

Contemporary studies about vaccination against human papillomavirus: descriptive analysis

Estudos contemporâneos acerca da vacinação contra o papilomavírus humano: uma análise descritiva

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Abstract

Fundamentation: With the advancement of medicine, the vaccine against human papillomavirus (HPV) was developed. HPV is a sexually transmitted virus and the vaccine is a skillful means of preventing transmission. However, the vaccine needs to be applied to the at-risk population, young women and men. **Objective:** The objective of the present study is to highlight comprehensive studies on the applicability of the vaccine to the population in an efficient manner. **Methods:** The research will approach a wide review of scientific articles published in recent years, the collection will be carried out in the Google Scholar Database, MEDLINE and SciELO, allowing a discourse analysis of the selected works, and thus, building a critical analysis resulting from the information gathered about the population at risk, effectiveness and stigmas of non-vaccination. **Results:** In a critical analysis, it was corroborated that although vaccination has proven to be effective, the population at risk is not totally immune to the virus, since the stigmas imposed by contemporary society end up preventing vaccination from happening in 100% of the population. **Conclusion:** Thus, the study confirmed the need for permanent prevention policies in health units that aim at health education so that vaccination can reach the entire population at risk.

Keywords: Sexually transmitted disease, prevention, cervical cancer, HPV.

Resumo

Fundamentação: Com o avanço da medicina, surgiu a vacina contra o Papilomavírus humano (HPV). O HPV é um vírus sexualmente transmissível e a vacina é meio hábil que visa prevenir a transmissão. Entretanto, a vacina precisa ser aplicada na população de risco, as mulheres e homens jovens. **Objetivo:** O objetivo do presente estudo é evidenciar estudos abrangentes sobre a aplicabilidade da vacina na população de forma eficiente. **Métodos:** A pesquisa versará em uma revisão ampla de artigos científicos devidamente publicados nos últimos anos, a coleta será realizada na Base de Dados Google Acadêmico, MEDLINE e SciELO, possibilitando uma análise de discurso dos trabalhos selecionados, e assim, construir uma análise crítica decorrente das informações reunidas acerca da população de risco, eficácia e estigmas da não vacinação. **Resultados:** Numa análise crítica, restou corroborado que embora comprovadamente eficaz a vacinação, a população de risco não está totalmente imune ao vírus, visto que, os estigmas impostos pela sociedade contemporânea, acabam por impedir que a vacinação aconteça em 100% da população. **Conclusão:** Deste modo, o estudo confirmou a necessidade de políticas de prevenção permanentes nas unidades de saúde que objetivem a educação em saúde para que a vacinação consiga atingir toda a população de risco.

Palavras-chave: Doença sexualmente transmissível, prevenção, câncer colo uterino, HPV.

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INTRODUCTION

With the advancement of contemporary medicine, it has enabled the creation of vaccines that aim at the prevention and treatment of some diseases. Hence, through research, effective vaccines have emerged against Human Papillomavirus (HPV), which aims to prevent some diseases, such as cervical cancer.⁽¹⁾

According to Fiorin et al.⁽²⁾ vaccines that exist and are currently available against HPV, provide adequate protection against infections and diseases arising from the most important types of HPV 16 and 18, this has been proven in the cervix, vulva, vagina and anus in several tests performed. The same study also stated that, after analyzing the publications on the subject, they corroborated that the quadrivalent HPV vaccine has duly proven efficacy, since it has an impact in relation to cellular changes present in the cytopathological examination.

Also Reis and Ribeiro⁽³⁾ concluded that HPV occurs worldwide in the entire population, however, the vaccine is an effective and safe means of prevention. After its implantation, it was observed that there was a reduction in the incidence of diseases of the virus streams. Therefore, the objective of this work was to evidence, from the selected materials, to corroborate the relevance of vaccination against HPV, in order to prevent its transmission.

MATERIALS AND METHODS

This research was carried out through a literature review, where some articles on the topic were selected. However, the academic sources used to search for scientific articles were mainly from the Google Scholar® (Google Scholar), MEDLINE (Medical Literature Analysis and Retrieval System Online) and SciELO (Scientific Electronic Library Online) databases, using the following keywords: sexually transmitted disease, prevention, cervical cancer and HPV, thus bringing together the main ideas about the effectiveness of vaccination, population and current stigmas.

