

Risk Factors of Cervical Cancer in Outpatient and Inpatient at Obstetric and Gynecology RSUP Dr. Mohammad Hoesin Palembang

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Abstract

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Introduction: Cervical cancer is a malignant tumor originating from primary squamous epithelial cells and it is one of the several types of cancers that affects more to women.

Methods: This research uses descriptive analytic with case- control. The sample was 52 patients who divided into 26 patients with cervical cancer and 26 patients with non- cervical cancer were outpatient and inpatient at Department of Obstetrics and Gynecology Hospital Dr. Mohammad Hoesin Palembang during the period September 2016 -November 2016. This study uses primary data in the form of interviews. Data was analyzed by univariate and presented in a frequency distribution table. Furthermore, using bivariate analysis to determine the relationship and OR.

Result: From 8 risk factors studied, there is significance correlation between pathological vaginal discharge ($p= 0,0005$ OR= ∞), parity ($p= 0,0005$ OR= 22,7), age ($p= 0,0005$ OR= 19,2), oral contraception usage for a long time ($p= 0,0005$, OR= 12,4), age of the first intercourse ($p= 0,006$, OR= 6,1), and the husband's occupation ($p= 0,05$ OR= 3,6) with the incidence of cervical cancer. While, there are two risk factors that don't have a significance correlation between smoking ($p= 1,0$) and changing sexual partners ($p= 1,0$) with the incidence of cervical cancer.

Conclusion: The results of this research identified risk factors that significantly related to cervical cancer incidence was the age, the age of first sexual intercourse, parity, long-term oral contraceptive use, a history of vaginal discharge, and the husband's occupation.

Introduction

Cervical cancer is a primary cervical cancer originating from epithelial metaplasia in the columnar squamous junction region (SSK) which is a transitional area of the vaginal mucosa and cervical canal mucosa, where it is the second most common type of cancer affecting women worldwide, usually affecting women aged 35 -55 years.¹ There are 270,000 women in the world every year diagnosed with cervical cancer and 85% are in developing countries including Indonesia.² Cervical cancer is

always followed by the HPV virus which is transmitted through sexual contact. It starts with precancerous lesions which after years can develop to be invasive. Although the main cause of cervical cancer is HPV infection, there are major risk factors for cervical cancer that can affect HPV infection, namely: Age, age of early sexual intercourse, smoking, high parity, long-term use of birth control pills, multiple sexual partners, vaginal discharge, and husband's work. These risk factors are very closely related to the occurrence of cervical cancer.

This research was conducted because Indonesia is the country with the first rank of cervical cancer. Palembang has a prevalence of 52% for the incidence of cervical cancer as evidenced by medical record data at RSUP Dr. Mohammad Hoesin Palembang where there were 657 cervical cancer events in 2015. In addition, data from the Ministry of Health showed that the risk factors outlined are the most important risk factors and play an important role in cervical cancer events. Therefore, a study was conducted on the risk factors for cervical cancer incidence in the polyclinic and inpatient obstetrics and gynecology departments of RSUP Dr. Mohammad Hoesin Palembang to know and examine more deeply about the risk factors that play an important role in increasing the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang, such as age, age at first sexual intercourse, parity, smoking, long-term use of oral contraceptives, changing sexual relations, history of vaginal discharge, and husband's work.

Methods

This research uses descriptive analytic research with case-control. Sampling of research using consecutive sampling techniques. The study sample was 52 patients who were divided into 26 cervical cancer patients as a case group and 26 non-cervical cancer patients as a control group both outpatient and inpatient at the Department of Obstetrics and Gynecology Dr. RSUP. Mohammad Hoesin Palembang during the period September-November 2016. This study uses primary data in the form of interviews. Data were analyzed univariately and presented in the form of a frequency distribution table. Next, it is analyzed bivariately to determine the relationship and OR values.

Result

Table 1 shows the distribution of patients based on sociodemographic characteristics consisting of residence, education level, and occupation. Of the 26 most cervical cancer patients (61.5%) who reside in Palembang, elementary school level (53.8%), and housewife occupation (76.9%). Of the 26 most non-cervical cancer patients (73.1%) residing in Palembang, high school education (53.8%), and housewife occupation (80.8%). The distribution of patients based on sociodemographic characteristics in the

cervical and non-cervical cancer groups can be seen in table 1.

