17-18 years, and in Eastern Europe around 20.[23] Izdebski in his book claims that the average age of sexual initiation of Polish women is 18.7 years, which is very similar to the results of own research.[24]

The human papillomavirus belongs to the family of Papovaviridae viruses. There are high and low-carcinoma types. High anknea types are responsible for approximately 70% of cervical cancer cases. Low-carcinoma types are responsible for the formation of condylomata acuminata and non-malignant warts.[25] Own research shows that 77.5% of respondents know what disease can be caused by HPV infection with high oncogenic risk. 2.9% associated this virus with ovarian cancer and 1.3% with breast cancer. 18.3% of respondents did not know the answer to this question. Greater knowledge (91.2%) about the high oncogenicity virus had young women examined by Stefanek and Durke.[26] In own studies, less than half of respondents (39%) answered a question about HPV with low oncogeneicity, that it caused papillary lesions and condylomata acuminata. 32% of women did not know what the correct answer was. One quarter of them said that it contributes to the occurrence of inflammation. 5% responded that infection with this virus causes discharge.

Human papilloma virus is the most common infection that is sexually transmitted. Own research shows that half of the women surveyed (49.6%) know that HPV can infect women and men. In the Mastalerz-Migas et al. research, in which 168 women aged between 16 and 30 took part, the percentage is slightly smaller (45.2%).[27] Also, a similar percentage of young women (60.5%) gave such an answer from a study conducted by Jurczak and colleagues.[28] Although the infection of the human papillomavirus in most cases is asymptomatic, it is possible to detect it. For this purpose, tests for the presence of viral DNA are performed. Own research shows that almost half of the respondents know about this possibility and know how the material for this research is collected. 7% of women surveyed claim that there is no possibility of detecting HPV infection. 18% of respondents believe that this infection is detected by taking blood for testing. No literature was found that would raise a similar problem among the respondents. Condom use during sexual intercourse can effectively reduce the risk of HPV infection. According to our own research, more than three quarters (77.5%) of respondents agree with this claim. In the study of Szykuła et al., verifying the knowledge of nursing students on the prevention of cervical cancer, the majority of this opinion is the majority, as many as 91% of the respondents.[29] In the author's studies, a small (4.6%) part of the surveyed women believes that the use of condoms cannot protect against virus infection. This result is similar to that of Szykuła et al.[29]

A frequent change of sexual partners increases the risk of human papillomavirus infection. This infection can lead to the development of cervical cancer. According to own research, the majority (82.1%) of respondents know that there is a relationship between frequent change of sexual partners and the risk of HPV infection. Similar results were obtained by Szykuła et al. where over 90% of respondents answered correctly.[29] According to the studies by Stefanek and Durki, the vast majority (75%) of women understand the negative impact of frequent change of sexual partners on the risk of infection.[26] Research by Baran et al., which was carried out to check the knowledge of women from the Podkarpacie region, shows that only a quarter of respondents know about it.[30] In own research, 80% of respondents believe that the infection occurs during sexual intercourse. In the study Szykuły et al., respondents gave slightly less respondents (64%).[29]

Vaccination against HPV is one of the primary prevention of cervical cancer. In Poland, it is recommended for girls who have not yet started sexual intercourse. In our country, vaccinations in most regions are not refunded by the NFZ, but are on the list of recommended vaccinations. Only some of the richest municipalities can afford to introduce a preventive vaccination program, which is reimbursed by the authorities. Vaccination against human papillomavirus is expensive and only a full refund would provide general access to it. However, widespread vaccination of girls is already introduced in most European Union countries (eg Belgium, France, Germany).[29] In own studies, the number of vaccinated women is only 5%. These results are comparable to those of other authors. Gotlin and Szykuła, studying nursing students at the Warsaw Medical University aged 20-26, stated that only 1% of the respondents were vaccinated.[31] And according to the research of Mastalerz-Migas and colleagues, only 2.4% of respondents used the possibility of vaccination. In our own studies, the main reason for not being vaccinated was ignorance of the existence of a vaccine against HPV. Due to ignorance, as many as 78.2% of respondents did not get vaccinated. Contrary to appearances, the high price of the vaccine was not an important reason, as only 7% of respondents gave such a response. In own research, similarly to the studies of Gotlin and Szykuła

et al. the vast majority of respondents knew that these vaccinations are not mandatory in Poland.[31]

Cytological examination is the basic prophylactic examination. It allows to detect precancerous conditions and early forms of cervical cancer. The cytology should be carried out at least once every three years, preferably every year. The Polish Gynecological Society recommends that the first cytological examination should be performed no later than three years after the beginning of sexual intercourse. Our own research showed that one-third of the respondents never had a cytological examination. This may be due to the young age of the respondents and lack of coexistence (15.8%). Comparing the level of knowledge of this group to women who had cytology, there was no difference in their knowledge of infections caused by human papilloma virus and cervical cancer prophylaxis. In the paper written by M. Wyderke, all the respondents had this test done.[33] According to own research, the vast majority of respondents (85.4%) knew what cytological examination is. In research conducted by M Wyderke this knowledge is slightly lower and amounts to 76%.[33] And in the studies of Lewandowska et al., almost all of the respondents are aware of what this study is.[44] Błazucka and Cieślak examined the knowledge of first-year nursing students at the Warsaw Medical University.[35] They showed that knowledge about the use of cytological examination as a study for cervical cancer is also high.

