Chapter 261

Uterus cancer: A multifactorial analysis, with emphasis on preventive methods

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ABSTRACT
OBJECTIVE: To study cervical cancer in terms of its pathophysiology, risk factors, epidemiological and triggers, diagnosis, and treatment, emphasizing primary and secondary preventive methods. METHODS: A narrative literature review was performed. The electronic databases explored were Google Scholar, SCIELO (Scientific Electronic Library Online), and VHL (Virtual Health Library), in addition to the use of a virtual bibliographic collection. The coverage period included articles from 2010 to 2020. The following descriptors were applied: Uterine Cervical Neoplasms, Cytopathological Xam, Prevention, Vaccination, and HPV. RESULTS: We analyzed 16 articles covering aspects of cervical cancer, from pathophysiology, epidemiology, risk factors, and triggers, to preventive methods and management. CONCLUSION: Cervical cancer is a neoplasm caused by an infection of the HPV virus that generates great impacts on the lives of patients and that can be avoided with the use of primary and secondary preventive methods. Thus, the study presented is necessary to understand this pathology, to prevent and treat it in the best possible way. Thus, interventions aimed at minimizing the effects of this neoplasm should be carried out, such as in the Family Health Strategies (FHS) through health education projects to offer the local population complete care.

Keywords: Neoplasm, Cervix, HPV, Prevention.

1 INTRODUCTION

Cervical cancer (CC) - malignant neoplasm caused by human papillomavirus (HPV) infection - is, according to the José Alencar Gomes National Cancer Institute da Silva (2019) a prevalent pathology, the fourth current type of cancer in the world: 3.2% of all cancers. Regarding the Brazilian scenario, CC was estimated, still by INCA studies (2019) as the sixth most prevalent neoplasm in the national territory, being pointed out as the cause of death for 6,596 women in 2019.

However, it is aware that there have been significant developments in public policies through government plans and actions to combat the high mortality rates and those infected by the disease, such as increased coverage of cytopological examination and inclusion in the Calendar National Vaccination the

anti-HPV vaccine. In this way, it was hoped that great changes and improvements would be achieved; however, Tsuchiya et al. (2017) point out the permanence of the lag of protocols and consequent failures, such as permanent social misinformation and recurrent late diagnoses of the disease, which reduce survival rates at CC.

Therefore, it is known that the CCU is still today an obstacle to the health of the country, so it is of paramount importance that the theme is widely addressed, discussed, and brought to the Brazilian reality and popular knowledge through articles and publications similar to that. Moreover, democratizing knowledge and the importance of preventive methods, whether through contraceptives, personal care, or even vaccination, will promote collective health.

2 OBJECTIVE

Study cervical cancer concerning its pathophysiology, risk factors, epidemiological and triggers, diagnosis, and treatment, emphasizing primary and secondary preventive methods.

3 METHODOLOGY

This is a narrative literature review, which according to Sousa et al. (2018), refers to the analysis of previous scientific studies for the theoretical foundation and conceptual structuring that fosters the basis of the work to be carried out. It is a broad form of research method that aims to identify and assimilate existing data, solidify knowledge, avoid duplication, and detect possible gaps or omissions in the current literature.

The questions used to carry out the research were: What are the elements involved in the pathophysiology of cervical cancer? What are the risk, epidemiological, and triggering factors of cervical cancer? How does the vaccine work in the prevention of cervical cancer? What is the importance of PCCU and contraceptive methods in the prevention of cervical cancer? To answer them, the electronic databases Google Scholar, SCIELO (Scientific Electronic Library Online), and VHL (Virtual Health Library) were explored, in which keywords were applied in Portuguese. The virtual bibliographic collection was also used to obtain data. The range of coverage was between 2010 and 2020.

Through an advanced search, conducted on September 18, 2021, descriptors standardized by the Health Sciences Descriptors were used, namely: neoplasms of the cervix, cytopathological examination, prevention, vaccination, and HPV. For the collection of data from the last 10 years. This process involves the activities of search, identification, and analysis. In the end, there were 39 combinations between the descriptors to get as many references as possible.

After the delimitation of the descriptors, the articles were read by the abstract to select those that indicated emphasizing the preventive methods with CC and discarding those that focused on aspects that were different from the proposed theme, such as the triggering by HPV or were limited to a certain age group. Data collection was guided by the following inclusion criteria: research articles, books, systematic

reviews, literature reviews, specialization papers, and master's or doctoral degrees on cervical cancer, in addition to being freely available in full in electronic media and published between 2010 and 2020.

Initially, 2350 scientific productions were identified according to the research of descriptors: neoplasias of the cervix, cytopathological examination, prevention, vaccination, and HPV. Thus, 72 of these productions were selected, which presented a text available in full online. Moreover, refining these 72 selections, 35 met the inclusion criteria.

