HPV VACCINATION AND CERVICAL CANCER SCREENING HISTORY FROM CERVICAL CANCER SURVIVOR

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Abstract

Cervical cancer is a malignancy that occurs in the cervix due to abnormal growth of cervical epithelial tissue, is the second highest cause of death from cancer in 36 countries, the only gynecological cancer that can be prevented because its development period takes a long time. Prevention consists of primary, secondary and tertiary prevention. WHO recommended prevention consists of HPV vaccination, early detection of cervical cancer / management of women detected with positive screening and cervical lesions treated appropriately.

This study aims to determine the history of HPV vaccination and cervical cancer screening in patients with cervical cancer at RSUD Dr. Sutomo Surabaya. Descriptive type of research with a cross sectional design approach, samples were taken non-randomization using a questionnaire given to 102 respondents with cervical cancer in the Oncology Poly of Dr. Sutomo Surabaya Hospital. Data analysis using univariate using frequency distribution tables. There were 2 respondents vaccinated 3 and 1 dose but at an age that was not recommended. There were 5 respondents who did routine pap smears but were inadequate because they stopped at an inappropriate time.

In conclusion, not all cervical cancer patients do not do cervical cancer screening and HPV vaccination.

Keyword: HPV Vaccine; Screening; Cervical Cancer.

1. Introduction

Cervical cancer is a malignancy that occurs in the cervix due to abnormal growth of cervical epithelial tissue. Cervical cancer is the most commonly diagnosed cancer in 23 countries and is the leading cause of cancer death in 36 countries [1].

Globocan (Global Cancer Observatory) data in Indonesia in 2020 cervical cancer ranked third at 17.2% (36,633) cases, after breast cancer 30.8% (65,858) cases, other cancers 35% (74,618) there were 396,914 new cases of cancer with 234,511 mortality due to cervical cancer. Cancer mortality is predicted to continue to increase to more than 13.1 million by 2030 [2]. The One-Stop Oncology Poly (POSA) database at RSUD dr Sutomo Surabaya reported the number of visits by cervical cancer patients was 51.37% (771) cases in 2018, 49% (716) cases in 2019, 39% (431) cases in 2020, 47. 5% (499) cases in 2021, and 40.8% (464) cases in 2022, there has been a decrease in the number and proportion since 2019-2022 due to the covid 19 pandemic, but these numbers still make cervical cancer the first largest number of visits compared to other types of gynaecological cancer.

Cervical Cancer is the only type of Gynaecological cancer that can be prevented, with primary, secondary and tertiary prevention. The most recommended prevention is Primary prevention, namely by screening or early detection of cervical cancer, vaccinating against HPV and staying away from factors that cause cervical cancer. Cervical cancer can be cured if recognised early and treated quickly but in reality almost 70% of cancer patients are detected at an advanced stage.

The target coverage of cervical cancer screening in developing countries is 70%. In 2017 in

Indonesia, it was 5% of the total target population of 34 million women [3]. Cervical cancer screening coverage in 2019-2021 is only 6.83% and 4.68% in East Java this is very far from the expected target [4]. The reasons Indonesian women are reluctant to be examined are lack of knowledge regarding the importance of pap smears so they think they don't need to do papsmears, feel embarrassed to have their intimate organs examined, and feel afraid [5].

May 2018 WHO Director General Dr Tedros Adhanom G issued a call to eradicate cervical cancer, he launched a global strategy to accelerate the elimination of cervical cancer, one of which uses three pillar targets for 2030, namely 90% HPV vaccination coverage for eligible girls, 70% screening coverage with high performance tests and 90% of women who have detected positive screening or cervical lesions are treated appropriately [1].

The Indonesian government's efforts to eradicate cervical cancer were conveyed by the Minister of Health Budi Gunadi that currently the HPV vaccine program has been included in 1 of 14 complete basic immunisations in children [6].

Cervical cancer is an abnormal growth of cervical epithelial tissue due to malignancy that occurs in the cervix, the epithelium in the cervix consists of three parts, namely the ectocervix consisting of layered flat epithelial cells, the endocervix consisting of layered columnar cells, the third part of the transition (transition from flat cells to columnar epithelial cells) or transformation zone [7].

