

Conference Paper

High-Risk Human Papilloma Virus Type 18 Prevalence on Cervical Cancer Patients in Arifin Achmad General Hospital Riau Province

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ABSTRACT

Cervical cancer is the fourth most common cancer among women globally that is caused by high-risk Human Papillomavirus (hrHPV). One of the most common HPV genotypes causing cervical cancer is HPV 18. However, there is a lack of data regarding hrHPV type 18 prevalence in Indonesia, especially Riau Province. This study aimed to describe the number of high-risk Human Papilloma Virus type 18 cervical cancer patients in Arifin Achmad General Hospital Riau Province. The method used in the study was descriptive with consecutive sampling of HPV 18 of the cervical cancer patients in Arifin Achmad General Hospital from January – July 2022. HPV DNA isolate was identified with a polymerase chain reaction (PCR) test. We recruited 63 women to participate and 32 women (50.79%) were tested for HPV 18. Among the 32 women, the result showed that the most common type of cervical cancer based on the anatomical pathology test was non-keratinizing squamous cell carcinoma (65.625%), keratinizing squamous cell carcinoma (9.375%), and non-keratinizing squamous cell carcinoma invading lymphovascular nodes cervix (6.250%). This study provides descriptive information about the frequency and type of anatomical pathology of cervical cancer caused by HPV 18 among female patients in Riau province. Therefore, it can be used as data in the diagnosis and prevention of HPV in Indonesia.

Keywords: Cervical cancer, hrHPV, HPV 18, Non-keratinizing squamous cell carcinoma

Introduction

One of the non-infectious diseases that has received special attention due to the increasing number of cases worldwide is cancer. Cervical cancer is the second most common cancer in women worldwide. In 2020, it is estimated that around 342,000 women worldwide will die from cervical cancer. About 90% of these deaths are reported in low- and middle-income countries (World Health Organization, 2022; Amtarina, 2012).

In Indonesia, 200,000 new cases of cervical cancer are diagnosed every year (Utami et al., 2014). The age group of cervical cancer sufferers is 14-54 years. Most HPV-16 infections are experienced in the age group of 20-24 years, while multiple infections are mostly found in the age group of 14-25 years (Argyri et al., 2013).

Cervical cancer can be caused by infection with the Human Papilloma Virus (HPV). HPV is a virus that can infect epithelial cells (skin) and human mucosal cells, especially in organs such as

How to cite:

Savira, M., Sofian, A., Razali, R. R. et al. (2022). High-risk human papilloma virus type 18 prevalence on cervical cancer patients in Arifin Achmad General Hospital Riau Province. *4th Riau Medical Scientific and Expo 2022*. NST Proceedings. pages 90-93. doi: 10.11594/nstp.2022.2818

the mouth, genitalia, and anus, so it can cause minor injuries such as warts. However, this virus can sometimes lead to the onset of cancer (Bzhalava et al., 2013). The international consensus on HPV is divided into two groups based on the L1 gene sequence, namely, high-risk genotypes, which include genotypes 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, and 66 in the cause of cervical cancer. The HPV genotypes that most often cause cervical cancer are HPV 16 and HPV 18, while the low-risk genotypes include genotypes 16, 11, 42, 43, and 44 which cause genital warts (Thomson et al., 2014).

Epidemiological data on cervical cancer in Indonesia indicates an estimated 40,000 new cases every year. The incidence of cervical cancer is approximately 10/100,000 women in developed countries and 40/100,000 women in developing countries, while in Indonesia the incidence ranges from 25-40/100,000 women per year. For Riau Province itself, it is estimated that there are 894 new cases of cervical cancer every year or about 2-3 new cases of cervical cancer are found every day (Departemen Kesehatan RI, 2015).

Based on data from the Department of Obstetric and Gynecology at Arifin Achmad General Hospital, the constantly growing amount of cervical cancer cases during the past five years, including 43 new cases in 2014, 117 new cases in 2015, 113 new cases in 2016, 219 new cases in 2017, and 360 new cases in 2018 (Global Cancer Statistics, 2018). Based on the data above, most cervical cancer patients come at an advanced stage, namely stages IIB – IVB, which have a higher mortality rate because they are more difficult to treat. Whereas the cervical cancer mortality rate can be reduced through a comprehensive approach including prevention, early diagnosis, and screening. This high mortality rate shows the low rate of early detection of Human papillomavirus (HPV) as the etiology of cervical cancer. Therefore, it is necessary to take cervical cancer prevention strategies, one of which is vaccination.

However, until now, there has been no research showing the types of cervical cancer caused by HPV 18 based on anatomical pathology tests in Riau Province. To diagnose and prevent cervical cancer as effectively as possible throughout Indonesia, especially in the province of Riau, more study on the prevalence of hrHPV in cervical cancer patients is required.