Moreover, of these 35 selected productions, 25 met the inclusion criteria by addressing the specific objectives of this literacy review. Still, the filter related to the temporal cut of the last 12 years was applied, excluding 6 productions. Of the 19 references filtered, 3 were excluded because they addressed aspects that were not very relevant to the textual construction, focusing on specific age groups or selected groups, not presenting,

thus, information that would add to this review. Thus, 16 remaining productions began to compose the research repertoire for the study of this literary review.

4 FINDINGS

The database was Google Scholar, SCIELO (Scientific Electronic Library Online), and VHL (Virtual Health Library), in which between August and October 2021 72 productions were selected with texts available in full online, as corroborated in the inclusion criteria. A posteriori, 11 articles were effectively elected for the study and production of this literature review.

Of the 11 articles analyzed, 4 of the studies presented a cross-sectional design, with a quantitative approach, and 7 with a retrospective analysis, with a qualitative approach. Among the selected studies, 3 analyzed the HPV vaccine, 2 described the risk factors for cervical cancer, 1 addressed the treatment of cervical cancer 2 analyzed the risk factors for cervical cancer, 1 analyzed public policies aimed at the health of the women, 1 described the Pap smear and 2 emphasized the importance of this test, and 1 characterized the different types of literature reviews. We found studies originating from the European and South American continents, with an emphasis on Brazilian and Spanish publications. In Brazil, studies on cervical cancer preventive methods were highlighted, originating mainly from the southeast region.

5 DISCUSSION

As this work is a literature review, we sought to analyze cervical cancer concerning its pathophysiology, epidemiological factors, risk factors, and triggers, as well as the means of prevention via vaccination schedule, use of condoms, and Pap smear to promote knowledge and, therefore, health.

According to Kumar, et al. (2013), the pathophysiology of most cervical tumors begins with persistent and progressive infection of human papillomavirus (HPV) serotypes, especially the high-risk ones. It is known that hormonal and genetic factors, in addition to the immune status and the concomitance

of other sexually transmitted infections (STIs) contribute to the emergence of this type of malignant neoplasm.

According to Filho (2016), hormonally, the increase in estrogen and progesterone levels already at the beginning of puberty generates the version of the epithelium of the cervical squamocolumnar junction, with the exposure of columnar cells in the ectocervix. Subsequentially, squamous metaplasia mediated by the action of low vaginal pH will form the transformation zone.

Finally, it is the infection of these cells guided by viral tropism that, in some cases, generates the evolution to cervical intraepithelial neoplasia (CIN) and later to invasive carcinoma of the cervix, which can spread lymphatic.

Concerning epidemiological data, the INCA (2020) states that cervical cancer mainly affects women aged between 35 and 44 years and is rarely found in women under 20 years. CC is one of the leading causes of cancer death in women, occupying the third position, but had a decrease in the mortality rate after the increase in the use of the Pap smear. In Brazil, 16,710 new cases were registered in 2020, corresponding to a total of 7.5% of cancers in women. According to Anjos et al. (2010), in the world, annually about 470 thousand new cases are diagnosed, and in 2005, 250 thousand deaths were recorded, of these, 80% occurred in developing countries.

According to the analysis of Anjos et al. (2010), the risk factors are divided into two groups, the experimentally documented and the clinical and epidemiological. The first is the immunological factors (local and humoral immune response), association with AIDS, genetic factors such as p53 protein polymorphism, smoking, and prolonged use of oral contraceptives. Of the clinical factors, we can highlight the early onset of sexual activity, multiplicity of partners, low education and income, multiparity, and history of STI. The triggering of CC from the infection of normal cells by HPV is related to multiple factors involving the host, such as immunity and several births, exogenous factors such as smoking, and HIV infection, and factors of the virus itself, such as its subtype, simultaneous infections by various oncogenic types and viral load.

Regarding prevention, Zardo et al. (2014) address vaccination, as one of the primary prevention methods, which aims to prevent the spread of the virus and the control of lesions from HPV. Given this, two types of vaccine were created to combat the virus, one being prophylactic and the other having therapy. The prophylactic vaccine is the most efficient and stimulates a humoral immune response in the individual, from contact with "virus-like particles". These particles, in turn, are the proteins L1 and L2, present in the capsid of the papillomavirus, which act as antigens when they come into contact with the immune system. Thus, antibodies produced from this system are released into the genital mucosa, preventing early infection. The therapeutic vaccine, on the other hand, is produced from other proteins, such as E6 and E7, used as vaccine antigens. These proteins sensitize immunocompetent cells to fight viral infection.

In this sense, according to Santos (2017), in 2014, in Brazil, HPV vaccination was implemented by the Unified Health System (SUS), in which the focus, in the beginning, was on girls between 9 and 13 years

old. In 2015, it was expanded to girls and women living with HIV/AIDS between 9 and 26 years old. In 2017, boys between 9 and 13 years old were included, as well as boys and men living with HIV/AIDS between 9 and 26 years old. According to Zardo et al. (2014), two types of prophylactic vaccines have been approved for application in the population, they are GlaxoSmithKline and the quadrivalent of Merck Sharp and Dohme, in which both have the L1 protein and were produced from the most common viral types present in cervical neoplasms, HPV16 and HPV18.