The aforementioned study corroborated the relevance of HPV vaccination, as well as the concern to reach the population at risk in its entirety, thus making it possible to build a critical analysis based on research already published in recent years on the subject.

Thus, this study is justified, because the HPV vaccine is already properly inserted in the Unified Health System (Sistema Único de Saúde – SUS), therefore, it ends up needing

current research, in a broad way, not only regarding its importance, but that also demonstrate the updated results as to their effectiveness and scope, allowing from these, that health policies are applied, aiming to protect the population as a whole, regardless of gender.

BIBLIOGRAPHIC REVIEW

Human Papillomavirus (HPV)

Human papillomavirus (HPV) is a DNA virus that is transmitted sexually, and it has an incidence in both sexes⁴. HPV was known to the ancient Greeks and Romans because of the cutaneous and genital warts that were associated with sexual promiscuity and were seen as contagious. It was in the 20th century in Italy that the first evidence of viral etiology was cited.⁽⁵⁾

It is from contact with the infected region that HPV transmission occurs, because through direct contact with the genitals during sexual intercourse, which sometimes occur on the skin (hands, feet, etc.) and mucous membranes (vaginal mucosa, cervix, penis, etc.) However, there is evidence of the presence of the virus in the skin, larynx and esophagus.⁽⁶⁾ Therefore, it is essential that vaccination be carried out in both sexes, as immunization will result in a decrease in HPV infection.⁽⁷⁾

Many patients who come into contact with HPV have the ability to abolish the virus spontaneously, however, some of these infected people will undergo some appropriate treatment.⁽⁸⁾ It is important to mention about HPV infection, and that there is also, people's ignorance about this virus, its signs, symptoms, transmission, and even, its relationship with cervical cancer.⁽⁶⁾

When vaccination was introduced in SUS, the intention was to reduce the impact of the HPV virus on the development of cancer of the cervix, penis, throat and anus. Thinking about immunization against the virus and consequently reducing the emergence of new cases. Despite this, even though immunization vaccination is performed, the use of condoms during sexual intercourse is not excluded. In addition, it is essential to perform a Pap smear in women and peniscopy in men. Thus, aiming at a greater adherence on the part of young people, there is a need for greater disclosure about the importance of the HPV vaccine. It is suggested that health professionals unite to deliver lectures in educational institutions, in order to inform young people and their guardians about HPV.⁽⁹⁾

HPV types

There are more than 150 HPV serotypes, which are identified numerically, according to their order of discovery.⁽¹⁰⁾ Serotypes are grouped according to their association with cervical carcinoma or precancerous lesions. The HPV that is less likely to have cancer are often serotypes 6 and 11, characterized mainly by the presence of genital warts, unlike HPV that have a high chance of developing cancer, are types 16, 18, 31, 33, 35, and 45.⁽¹⁰⁾ Regarding the types of high-risk oncogenic HPV, the Ministry of Health⁽¹¹⁾ recommended: "The types of high-risk oncogenic HPV are detected in 99% of cervical cancers, the most common being HPV16 and 18, which together are responsible for about 70% of these cases, however HPV 16 alone it is the cause of approximately 50% worldwide. HPVs 6 and 11 are associated with up to 90% of anogenital warts. "In Brazil, the HPV prevalence profile is similar to the global one, with 53.2% for HPV 16 and 15.8% for HPV 18."

The HPV virus has 120 types, of which 12 are related to the development of cancer. A total of 243 studies were carried out, and these were published worldwide between the years 1990 and 2010, in which 30,848 cases were analyzed, and it remained evident that 92.9% of the cervical carcinomas considered were related to a specific type of HPV. The study also corroborated that cancers related to HPV virus types 16 and 18 were between 70% and 76%.⁽¹²⁾

Nakagawa et al.⁽¹³⁾ showed that there is a vast bibliography that talks about the HPV virus and the incidence of cervical carcinoma, demonstrating the controversial aspects on the subject. Although studies are advancing, the rates of morbidity and mortality due to cervical cancer remain high in developing countries, since it is a slow developmental pathology, asymptomatic in its initial stage, and mainly due to infection sexually transmitted.