Table 2 shows the relationship and magnitude of risk factors for cervical cancer, with the results: There is a relationship between the age of the patient with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang, aged > 35 years, has a risk of developing cervical cancer 19.2 times greater than patients aged 20-35 years.

There is a relationship between the age of first sexual intercourse in patients with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang, who married at the age of under or equal to 20 years, had a risk of cervical cancer 6.1 times greater than patients who were married at the age of > 20 years.

There is a relationship between parity in patients with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang who has ≥ 3 children at risk of cervical cancer is 22.7 times greater than patients who have <3 children.

There is no relationship between smoking in patients with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang who smoked the risk of cervical cancer 0 times greater than patients who did not smoke.

There is a relationship between long-term use of oral contraceptives in patients with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang who used birth control pills > 4 years at risk of developing cervical cancer was 12.4 times greater than patients who were ≤ 4 years old or did not use birth control pills.

There is no relationship between changing sexual partners of research subjects with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang who has > 1 sexual partner is at risk of getting cervical cancer 0 times greater than patients who have 1 sexual partner.

There is a relationship between the history of pathological vaginal discharge in patients with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang who has a history of positive pathological vaginal discharge is at an increased risk of getting cervical cancer infinitely greater than patients who have a history of negative pathological vaginal discharge.

There is a relationship between the husband's work in patients with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang. Outpatients and inpatients at RSUP Dr. Mohammad Hoesin Palembang whose husband's work is often out of town at risk of getting cervical cancer 3.6 times greater than patients whose husband's work is not out of town.

Discussion

Relationship and Magnitude of Risk between Age and Cervical Cancer Occurrence

In this study of 52 patients, case group was > 35 years old (46.2%). Based on Chi-Square statistical tests, age > 35 years increases the risk of cervical cancer 19.2 times compared to those aged 20-35 years. The mean age of cervical cancer patients is between the ages of 30-70 years, where stage IA cervical cancer is more commonly found in the 30-39 years age group, while for stage II it is more often found in the 40-49 years age group, and the 60-69 years is the highest proportion in stages III and IV⁴. Age is an important factor in cancer, most cancers occur in old age. The risk of cervical cancer has doubled after the age of 35 to 60 years⁵ The association of age > 35 years with the incidence of cervical cancer is due to the time of exposure to HPV infection which is prolonged and the immune system is weakening due to thymus involution in old age. Those two things that cause age > 35 years have the potential to cause cervical cancer.

Relationship and Magnitude of Risk between the Age of First Sexual Relations with Cervical Cancer Occurrence

In this study of 52 patients, the case group with first age had sexual intercourse ≤ 20 years (36.5%). Based on the Chi-Square statistical test, the age of first sexual intercourse ≤ 20 years increases the risk of cervical cancer 6.1 times compared to the

age of first sexual intercourse > 20 years. Age at first sexual intercourse is a risk factor for cervical cancer with a 2.54 times greater risk of having cervical cancer in women who have sexual intercourse ≤ 20 years compared to having sexual intercourse at age > 20 years.⁶ Women who start sexual intercourse at a young age will increase their risk of cervical cancer, because cervical columnar cells are more sensitive to metaplasia during adulthood. then women who have sex before the age of 18-20 years will be at risk of cervical cancer 5 times greater⁷

The first link between sexual intercourse for ≤ 20 years with cervical cancer is that the cervix in adolescents is more susceptible to carcinogenic stimuli due to the process of squamous metaplasia being active in the transformation zone during the development period coupled with the entry of foreign substances such as sperm that can trigger changes cells become cancer cells. That is what causes the age of the first sexual intercourse ≤ 20 years has the potential to cause cervical cancer.

Relationship and Magnitude of Risk between Parity and Cervical Cancer Occurrence

In this study of 52 patients, case group with parity ≥ 3 (46.2%). Based on the Chi-Square statistical test, parity ≥ 3 children increased the risk of cervical cancer by 22.7 times greater than parity < 3. Parity is a risk factor for cervical cancer with a 3 times greater risk of developing cervical cancer in women with parity ≥ 3 compared to women with parity < 3.⁸ The process of childbirth has a trauma effect or even the effect of decreasing body immunity thereby increasing the risk of HPV infection, where women who have 3 children are 4 times more likely to develop cervical cancer.⁹ The linkage of parity ≥ 3 to the incidence of cervical cancer is due to hormonal changes, where very high progesterone during pregnancy can induce HPV oncogens. In addition, there is also a decrease in the immune system due to tolerance of the baby's semi-allogenic tissue which causes an increase in HPV transmission, plus again with injury to the birth canal that makes it easy to get infected with HPV at the time of delivery.

