Research Article

Risk Factors of Family History, Use of Contraceptional Hormon and Smoking on the Event of Cervical Cancer in Bima Regional General Hospital

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Abstract: Cervical cancer is a health problem for women in the world because of the high incidence and mortality rate. This study aimed to analyze the risk factors for family history, the use of hormonal contraception and smoking on the incidence of cervical cancer in the general hospital in Bima. This study uses a case control study design. The study sample of 90 people consisted of 30 people with cervical cancer as a purposively selected case group and 60 non-cervical cancer patients randomly selected. Data collection is done by interviewing using a questionnaire. Data were analyzed using statistical tests Odds ratio and logistic regression. Family history of 5,231 times has the risk of cervical cancer compared with those without a family history (OR = 5,231, p = 0,000). Smoking has a risk of 5,600 times cervical cancer compared to non-smokers (OR = 5,600, p = 0,016). The use of hormonal contraception ≥ 4 years has a risk of 5,500 times cervical cancer compared to using <4 years (OR = 5,500, p = 0,025).

Keywords: cervical cancer, sexual intercourse, changing sexual partners, family history, pap smears, smoking, hormonal contraception, personal hygiene.

INTRODUCTION

Cervical cancer is the primary cancer of the cervix originating from epithelial metaplasia in the columnar squamous joint (SSK), which is the transitional area of the vaginal and mucous mucosa of the cervical canal. The cause of cervical cancer is infection by one or more HPV viruses (Human Papilloma Virus). This disease usually attacks women around age 35-55 years (Sirait & Sulistiowati, 2014).

Cervical cancer is the fourth most common cancer in women with an estimated 570,000 new cases in 2018 representing 6.6% of all female cancers. About 90% of deaths from cervical cancer occur in low and middle-income countries. Every year, more than 300,000 women die of cervical cancer (WHO, 2018).

In Indonesia, the prevalence of cancer is also very high. Based on data from Basic Health Research (Basic Health Research), the prevalence of tumors / cancers in Indonesia is 1.4 per 1000 population, or about 330,000 people in 2013 and in 2018 it increased to 1.8 per 1000 population. The highest cancers in Indonesia in women are breast cancer and cervical cancer. The incidence of cervical cancer in Indonesia is 17 per 100,000 women. Based on the estimated number of patients with cervical cancer in Indonesia in 2018, it is known that the provinces of East Java, Central Java and Bali have the largest estimated number of people with cervical cancer, while Gorontalo and West Papua provinces have the lowest estimated number of sufferers from all provinces (Basic Health Research , 2018).

Based on data from the Indonesian Health Profile in 2016, there were 53 cases of cervical cancer patients in the province of West Nusa Tenggara. NTB ranks tenth in the provinces with the most cervical cancer sufferers in Indonesia. Based on the results of cervical cancer screening through the Visual Acetate

Acid (IVA) Inspection procedure there were 1,015 cases with positive IVA results which increased the likelihood of increasing the number of cervical cancer cases. This shows that cervical cancer is a health problem that needs attention (Indonesia Health Profile, 2016).

The results of IVA screening in Bima district in 2016 were 58 cases with positive IVA results and in 2017 there were 664 cases with positive IVA results, this increased the likelihood of increasing the number of cervical cancer cases. (Indonesia Health Profile, 2016)

Reports of data on the number of cervical cancer cases in the last five years according to data obtained in the Bima General Hospital, namely in 2014 as many as 8 cases, in 2015 as many as 15 cases, in 2016 as many as 15 cases, and in 2017 as many as 16 cases and in 2018 as many as 25 cases. Based on the data obtained shows that the incidence of cervical cancer continues to increase from year to year, so it is important to do research to get more information about the determinants of cervical cancer incidence so that from this can be taken preventive measures to minimize risk factors, so that the morbidity and mortality can be suppressed.

METHODOLOGY
Research Design

The type of research used is observational analytic using a case control study design. This research was conducted in May-June 2019 at the Bima Regional General Hospital.

Population and Sampling

The study population was all female patients both hospitalized and outpatient at Bima Regional General Hospital during the study period. The study sample of 90 people consisted of 30 people who had cervical cancer as a group of cases selected purposively and had fulfilled the inclusion criteria namely diagnosed with cervical cancer at a certain stage, had undergone treatment, and had complete medical record status. and 60 randomly selected non-cervical cancer patients.