In Brazil, the way to fight is by cytological examination, so that it can be detected early, since thousands of women are already exposed to the HPV virus, and who need adequate monitoring and treatment, so that the infection does not continue and becomes a cancer.⁽¹³⁾

Regarding the incidence of diseases related to HPV, the Ministry of Health⁽¹¹⁾ also states: "Without considering non-melanoma skin tumors, cervical cancer is the first most incident in the North Region (25.62 / 100 thousand)". In the Northeast (20.47 / 100 thousand) and Midwest (18.32 / 100 thousand) regions, it occupies the second most frequent position; while South (14.07 / 100 thousand) and Southeast (9.97 / 100 thousand) regions occupy the fourth position.

In addition to cervical cancer, it is estimated that the HPV virus associated with other factors is responsible for 90% of cases of anal cancer, 71% of cases of vulva, vagina and penis cancer, and 72% of oropharyngeal cancers. Studies carried out with men between 18 and 70 years of age show that Brazilian men (72%) have more HPV infection than Mexicans (62%) and North Americans (61%). The incidence of penile cancer is three times higher in Brazilian men than in American men. Regarding oral HPV infection as the main risk factor for oropharyngeal cancer, this has been established in case-control studies. In addition, the majority ($\geq 90\%$) of oral infections are acquired sexually.⁽¹⁴⁾ Pinto et al.⁽¹⁴⁾ concluded that the initiation of early sexual life is one of the fundamental factors associated with HPV contamination in young people. They stated that due to this precocity, therefore, there is a need for health policies that provide young people and their families with correct information on the subject and the appropriate guidance on sex education. Sanches⁽¹⁵⁾ corroborated that the National Health Surveillance Agency (ANVISA)⁽¹⁶⁾ released the commercialization of the HPV vaccine in Brazil, only from 2006.

HPV transmission

The Ministry of Health⁽¹⁷⁾ defined that HPV is a sexually transmitted infection, it is a type of virus that contaminates mucosa and / or skin regardless of sex, whether male or female. This type of infection causes warts on the genital area and anus, or even cancer depending on the specific type of virus.

Studies state that only complete sexual abstinence can prevent HPV infection, because condoms are not guarantees of sufficient protection, since the virus can be transmitted by intercourse without penetration.^(18,19) According to Franco and Harper⁽²⁰⁾ apud Nadal and Manzione⁽⁴⁾ it is possible to propose two forms of prevention, namely, with the tracking of precursor lesions or with immunization against HPV, to avoid them.

According to the Ministry of Health,⁽¹¹⁾ HPV is transmitted through contact with an infected person. However, its most common form of transmission occurs during sexual intercourse, regardless of being oral-genital, genital-genital or manual-genital.

Thus, the Ministry of Health⁽¹¹⁾ still highlights: "Studies carried out on individuals with newly acquired HPV infections show that these occurred shortly after the beginning of sexual life, with 10.4% of infections being caused by HPV type 16, one of the most oncogenic. In addition, 45.5% of female adolescents contract HPV before the beginning of the first

sexual intercourse with vaginal penetration. Genital HPV infection can also be transmitted, during childbirth or even through non-sterile gynecological instruments.”

For prevention with immunization to happen, it is necessary that people become aware of the importance of vaccination, that is, that the population understands that the vaccine is a skillful means to combat the development of diseases resulting from HPV. Borsatto et al.⁽²¹⁾ described that HPV vaccines enabled primary level prevention, in other words, to prevent contamination by the virus.

TREATMENT

Regarding treatment, the Ministry of Health⁽²²⁾ recommends in the case of anogenital warts that these lesions are destroyed, because, even if the person does not undergo the treatment, it may happen that these lesions disappear, remain unchanged, or even increase in size and quantity.