Risk factors are occurring at the age of 35-39 years. The average age at diagnosis of cervical cancer is 43-45 years. The course of the disease takes 7 to 10 years for invasive cancer to occur so that most are known at a later age [8]. Sexual partners are more than 6 and sexual activity occurs at an age less than equal to 18 years. The high risk in women living in rural areas may be due to less access to screening. Employment is related to economic status, women with heavy work are 9 times more at risk of cervical cancer compared to women who have light work [9].The level of education is related to the process of changing attitudes in conducting early detection of cervical cancer. women with low education are at 4 times the risk of cervical cancer compared to highly educated women [9]. Women with low education are at risk of cervical cancer associated with attitudes that pay less attention to health, one of which is with personal hygiene, especially the cleanliness of their genitals [10].

Patients infected with HPV accompanied by smoking have an increased risk of squamous cell carcinoma compared to non-smokers. Women who use long-term oral / hormonal contraceptives are at risk of HPV infection, the percentage increases with the duration of use compared to those who have never used or used hormonal contraceptives for less than 5 years. Immunosuppressed (Human Immunodeficiency Virus [HIV] and transplant recipients), have a 4 times higher risk, because immunosuppressant treatment can weaken the immune system [11]. Women whose uterus is exposed to diethylstlbestrol, the risk persists for up to 40 years exposure to diethylstilbestrol (DES) in the uterus is largely a historical risk factor for the development of cervical cancer [12]. Women with a history of ≥ 3 full-term deliveries have a 5 times risk of cervical cancer compared to women with < 3 parities [13].

Pathophysiology, HPV is believed to be the main etiologic factor in cervical cancer, variables previously identified as risk factors are now classified as cofactors that increase the risk of HPV infection or infection will persist causing cervical neoplasia to occur. High risk HPV infection is not enough to cause cervical cancer, the majority of HPV is transient and poses little risk of persistent infection, to become cervical cancer, HPV infection has gone through stages of persistent infection and then progresses to cervical precancerous lesions and then to invasive cervical cancer [14]. HPV infection in girls and younger women is more likely to be transient and therefore less likely to be associated with significant cervical lesions [15].

Signs and symptoms of cervical cancer are profuse vaginal discharge with blood outside menstruation, pain during sexual intercourse / dyspareunia then accompanied by bloody discharge after coitus, pelvic pain, blood in the urine. The final stage occurs swelling of one of the limbs, swelling of the pelvic veins, if the cancer metastasizes to the colon causing constipation [16].

Prevention of cervical cancer is divided into 3, namely Primary prevention is the main early

prevention of cervical cancer, by controlling risk factors such as: using good nutrition, staying away from risk factors, vaccinating against HPV. Secondary prevention is prevention that aims to find cases of cervical cancer so as to increase the chances of recovering sufferers, tertiary prevention of palliative and rehabilitative care [17].

Management of IVA (Acetate Visual Inspection) by applying a cotton stick that has been dipped in 3-5% acetic acid to the entire surface of the cervix then wait for the IVA results for 1 minute, note whether there is a white spot (acetowhite epithelium) or not.

Pap smear is a quick, painless method with affordable prices and accurate results in examining cells or cervical wall fluid [18]. Pap smear material must meet several requirements so that the results are representative so as to reduce false negative results. False negative results can be caused by sampling errors, screening errors and interpretation errors, so clients need to be told that at least the last 48 hours have not used local treatment / suppositories, did not use feminine cleansers, and came outside the menstrual period, which is the seventh day until the premenstrual period. The tools used should meet the standards to avoid false negatives [19]. The characteristic of cervical cancer until symptoms appear takes a long time, since early lesions can be identified long before they are invasive, so pap smears are effective in reducing the incidence and mortality from cervical cancer. Recommendations for cervical cancer screening according to Screening and Early Detection 2020 [14].