The Relationship and Magnitude of Risk between Smoking and Cervical Cancer Occurrence

In this study of 52 patients, the case group was smoking (48.1%). Based on the Chi-Square statistical test, there is no relationship between smoking and cervical cancer. Women who smoke are twice as likely to develop cervical cancer as those who do not smoke. This is because tobacco in cigarettes also contains carcinogenic substances (which cause cancer) both smoked as cigarettes and chewed cigarettes. This study does not have respondents who become active smokers because in social life, especially in Indonesia rarely women who smoke, so it does not affect¹⁰

Therefore, smoking actually influences the occurrence of cervical cancer but in this study there was no correlation between smoking and the incidence of cervical cancer because only a few women in Palembang smoked. That is what causes no link between smoking and cervical cancer.

Relationship and Magnitude of Risk between Long-term Use of Oral Contraception with Cervical Cancer Occurrence

In this study out of 52 patients, the case group used oral contraceptives > 4 years (34.6%). Based on Chi-Square statistical tests, it is known that long-term use of oral contraceptives > 4 years increases the risk of cervical cancer by 12.4 times compared to ≤4 years or not using birth control pills. oral contraceptives that are used for a longer period of more than 4 years can increase the risk of cervical cancer by 4 times. birth control pills contain estrogen and progesterone, both of which play a role in inducing HPV11 oncogens. Oral contraceptives in the form of birth control pills used for more than 4 years increase 1-1.5 times the risk of cervical cancer. That's because oral contraceptive pills consist of two artificial hormones that are the same as estrogen and progesterone. Consumption of birth control pills is more routine and prolonged, allowing women to suffer from cervical cancer¹⁰

Therefore, the association between > 4 years of oral contraceptive use and the incidence of cervical cancer due to the presence of the hormones estrogen and progesterone which play a role in increasing the growth of abnormal cells in the cervix and activating HPV oncogens so

that there is an increase in cervical cancer progressivity.

That is why the use of oral contraceptives > 4 years has the potential to cause cervical cancer.

The Relationship and Magnitude of Risk between Changing Sexual Couples with Cervical Cancer Occurrence

In this study of 52 patients, a case group with > 1 sexual partner (0%). Based on Chi-Square statistical tests, there is no relationship between multiple sexual partners with the incidence of cervical cancer. A history of sexual intercourse of more than 1 person has a risk of 5 times greater for cervical cancer than those who do not, because there is a specific protein that is owned by every man. The protein has the property of causing damage to cervical epithelial cells, generally cervical epithelial cells will tolerate and recognize the protein. However, in women who have sexual intercourse > 1 man causes many sperm with different specific proteins that will cause damage without repair of cervical cells and potentially cause cervical cancer⁷

In this study only a few respondents claimed to have > 1 sexual partner in which respondents' dishonesty factor played a role in this regard.¹⁰ The relationship between multiple sexual partners actually influences the occurrence of cervical cancer but in this study there was no relationship of changing sexual partners with the incidence of cervical cancer in which dishonesty factors were involved in this study. That is what causes no link between changing sexual partners with cervical cancer.

Relationship and Magnitude of Risk between Pathological Leucorrhoea History with Cervical Cancer Occurrence

In this study out of 52 patients, the case group experienced a pathological vaginal discharge (50%). Based on the Chi-Square statistical test, a pathological history of vaginal discharge increases the risk of cervical cancer by ∞ (infinite) times compared to those without a pathological vaginal discharge. A pathological history of vaginal discharge can increase the risk of cervical cancer by 4.9 times⁵ Women who have a history of pathological vaginal discharge will be at risk of suffering from cervical cancer because Lactobacillus acidophilus plays an important role in

maintaining the vaginal environment by producing hydrogen peroxide which can make vaginal pH become low (acidic) which is 3.8-4.5. At this PH, pathogenic and viral bacteria can be easily killed so as to avoid genital infection.¹² The association of pathological vaginal discharge with cervical cancer due to a history of genital infection that inhibits *Lactobacillus acidophilus* to produce hydrogen peroxide so HPV can easily enter the cervix. That is what causes a history of pathological vaginal discharge that has the potential to cause cervical cancer

Relationship and Magnitude of Risk between husband's work with cervical cancer

In this study of 52 patients, the case group whose husband's work was often out of town (30.8%). Based on the Chi-Square statistical test, the husband's work that is often out of town increases the risk of cervical cancer by 3.6 times than that of her husband's work not out of town.