Own research showed that 67.5% of respondents know what is the collection of cytological smear. In M. Wyderke's[33] research, the percentage of correct answers is much higher and amounts to 82%. The influence on higher knowledge may have the fact that the author researched women in a larger age range. In the study, Szykuły et al., conducted on students of the first and third year of nursing, the result was comparable with own research and amounted to 63%.[29] The majority (86.3%) of examined women know how often a cytological examination should be performed. It is the same in the studies of Lewandowska et al., where 72% of respondents have the correct knowledge on this topic.[34]

In the conducted own research, half of the respondents (52.9%) answered the question of when to perform cytology, correctly answered that no later than 3 years from the beginning of sexual intercourse. Almost 23% of respondents stated that this period should not exceed 3 years from the appearance of the first menstrual period. 7.5% of women felt that this test should be done only after the birth of the first child. In the study, Szykuły et al., the largest group (94% of third-year students and 76% of first-year students) admitted that the first cytological examination should be performed after starting sexual intercourse.[29]

The vast majority, 87.9% of the surveyed women know at what age according to the Population Prevention and Early Cervical Cancer Screening Program, cytological tests are covered by the refund. In the studies of Mastales-Migas et al., the majority of women correctly answered this question (70.3%), and in Leszczynski studies almost all of the respondents (91%).[32,36]

The colposcopic examination aims to verify the incorrect results of cytological tests. It is based on enlarging the cervix. According to own research, a very small group of women (41.7%) know what colposcopy is. 14.6% of the respondents mistook this biopsy study and answered that it involves taking a segment of the cervix. In studies by Szykuły et al. over half of third year students and one third of the first year gave the correct answer. In our own research, only half of the respondents (50.4%) knew when to perform a colposcopic examination.[29]

When asked about the symptoms of cervical cancer, the majority of respondents (43.8%) answered that in the initial stage the cancer did not show any symptoms. 29.6% of the respondents answered that in the early stage there is bleeding between the menstrual periods and abdominal pain. Over a quarter (26,7%) of women did not know the answer to this question. In the studies of Lewandowska et al., more than half of the respondents replied that in the initial stage the cancer may develop asymptomatically and 20% could not answer this question.[34]

The analysis of own research shows that the vast majority (82.9%) of respondents know that cervical cancer detected in the early stage is curable. According to studies by Lewandowska et al, this is the knowledge of 62% of respondents, and almost a quarter thinks that it is not curable. In own research, this percentage is much smaller (5.8%).[34]

Own research shows that the most common source of knowledge on issues related to HPV infection is the Internet (69.2%). The second source mentioned by respondents (26.7%) was medical personnel and specialist literature. In the studies conducted by Iwanowicz-Palus et al., The gynecologist (25.9%), as well as the media (20%) and literature (21.8%), were most frequently interviewed as the source of knowledge.[37]

Own research has shown that knowledge of issues related to human papillomavirus infection is on an average level (43.3%). 24.2% of the respondents had a good level of knowledge, and 32.5% of the surveyed women on the low level. Chorążka and colleagues assessed the students of the Medical University of Lodz and the University of Lodz as insufficient in their research.[38] A significant proportion of women surveyed were not vaccinated against HPV. She did not know at all about the existence of such a vaccine. The examined women do not know when and how vaccination is done. They are aware, however, that it does not exempt people from regularly undergoing preventive examinations. Con-

trary to appearances, women who were vaccinated did not have much knowledge at all. According to almost all women (90.8%), spreading knowledge about HPV is inadequate. Young women should be educated about human papillomavirus and made aware of the possibility of vaccination and the benefits that follow.

Conclusions

A small number of women were vaccinated against HPV. The main reason for the lack of this type of prophylaxis was the declared lack of knowledge about the existence of the vaccine. The self-assessment of the respondents coincides with the general knowledge, based on detailed questions, on issues related to HPV infection. The general level of respondents' knowledge is at the medium level. A higher level of general knowledge was shown by women with better education, related to medical and biological sciences, coming from larger cities, with a better financial situation. A higher level of knowledge has been demonstrated by subjects in which subjects related to human papillomavirus infection were raised during the education. At the same time, almost all respondents admitted that the dissemination of knowledge about these infections is unsatisfactory.

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