HPV DNA is a screening method by taking fluid specimens around the ostium of the uterine mouth using a special tool [19]. Indications for this examination in groups with high-risk HPV infection exposure. non-amplification examination by in situ hybridization method or amplification examination by polymerase chain reaction (PCR), ligase chain reaction (LCR) and hybrid capture (HC). Recent scientific developments have combined LBC and HPV DNA testing (co-testing program) for cervical cancer screening in women over 30 years of age. The combination of cytology and HPV DNA can increase the sensitivity of detecting the prevalence of CIN 3 or invasive cancer in terms of the frequency of screening interval compared to a single cytology examination, so that the screening interval is longer than with a single cytology examination. HPV DNA testing is so sensitive that it is not recommended in women less than 30 years of age, as many women less than 30 years of age who are infected with HPV can spontaneously clear their bodies. Positive results generated from HPV DNA testing at the age of over 30 years cannot be interpreted directly that the woman has pre-cervical cancer, but it means that there is HPV infection [20].

HPV vaccine is one of the recommended efforts in controlling cervical cancer worldwide. Advances in molecular biology have enabled the development of virus-like particles using the L1 protein (major immunogenic capsid protein) of the HPV virus. The efficacy of the HPV vaccine to prevent cervical cancer is 96-98%. Some people may not get full protection despite receiving the vaccine. Many factors can affect vaccine performance outside of clinical trials one of which is the health of those receiving the vaccine, underlying health conditions can affect vaccine effectiveness. Another factor is how disease-causing pathogens change over time. Viruses are prone to mutations that make vaccines less effective [21]. The combination of HPV vaccine and Cervical Screening may provide the greatest protection against cervical cancer [22].

2. Methods

This study uses a descriptive type with a cross sectional design approach. Sampling using non-randomized purposive sampling. The dependent variable is cervical cancer while the independent is HPV vaccination and cervical cancer screening. Data collection using primary data, namely questionnaires taken in August 2023.

3. Results

Table 1. Age and education distribution of cervical cancer patients

Age	Number (N)	Percentage (%)
18-44 yo	18	18%
45-59 yo	60	59%
>60 yo	24	23%
Education		
Not educated	6	5.9%
Primary	46	45.1%
Junior High	19	18.6%
Senior High	26	25.5%
Diploma	2	2.0%
Bachelor	3	2.9%
Total	**102**	**100.0%**

Respondents who participated in the study as much as 59% were pre advanced age. Respondents with elementary school education were 65 people (63.7%), while the higher education level was 5 people or 4.9%.

Table 2. Socio-economic distribution

Jobs	Number (N)	Percentage (%)
Public Servant	3	2.9%
Factory Worker	2	2.0%
Merchant	3	2.9%
House Maid	2	2.0%
Civil Servant Pension	2	2.0%
Farmer	16	15.7%
Private Sector Worker	5	4.9%
Food Stalls	3	2.9%
Self-Employee	5	4.9%
Not Working	61	59.8%
Total	**102**	**100.0%**

Respondents who worked as ASN / PNS there were 3 people (2.9%), worked as many as 38 people (37.2%), while the most were those who did not work as many as 61 people or (59.8%).

Table 3. Distribution of marital status and parity

Marital status	Number (N)	Percentage (%)
Divorce	7	6.9%
Death divorce	6	5.9%
Marriage	89	87.3%
Unmarried	1	1.0%
Parity		

No children yet	5	4.9%
1	15	14.7%
2	42	41.2%
>3	40	39.2%
Total	**102**	**100.0%**

Respondents who are unmarried 1%, married as much as 87.3%. The highest number of cervical cancer patients is 2 children.

Table 4. Distribution of cervical cancer screening

Know about cancer screening	**Number (N)**	**Percentage (%)**
HPV DNA	2	2.0%
IVA	6	5.9%5
Pap smear	39	38.2%
Don't know	55	53.9%
Examination conducted		
HPV DNA	0	0.0%
IVA	2	2.0%
Pap smear	8	7.9%
Never	92	90.2%
Routine screening		
Yes	5	4.9%
No	97	95.1%
Total	**102**	
Reason for not screening		
Another reason	1	1.0%
Shy	9	9.3%
Feel no need yet	16	16.5%
Afraid	11	11.3%
Don't know papsmear	60	61.9%
Total	**97**	**100.0%**

The results above show that 55 people (53.9%) do not know the existence of cervical cancer screening, 39 (38.2%) know the existence of cancer screening in the form of pap smears. Respondents who screened for cervical cancer using pap smears were 8 people (7.9%), of the 8 people who had screened only 5 (4.9%) people who routinely screened for cervical cancer every year. It is known that the reasons cervical cancer patients do not screen are not knowing papsmear there are 60 people (58.8%), feel no need 16 people (15.7%), fear 11 people (10.8%) shame 9 people (8.8%).