Material and Methods

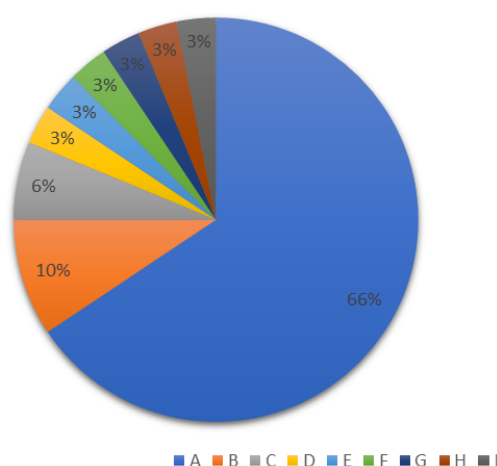
This research was conducted from January 2022 to July 2022 at the Gynecological Oncology section of the Arifin Achmad Hospital, Riau Province. The population of this study was broadest study population was cervical cancer patients in Riau Province, while the most affordable population in this study were cervical cancer patients at Arifin Achmad Hospital. The sample is an affordable population that meets the inclusion and exclusion criteria. Inclusion criteria included being willing to take samples by signing informed consent, and new patients with positive clinical findings for cervical cancer determined by obstetrics and gynecology specialists at Arifin Achmad Hospital, Riau Province. Meanwhile, the exclusion criteria were receiving chemotherapy and having a history of previous anatomical and molecular pathology examinations that stated it was not a cervical carcinoma.

This research used a consecutive sampling technique on all cervical cancer patients who met the inclusion and exclusion criteria while undergoing treatment at the Arifin Achmad Hospital for 3 months. After passing an ethical assessment by the Medical and Health Research Ethics Unit, Faculty of Medicine, University of Riau, the study was carried out. Samples from patients with positive cervical cancer biopsy results were further analyzed with anatomical pathology tests to determine the type of cancer.

Results and Discussion

The data showed that 63 cervical cancer patients were treated at the Arifin Achmad Hospital, Riau Province, from January 2022 to July 2022. The total number of samples that were detected positive for HPV 18 out of 63 cancer patients was 32 people (50.79%). Among the 32 women, the results showed that the most common type of cervical cancer based on anatomical pathology tests

was non-keratinizing squamous cell carcinoma (65.625%). This figure was followed by other types, such as keratinizing squamous cell carcinoma (9.375%) and non-keratinizing squamous cell carcinoma that invaded cervical lymphovascular vessels (6.250%). In addition, several types of cancer were also found in the patient adenocarcinoma (3.125%), chronic non-specific endocervicitis (3.125%), nonkeratinizing squamous cell carcinoma (Moderate Differentiated/grade II) (3.125%), endocervical polyps with non-specific chronic endocervicitis (3.125%), undifferentiated squamous cell carcinoma and no angioinvasion (3.125%), and malignant adenocarcinoma type (3.125%).



Note: A. Non-keratinizing squamous cell carcinoma; B. Keratinizing squamous cell carcinoma; C. Non-keratinizing squamous cell carcinoma that invades cervical lymphovascular vessels; D. Adenocarcinoma; E. Chronic non-specific endocervicitis; F. Nonkeratinizing squamous cell carcinoma (Moderate Differentiated/grade II); G. Endocervical polyp with chronic nonspecific endocervicitis; H. Squamos cell carcinoma that is undifferentiated and no angioinvasion; I. Malignant tumor-type adenocarcinoma

Figure 1. The percentage of cervical cancer in HPV 18-positive patients at the Arifin Achmad Hospital, Riau Province, is based on the type of clinical pathology test.

Based on WHO data, more than 95% of cervical cancer cases are caused by the Human Papillomavirus and are actively transmitted through sexual intercourse (WHO,2022). Previous research has shown that the prevalence of hrHPV DNA found in cervical cancer specimens varies up to 99.7% (Walboomers et al., 1999; Chan et al., 2019; Centers for Disease Control and Prevention, 2022).

Research at the Arifin Achmad Hospital showed a fairly high number, namely 50.79% of cervical cancer patients who were detected as having hrHPV type 18 infection. One of the studies on the frequency of HPV in Brazil showed that of the 174 samples analyzed, 94.4% were infected with HPV. From these samples, it was found that 6.7% of patients who detected HPV 18 were positive in mild-grade lesions and two samples were positive for HPV types 18 and 16 simultaneously (Freitas et al., 2007). In another research conducted at a hospital in Iran, it was found that the HPV type 18 virus using the PCR-ELISA method was detected in three samples from a total of seventy samples (8.5%) in patients with cervical cancer (Raji et al., 2011).

The research showed that in Riau Province, the most common types of cervical cancer based on anatomical pathology (PA) tests were non-keratinizing squamous cell carcinoma (65,625%). This is not much different from one of the studies conducted at Sanglah Hospital Denpasar, which showed that the most common histopathological features of cervical cancer patients under the age of 40 were non-keratinizing squamous cell carcinoma as many as 45.8% (Aprilia & Surya, 2016).

Conclusion

From the research that has been done, it was found that 50.79% of cervical cancer patients were infected with hrHPV type 18. The most common type of cervical cancer in Riau Province was non-keratinizing squamous cell carcinoma (65.625%). This research presents descriptive information about the frequency and types of cervical cancer based on anatomical pathology tests caused by HPV 18 in female patients in Riau Province. It is hoped that the results of this research can be used to provide data on the diagnosis and prevention of HPV infection in Riau Province in particular and in Indonesia in general.

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