Regarding treatment, the Ministry of Health⁽²²⁾ postulates: “It must be individualized, considering the characteristics (extent, quantity and location) of the injuries, availability of resources and adverse effects. They are chemical, surgical and immunity boosters. They can be home (self-applied: imiquimod, podophyllotoxin) or ambulatory (applied in the health service: trichloroacetic acid – TCA, podophyllin, electrocauterization, surgical excision and cryotherapy), according to the professional indication for each case. Podophyllin and imiquimod should not be used during pregnancy. People with immunodeficiency - HPV treatment recommendations are the same for people with immunodeficiency, as people living with HIV and transplanted. However, in this case, the patient requires closer monitoring, as people with immunodeficiency tend to have a worse response to treatment. Treatments for anogenital warts do not eliminate the virus, so lesions can reappear. Infected persons and their partners must return to the service if they identify new injuries. ”

Also the Ministry of Health⁽²²⁾ claims that it is not possible to say that genital warts will disappear or grow, since it will depend on the size and region that they appear, however there are numerous forms of treatment. Nonetheless, the health professional who will observe and define the best treatment for each specific case. Thus, the treatment options employed may be through the use of cream directly on the warts, freezing removal, cauterization, laser or even removal surgery. Importantly, it is possible that in some cases they reappear even after treatment.

PREVENTION

Nunes et al.⁽²³⁾ reported that the prevention of diseases such as cervical cancer is more effective if performed at the beginning. Even though there are public policies aimed at prevention through the use of condoms and Pap smears, there are still high rates of cancer and consequently an increase in mortality from cervical cancer. Although HPV vaccination is carried out in order to prevent the development of injuries or even cancer, its application through SUS is a skillful means of preventing infections arising from HPV.

In Brazil, the inclusion of the tetravalent HPV vaccine in their national vaccination calendar occurred in 2014, pre-adolescent girls were initially vaccinated to immunize them from the various types of cancer that result from the virus, mainly uterine cancer. However, there were reports that there were side effects related to vaccination.⁽²⁴⁾

Ministry of Health,⁽²²⁾ HPV vaccination is the most effective form of prevention, as this means is currently available in SUS, and is indicated for girls aged 9 to 14 years old, people with HIV and transplanted people aged between 9 and 26 years old. It is important to highlight that vaccination is not a treatment, as it is not effective when infections or injuries from HPV already exist.

Sanches,⁽¹⁵⁾ however, it is important to note that some women end up relying so much on vaccination and its benefits that they can assume high-risk sexual behavior after vaccination, being vulnerable to other sexually transmitted diseases. Therefore, it is essential that health professionals guide women in the health unit on ways to prevent other diseases and the need to participate in HPV screening programs periodically, since the vaccine does not protect them from all types of HPV.

The Ministry of Health⁽²²⁾ emphasizes that condoms are an important form of prevention against HPV, since their use prevents transmission of other sexually transmitted diseases. However, it does not completely prevent HPV infection, since in areas such as the vulva, pubic area, perineal area or scrotum, they are not fully protected by condoms. It is important to say that the female condom covers the vulva, therefore, this is the most effective way to avoid contagion if used correctly.

Nonetheless, the vaccine against the HPV virus is a form of prevention inserted in SUS that aims at collective immunization, thus reducing individual risk. Promptly, the vaccination proposal seeks to intervene in the risk of developing precancerous lesions.⁽¹⁾ Rêgo et al.⁽²⁵⁾ considered how relevant health education is for the population aged

between 9 and 13 years old about HPV, through educational methodologies that clarify the importance of vaccination and its effectiveness, thus allowing to break the barriers of resistance that exist or that may exist among the parents of adolescents who have been vaccinated.

Quevedo et al.⁽²⁶⁾ there is resistance on the part of society related to the access of young women to the vaccine, since, due to low understanding, parents understood that such a means of prevention can stimulate early sexual life. In contrast, Chehuen Neto et al.⁽²⁷⁾ stated that there are a considerable number of people who are properly informed about the HPV vaccine.

Contamination by the HPV virus occurs in both sexes, being transmitted during sexual intercourse without the use of protection.⁽²⁸⁾ It is in the young population that the virus has the highest prevalence, thus, the majority of young people sexually active are subject to contagion.⁽²⁸⁾

Nadal and Nadal⁽¹⁹⁾ apud Alvarenga et al.⁽²⁹⁾ contamination by the HPV virus is a public health problem, so its prevention due to the high rates of precancerous and cancerous lesions is a necessary measure. In addition, health education about vaccination is essential, as it is the time to raise awareness among the population about the benefits of the HPV vaccine.