Another form of essential primary prevention is the use of condoms, since, according to Brazil (2014), the main form of HPV contagion, about 95%, is through direct contact with the mucosa or infected skin, and this happens mainly during sexual intercourse. In the other 5%, transmission occurs from hands, objects, towels, and clothing, which are contaminated with the secretion of the live virus and come into contact with skin or mucosa. Therefore, considering the higher percentage of transmission, the use of this preventive method is important to avoid HPV infection, as well as against other sexually transmitted infections (STIs). In this context, it is worth emphasizing that, although the use of condoms during sexual intercourse is indispensable, it does not protect 100%, since the lesions may be present in areas not protected by the male condom. These areas are the vulva, the pubic, perineal, and perianal region, or the scrotum. Therefore, in terms of barrier protection, the most effective method is the female condom, which in addition to protecting the vaginal canal, creates a latex barrier over the vulva.

Still relating to the use of contraceptive methods for the prevention of HPV, according to Castellsagué et al (2011), in a research conducted on the use of an IUD (intrauterine device) against HPV, it was observed that the use of this device serves as a protective cofactor in cervical carcinogenesis. In addition, the cellular immunity that was triggered by the use of the IUD also serves as a protective cofactor for squamous cell carcinoma, adenocarcinoma, and adenosquamous carcinoma. However, it is still necessary to carry out more in-depth studies on the subject to obtain more concrete data.

Regarding secondary prevention, Filho (2020) addresses the Pap smear (PCCU), a simple and fast prevention and screening test that performs the collection of cells from the cervix for laboratory analysis, to detect possible abnormalities. According to Dias (2017), it is extremely important to guide and encourage the execution of the gynecological examination of cervical samples, since it effectively contributes to the reduction of morbidity and mortality by cervical cancer, due to its high power to detect pathologies that affect this region, often preceding the development of malignant neoplasm.

According to Brazil (2013), oncotic coloproctology is offered in Primary Care and is collected by trained doctors or nurses. Every woman who has or has had an active sex life should undergo the examination, the initial age for collection is 25 years, owing be performed annually by this age group and after two successive negative annual examinations, every three years. Screening must occur until age 64, to be stopped requires at least two consecutive negative tests in the last five years. In addition, in the case of women over 64 years of age, who have never had it, two negative results are required, with an interval of one to three years. According to Moreira and Andrade (2018), effectively covering the entire target

population is a great challenge, due to several factors such as difficulty in accessing the service or information, as well as the fear of many women for the realization of the PCCU.

In the context of the diagnosis of CC, Tsuchiya et al. (2017), informs that gynecological examination, cytopathology in sexually active women from 25 to 64 years of age, colposcopy, and biopsy are recommended in cases where the cytopathology examination is with a high-risk abnormality and the histopathological examination of the biopsy performed. The authors highlight the relevance of the Pap smear as a form of screening and early diagnosis of this type of cancer and due to the fact of the easy diagnosis at an early stage, there was a significant reduction in the captive in morbidity and mortality due to this pathology in recent decades. However, the authors also say that despite the advancement of public policies aimed at the control of cervical cancer in Brazil, the diagnosis is still made in advanced cases of the disease demonstrating the importance and need to expansion of these policies.

Finally, regarding treatment, Vidal (2019) states that it is done according to a care line, in which a follow-up is established relating prevention to treatment, which is divided into Levels of Attention to Health. At the primary level, there is health education with the realization of vaccination against HPV, and prevention through the Pap smear, to diagnose early. At the secondary level, there is health promotion with the detection and treatment of precursor lesions performed with high-frequency surgery or conization, depending on the degree of the lesion and with a possible confirmation of malignant neoplasm of the cervix. At the tertiary level, the indication and treatment of cancer occur, which should be evaluated by a doctor, following the staging of the disease, tumor size, and personal factors; Among the treatments are surgery, chemotherapy, and radiotherapy.

6 CONCLUSION

Cervical cancer is a malignant neoplasm located mainly in the lower part of the uterus; it is caused by a persistent infection of the HPV virus (16,18). Despite being a slow-developing neoplasm, it has a great impact on women's lives, especially with sexual, urinary, and intestinal symptoms. Thus, measures of assistance to the population are necessary from projects that can be created by the Family Health Strategy, such as the encouragement of primary prevention that is related to vaccination against HPV in boys and girls aged 9 to 14 years and secondary prevention by encouraging women over 25 years of age with an active sex life to undergo the Pap smear to reduce cases of this type of cancer and provide a better quality of life for the entire population.

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