The work of a husband who is often out of town has a major effect on the occurrence of cervical cancer. Work A husband who is often out of town has little time to meet his wife, making it possible to have sexual relations with a female sex worker who often carries the HPV virus.¹³ Many respondents who suffer from cervical cancer are those whose husbands work outside the city as many as 14.8%¹⁴

The linkage of the husband's work is often out of town with the occurrence of cervical cancer that is, due to rarely meeting his wife so they have sexual relations with sex workers who are vulnerable to transmit HPV. That is what causes the husband's work often out of town has the potential to cause cervical cancer

Conclusion

The Results of research on risk factors for cervical cancer in outpatients and inpatients at the Department of Obstetrics and Gynecology Dr. Mohammad Hoesin Palembang, it can be concluded:

1. There is a relationship of age with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang, aged > 35 years, is at risk of cervical cancer 19.2 times compared to patients aged 20 - 35 years.
2. There is a relationship between age at first sexual intercourse with cervical

cancer at RSUP Dr. Mohammad Hoesin Palembang who had sexual intercourse for the first time \leq 20 years at risk of cervical cancer 6.1 times than patients who had first sexual intercourse > 20 years.

3. There is a relationship between parity and the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang whose parity \geq 3 is at risk of cervical cancer 22.7 times compared to patients whose parity < 3.
4. There is no relationship between smoking and the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang.
5. There is a relationship between long-term use of oral contraceptives with the incidence of cervical cancer in RSUP Dr. Mohammad Hoesin Palembang who used birth control pills > 4 years had a risk of cervical cancer 12.4 times compared to patients who were \leq 4 years old or did not use birth control pills.
6. There is no relationship of changing sexual partners with cervical cancer at RSUP Dr. Mohammad Hoesin Palembang.
7. There is a relationship between the history of pathological vaginal discharge in RSUP Dr. Mohammad Hoesin Palembang who has a history of positive pathological vaginal discharge has an infinite risk of cervical cancer than patients who have a history of negative pathological vaginal discharge.
8. There is a relationship between husband's work at RSUP Dr. Mohammad Hoesin Palembang whose husband's work is often out of town at risk of cervical cancer 3.6 times than in patients whose husband's work is not out of town