In relation to health education, Osis et al.⁽³⁰⁾ apud Rêgo et al.⁽²⁵⁾ understood that health education should start in primary care, since this is where the initial promotion to the population begins regarding information about HPV and any diseases. However, the population only seeks health services when they are needed, that is, when they are sick. Therefore, health education is necessary, so that we reeducate the population about the need to prevent HPV and other diseases.

It is necessary that couples who maintain sexual life stimulate and accompany their partners in gynecological tests, because HPV virus infection is a problem of the couple, and it is up to health professionals to guide and treat men in order to prevent even the appearance of penile cancer.⁽³¹⁾

Similarly, Rêgo et al.⁽³²⁾ pointed out that the health professionals play a primary role in the face of HPV control, because they work with health promotion, performing activities with the primary health care community, among others, allowing the carrying out educational activities according to their students, thus clarifying their doubts and desires. Therefore, it is essential to guide parents on all aspects inherent to the vaccine, respecting the autonomy of those involved and allowing dialogue in health promotion.⁽³³⁾

Therefore, health professionals play an important role in the face of parents and users in order to allow them to apply the HPV vaccine. Thus, the knowledge and technique

necessary for such intervention and skills for this task is expected by these professionals.⁽³⁴⁾ Some dilemmas due to ethical, cultural and religious issues deserve attention from health professionals, since it is within the family that some barriers are imposed in the face of HPV vaccination. Adequate follow-up and guidance should be carried out so that parents can be aware of the importance and effectiveness of vaccination, consequently reducing the number of cases of cancer and other pathologies arising from HPV. It is about preventing the disease from returning due to the virus infection, and not remedying the disease already installed, since it is necessary for people to take all three doses of the vaccine, and not just the first. Therefore, the professionals involved need to be able to carry out health promotion also with educational institutions and teachers, so that the proximity to students allows to break any and all barriers that may exist in the face of vaccination.⁽³⁵⁾

Religion allows people to interact in their community and the problems resulting from social segregation that are usually linked to some disease, the belief ends up provoking a perception of security, because it serves as an emotional, social support and support in the face of the difficulties of the everyday life.⁽³⁶⁾ It is possible to state that health professionals are professionals trained to carry out activities with the community in order to make them aware of the importance of HPV vaccination.

Studies by Costa and Goldenberg⁽³⁷⁾ clarify the importance of students knowing HPV, regardless of the age group, they were curious about the topic. Therefore, the subject needs clarification, relevant information regarding the transmission of HPV, as well as contraceptive methods and specific treatments in case of infection.

In order for adolescents to adhere to HPV vaccinations, it is necessary to train health and education professionals in order to promote dialogue. This type of activity allows the population, especially the younger ones, to clarify their doubts, discussing their experiences to improve health conditions.⁽³⁸⁾

HPV vaccines

Currently, the HPV vaccine is a propitious way to fight cervical cancer and genital warts. Nevertheless, even if they are properly vaccinated, it is essential that women continue to have their medical appointments regularly at their gynecologists. Thus, anti-HPV vaccination is an additional prevention and does not exempt women from taking care of their gynecological health.⁽³⁹⁾

Since the HPV vaccine protects against a specific virus that is transmitted sexually, some parents understand that vaccination can be a stimulus to young people's earlier sexuality. Studies show that this is just a mistake.⁽⁴⁰⁾ Sexuality is still seen as a taboo, the beginning of sexual life and STDs as well. Awareness-raising work has a beneficial effect, as it draws the attention of young people and informs them that sex can transmit many diseases and that HPV is one of them, being essential the use of condoms even if properly vaccinated.⁽⁴⁰⁾

The HPV vaccine is not enough to make up for the lack of a cervical cancer prevention exam, since all women, even if they have completed the immunization schedule (3 doses), are advised to continue taking the Pap smear routinely. It is important to highlight that vaccination is not intended to treat HPV-related diseases, since its purpose is to prevent contagion by HPV.⁽⁴¹⁾