Table 5 Distribution of HPV vaccination

Knowing the information of cervical cancer vaccine	**Number (N)**	**Percentage (%)**
Once, before illness	5	4.9%
Ever, after illness	15	14.7%
Never	82	80.4%

Ever received a vaccine		
Ever	2	2.0%
Never	100	98.0%
Where to get cervical cancer vaccine		
Private clinic	2	2.0%
No	100	98.0%
Total	**102**	**100.0%**

Respondents never knew about the HPV vaccine 82 people (80.4%), respondents who knew about the HPV vaccine were 5 people (4.9%), the reason for not vaccinating was that it was expensive, Patients who heard about the vaccine after illness were 15 people (14.7%), so they could not do it because it was too late. 2 people (2%) had received a cervical cancer vaccine but did not remember the type of vaccine they had received. One respondent had received only 1 dose of vaccine, and one respondent had received 3 doses of vaccine.

4. Discussion

The age characteristics of patients with cervical cancer are 60% of pre advanced age (aged 45-60 years), because the course of this disease takes 7 to 10 years for invasive cancer to occur so that most are known at an advanced age [8].

The highest education of cervical cancer patients is elementary school 63.7%. Respondents who routinely screen for cervical cancer are intermediate and advanced as many as 4.9% of respondents. Low education can be associated with a lack of awareness of caring for one's own health and lack of knowledge of health,

The level of education is associated with the process of changing attitudes in conducting early detection of cervical cancer [9].Women with low education are at 4 times the risk of cervical cancer compared to women with higher education. Women with low education are also associated with a lack of attention to health, one of which is genital hygiene [10].

Socio-economics of cervical cancer patients in this study were 15.7% as farmers, 59.8% of women did not work, work was associated with economic status, in this study it was found that the economic status of the patient was middle to lower.

Office women are less likely to contract cervical cancer compared to women who are manual workers such as farmers or laborers because hygiene standards are not running properly. Women with heavy work are 9 times more at risk of cervical cancer compared to women who have light work [9].

Marital status of patients 87.3% were married, 1% were unmarried. Sexual partners more than 6 and sexually active women aged <17 years have the highest risk of 2-3x suffering from cervical cancer compared to those aged 21 years and over due to the structure and vulnerability of the cervix, cervical columnar cells are more prone to metaplasia during adulthood [8].

Patients with cervical cancer are multiparity by having two children totaling 41.2%, while respondents who have 3 children / more as much as 39.2%, this is less in accordance with Rasjidi's research according to him that respondents who experience cervical cancer have children more than equal to 3 have a risk of 24.9 times greater to experience pre-cancerous lesions compared to respondents who have children less than 3. The frequency of pregnancy increases the occurrence of cervical cancer this is associated with a history of having infections in the genital area [8].

The characteristics of cervical cancer patients with cervical cancer screening are 4.9% routinely screened and 95.1% of respondents do not routinely screen for cervical cancer, with reasons not knowing about the benefits and importance of cervical cancer screening 58.8%, feel no need 15.7%, fear 10.8%, shame 8.8%.

Respondents who routinely carry out pap smears have the following history, the first respondent aged 67 years routinely screened with pap smears every year until the age of 56 years stopped after menopause to do pap smears and was diagnosed with cervical cancer 11 years later.

The second respondent aged 52 years did pap smears every year until 2 years after her husband died. The respondent did not remarry so pap smears were stopped and diagnosed with cervical cancer 4 years later. Pap smears performed are not adequate, according to the American Cancer Society screening is carried out until the age of 65 years, age over 65 years is not required to be re-screened if the woman is routinely screened and the previous screening results are considered negative. Pap smears can be stopped or if the test results are normal three times in a row and the pap smear results are normal for the last 10 years [14].