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References

1. Sulistiowati, E.. 2014. Pengetahuan tentang faktor risiko, perilaku, dan deteksi dini kanker serviks dengan Inspeksi Visual Asam Asetat (IVA) pada wanita di Kecamatan Bogor Tengah. (<http://ejournal.litbang.depkes.go.id/index.php/BPK/article/view/3632/3577>, diakses 14 juni 2016)
2. WHO. 2014. *Comprehensive cervical cancer control: a guide to essential practice*. Switzerland: WHO Library Cataloguing, hal. 34-37
3. Departemen Kesehatan RI. 2015. Panduan Pelayanan Kanker Serviks, (<http://kanker.kemkes.go.id/guidelines/PPKServiks.pdf>, diakses 18 juni 2016)
4. Antara, S. Y., Suastika. 2008. Ekspresi p53 pada Kanker Serviks Terinfeksi Human Papilloma Virus tipe 16 dan 18: Studi *Cross-Sectional*. Tesis pada Jurusan Fakultas Kedokteran Universitas Udayana, hal. 60-62
5. American Cancer Society. 2014. *What are the risk factors for cervical cancer?*. (<http://www.cancer.org>, diakses 20 juni 2016)
6. Joeharno. 2008. Analisis Faktor Risiko Kejadian Kanker Servik. Skripsi pada Jurusan Fakultas Kedokteran, hal. 50-52
7. Rasjidi, I.. 2009. Epidemiologi kanker serviks, (<http://www.indonesianjournalofcancer.co.id>, diakses 21 agustus 2016)
8. Sulistiowati, E.. 2014. Pengetahuan tentang faktor risiko, perilaku, dan deteksi dini kanker serviks dengan Inspeksi Visual Asam Asetat (IVA) pada wanita di Kecamatan Bogor Tengah. (<http://ejournal.litbang.depkes.go.id/index.php/BPK/article/view/3632/3577>, diakses 14 juni 2016)
9. Mayrita, S. N.. 2012. Hubungan antara Paritas dengan Kejadian Kanker Serviks di Yayasan Kanker Wisnuwardhana Surabaya, (<http://journal.unusa.ac.id>, diakses 20 juni 2016)
10. Yuniar, I.. 2009. Faktor-faktor yang mempengaruhi kejadian kanker serviks di Puskesmas Karanganyar. Tesis pada Jurusan Kedokteran, hal. 50-55
11. Alliance for Cervical Cancer Prevention. 2004. *Risk Factors for Cervical Cancer: Evidence to Date*. (http://screening.iarc.fr/doc/RH_fs_risk_factors.pdf, diakses 15 juni 2016)
12. Setyarini, E. 2009. Faktor-Faktor yang berhubungan dengan kejadian kanker leher rahim, (<http://etd.eprints.ums.ac.id/3942/1/J410040010.pdf>, diakses 14 juni 2016)
13. Soemardini. 2007. Gambaran Tingkat Pengetahuan tentang Kanker Serviks Berdasarkan Karakteristik Ibu yang Datang Untuk Melakukan Pemeriksaan Pap Smear di Yayasan Kanker Indonesia (YKI), Malang, Jawa Timur, hal 15-17 Arumugam, V.. 2010. Gambaran Penderita Kanker Serviks Berdasarkan Faktor-Faktor Risiko dan Upaya Pencegahan Kanker Serviks di RSUP Haji Adam Malik, Medan dari periode 1 Januari 2008-31 Desember 2009. Tesis pada jurusan Fakultas Kedokteran USU Medan, hal. 44-45

Table 1. Characteristic Respondents

Variable cancer	Category	cervical cancer		Non cervical	
		n	%	n	%
Residence	Bangka Belitung	5	19,2	1	3,8
	Bengkulu	1	3,8	0	0,0
	Indralaya	0	0,0	3	11,5
	Jambi	1	3,8	1	3,8
	Lahat	1	3,8	0	0,0
	Muaraenim	0	0,0	1	3,8
	Palembang	16	61,5	19	73,1
	Prabumulih	0	0,0	1	3,8
	Tanjungenim	2	7,7	0	0,0
Education Level	Tidak Sekolah	2	7,7	2	7,7
	SD	14	53,8	2	7,7
	SLTP	2	7,7	3	11,5
	SLTA	7	26,9	14	53,8
	Tamat Akademi	1	3,8	5	19,2
Occupation	Bidan	1	3,8	0	0,0
	Guru	0	0,0	2	7,7
	Ibu Rumah Tangga	20	76,9	21	80,8
	Petani	4	15,4	1	3,8
	Pns	1	3,8	0	0,0
	Wiraswasta	0	0,0	2	7,7

Table 2. Relationship between Risk Factors and Cervical Cancer Occurrences (N=52)

Risk Factor	Cervical cancer		Non-Cervical cancer		p; OR
	n	%	n	%	
History of pathological vaginal discharge					
Negative	0	0,0	17	32,7	0,0005*;
Positive	26	50,0	9	17,3	∞**
Parity					
<3 children	2	3,8	17	32,7	0,0005;
≥ 3 children	24	46,2	9	17,3	22,7
Age					
20 – 35 years old	2	3,8	16	30,8	0,0005;
> 35 years old	24	46,2	10	19,2	19,2
The use of long term contraceptives					
≤ 4 years or not using family planning pills	8	15,4	22	42,3	0,0005;
> 4 year using family planning pills	18	34,6	4	7,7	12,4
Age for the first time sexual intercourse					
≤20 years old	19	36,5	8	15,4	0,006; 6,1
>20 years old	7	13,5	18	34,6	
Husband's occupation					
Tidak ke luar kota	10	19,2	18	34,6	0,05;
Sering ke luar kota	16	30,8	8	15,4	3,6
Smoking					
Yes	1	1,9	0	0,0	1,0*;
No	25	48,1	26	50,0	0
Changing sexual partner					
1 Sexual partner	26	50,0	25	48,1	1,0*;
>1 Sexual partners	0	0,0	1	1,9	0

Note: Chi-Square

*Fisher Exact Test