Vaccination in sexually active women, up to 25 years of age, is necessary, since they are more likely to have new HPV infections. SUS enables an efficient promotion of vaccination against HPV types 6, 11, 16 and 18 in the population at risk. In such a way, that the accomplishment of prophylactic measures to the HPV provides quality of life of the population.⁽⁴²⁾

ANVISA⁽¹⁶⁾ the new approved vaccine extended the protection to 9 subtypes of the HPV virus, known as 9-valent and including against subtypes 31, 33, 45, 52 and 58 of HPV, also subtypes 6, 11, 16, 18 that were already available in the previous version of the product. HPV is associated with cancer of the uterus, vulva, vagina and anus. The name of the medicine is Gardasil, which is indicated both for boys, as well as for girls aged between 9 and 26 years. It is recommended that vaccination be performed even before sexual initiation, since transmission occurs through sexual intercourse.

It is important to highlight that, according to the Ministry of Health⁽¹¹⁾, the quadrivalent HPV vaccine, that is, specifically subtypes 6, 11, 16 and 18 (recombinant) in 2018, this quadrivalent HPV vaccine started to be made available to women with age between nine to fourteen years (9 to 14 years, 11 months and 29 days), as well as, for males between eleven and fourteen years of age (11 and 14 years, 11 months and 29 days). Thus, including the male gender of this age group in the vaccination program, allows to reduce the incidence of diseases arising from the HPV virus.

This vaccine was duly registered by the Merck Sharp & Dohme Farmacêutica⁽⁴³⁾ Inc. In the same sense, follow the indication as approved for the leaflet of Gardasil 9: "Cancers of the cervix, vulva, vagina and anus caused by HPV types 16, 18, 31, 33, 45, 52 and 58; Genital warts (condyloma

acuminata) caused by HPV types 6 and 11. In addition to persistent infections and the following precancerous or dysplastic lesions caused by HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58: Cervical intraepithelial neoplasia (CIN) of grades 2 and 3 and adenocarcinoma of the cervix in situ (AIS); Grade 1 cervical intraepithelial neoplasia (CIN); Vulvar intraepithelial neoplasia (NIV) of grades 2 and 3; Grades 2 and 3 vaginal intraepithelial neoplasia (NIVA); Grade 1 NIV and grade 1 NIVA; Anal intraepithelial neoplasia (NIA) of grades 1, 2 and 3". Eluf Neto⁽⁴⁴⁾ on the effectiveness of HPV vaccine, it was observed that it must be done in women who have not started their sexual life, since they may have greater benefits from the vaccine. However, if the woman is already infected with some type of HPV, even though it is included in the vaccine, she will only be protected against a disease caused by other type of HPV virus in this vaccine.

CONCLUSION

From articles and publications guided by the achievement of this study, it was proven that the infection resulting from the human papillomavirus is known as a sexually transmitted disease. It was observed that HPV has a high infection rate.

However, it became evident that both women and men are equally infected by the HPV virus, although the vaccination is aimed at both sexes, many are unaware.

In addition, it was corroborated that among women, HPV is responsible for a high number of cervical tumors, so it is necessary and indispensable to prevent this infection caused by HPV. Consequently, the study highlighted the importance of vaccination before sexual contact, since the only completely safe way is complete sexual abstinence, since condoms are not 100% safe and do not fully prevent contact during sexual intercourse with injuries from HPV. The study ended up confirming that the HPV vaccine currently available in SUS is accessible and with favorable results in fighting the virus, although it needs some improvements to be implemented through health awareness and education.

However, for the population to understand the importance of vaccination against infection from the HPV virus, it is essential that health professionals are able to enable this dialogue, since the lack of knowledge on the subject ends up causing barriers regarding access to vaccination. It is necessary to establish a way to enable health education in a participatory way. Although the HPV vaccine is very effective, there are barriers to be broken, whether for reasons of safety, guarantee of results and religious beliefs. Thus, it has been

demonstrated in this study, that the prevention carried out through vaccination against HPV is quite effective, since it decreases the appearance and development of diseases caused by this virus.

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