Respondents 3 and 4 routinely performed pap smears with no pre-cancerous lesions found but cervical cancer detected. Sampling errors, screening errors and interpretation errors can make the cytological examination less than optimal, so it is expected that at least the last 48 hours have not used local treatment / suppositories, have not used feminine cleansers, and come outside the menstrual period, namely day 7 to the premenstrual period, in terms of clinicians as much as possible using tools that meet the standards, paying attention to the sampling location, and paying attention to the steps of the smear according to the standard. Cytologists are expected to be able to perform accurate diagnostic evaluations [19].

Pap smear examination remains the main recommendation in cervical cancer early detection efforts, the sensitivity and specificity of PAP smear in detecting LSIL are 40% and 93%, respectively. The sensitivity and specificity of PAP smear in detecting HSIL are 50% and 100 [22].

Characteristics of cervical cancer patients with cervical cancer vaccine 80.4% of respondents did not know the cervical cancer vaccine, 14.7% of respondents knew about the cervical cancer vaccine after being diagnosed with cervical cancer. 2% of respondents have had HPV vaccination.

The first respondent did the vaccine 1x when he was 50 years old and did not continue the vaccine on the grounds that the covid pandemic at that time began to enter Indonesia and then was diagnosed with cervical cancer when he was 55 years old. The second respondent vaccinated 3 times when he was 30 years old and was sexually active and diagnosed with cervical cancer when he was 36 years old, both respondents were vaccinated at an age that had been sexually active for a long time and one was given a vaccine in an incomplete dose. Both respondents were not routinely screened for cervical cancer.

Vaccine performance is influenced by many factors outside of clinical trials. One of them is that underlying health conditions can affect the effectiveness of the vaccine. Another factor is how disease-causing pathogens change over time. Viruses are prone to mutations that make vaccines less effective [23].

The HPV vaccine significantly reduces the risk of developing cervical cancer but does not provide full protection. The vaccine protects against the most common HPV types that cause cervical cancer, but does not protect against all HPV types, and is most effective when given before a person is sexually active. Cervical cancer is still possible even after receiving the HPV vaccine, but the risk is significantly reduced so the vaccine is still recommended for prevention especially in women who are not yet sexually active.

Regular cervical cancer screening, such as Pap tests or HPV tests are still recommended for early detection and prevention, so even if a woman has had the HPV vaccination, it is still mandatory to have early detection of cervical cancer.

5. Conclusion

1) 2% of cervical cancer sufferers have had the HPV vaccine but at a vulnerable age have been infected with the HPV virus. Patients who receive vaccinations do not also undergo regular cervical cancer screening examinations.
2) 2% of cervical cancer sufferers who undergo IVA screening but do not do it routinely
3) 4.9% of cervical cancer sufferers have a history of routine pap smear screening, but the examination was not carried out adequately according to recommendations.
4) None of the cervical cancer sufferers had a history of HPV DNA test screening

Suggestion

People can prevent cervical cancer by avoiding risk factors by getting vaccinated during their teenage/reproductive age before having their first sexual encounter. If they have had sexual intercourse, they are still allowed to vaccinate against HPV after being screened for cervical cancer and being declared negative first, even though its effectiveness is not as good as in the teenage age group. , routine cervical cancer screening as recommended is still recommended, allowing the disease to be discovered at an early stage so that the cure rate is higher.

The low level of women's education cannot be directly intervened by health workers so what the community can do is increase knowledge about cervical cancer through outreach/social media, be active in participating in education and government programs related to preventing cervical cancer, it is hoped that women who have heavy jobs can increase balanced nutritional intake to increase immunity.

Advice to cervical cancer sufferers can motivate families and the environment around cervical cancer sufferers to take precautions by avoiding risk factors, carrying out routine cervical cancer screening and getting HPV vaccination.

Family support, staff support and community support are very much needed for the success of the cervical cancer control program.

Suggestions for future researchers include adding variables, having a larger number of samples and adding more detailed measuring instruments to get better results.

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