Data Collection

Data collection was obtained through secondary data from the Bima Regional General Hospital. Primary data is obtained by conducting guided and directed interviews from house to house using a questionnaire to explore information about the variables to be analyzed in this study that are closely related to the incidence of cervical cancer.

Data Analysis

Analysis of the data used was univariate analysis conducted to get a general picture of the research problem. To see the risk of each independent variable on the dependent bivariate analysis was used using the Odds Ratio (OR) test. Then multivariate analysis using multiple logistic regression tests.

RESULTS

Table 1. Cervical Cancer Occurrence Risk Based on family history or genetics in Bima Hospital in 2019

Family history or genetics	Cervical Cancer Cases				n	%	OR BB - BA
	Cases		Control				
	n	%	n	%			
Have	17	56.7	12	20.0	39	32.2	5,231 2,003-13,661
No	13	43.3	48	80.0	61	67.8	
Total	30	100.0	60	100.0	90	100.0	

Table 1 shows that respondents who had more family history in the case group (56.7%) than the control group (20.0%). Based on the analysis of Odds Ratio (OR) to family history, OR was obtained at 5.231 at the confidence level (CI) = 95% with a lower limit of 2.003 and an upper limit of 13.661. Because the Odds Ratio value is greater than one (OR> 1), the family history is a risk factor for cervical cancer. Thus respondents who have a family history have 5,231 times greater risk of cervical cancer when compared to respondents who do not have a family history or genetic.

Table2. Cervical Cancer Risk Based on smoking behavior in Bima Hospital in 2019

Smoking	Cervical Cancer Cases				n	%	OR BB - BA
	Case		Control				
	n	%	n	%			
Smoking	24	80.0	25	41.7	49	54.4	5,600 1,997-15,707
Not Smoking	6	20.0	35	58.3	41	45.6	
Total	30	100.0	60	100.0	90	100.0	

Table 2 shows that respondents who smoke or are exposed to secondhand smoke are more in the case group (80.0%) than the control group (41.7%). Based on the results of the analysis of Odds Ratio (OR) to smoking behavior, OR was obtained at 5.600 at the confidence level (CI) = 95% with a lower limit of 1.997 and the upper limit of 15.707. Because the Odds Ratio value is greater than one (OR> 1), smoking is a risk factor for cervical cancer. Thus respondents who smoke or who are exposed to secondhand smoke have a risk of

5,600 times more likely to develop cervical cancer compared to respondents who do not smoke or who are not exposed to cigarette smoke.

Table 3. Risk of Cervical Cancer Events Based on hormonal contraceptive use in Bima Hospital in 2019

| Use of Hormonal Contraception | Cervical Cancer cases | | | | n | % | OR BB - BA |
| | Case | | Control | | | | |
	n	%	n	%			
≥ 4 Years	22	73.3	20	33.3	42	46.7	5,500 2,083-14,524
< 4 Years	8	26.7	40	66.7	48	53.3	
Total	30	100.0	60	100.0	90	100.0	

Table 3 shows that respondents who used hormonal contraception ≥ 4 years were more in the case group (73.3%) than the control group (33.3%). Based on the analysis of Odds Ratio (OR) for hormonal contraceptive use, OR was obtained at 5,500 at the confidence level (CI) = 95% with a lower limit of 2,083 and an upper limit of 14,524. Because the Odds Ratio value is greater than one (OR> 1), the use of hormonal contraception is a risk factor for cervical cancer. Thus respondents who used combination hormonal contraception ≥ 4 years had a risk of 5,500 times greater for cervical cancer when compared to respondents who used combination hormonal contraception <4 years.

Table 4. Results of Analysis of Variable in the Equation Multiple Regression Risk Logistics for Cervical Cancer Cases in Bima Hospital in 2019.

Research Variable	B	Exp (B)	Wald	P
Family History	2.827	16.897	13.857	,000
Use of Hormonal Contraception	1.477	4.382	5.036	,025
Smoking	1.624	5.075	5.825	,016
Constant	-11.873	,000	21.752	,000

Table 4 shows that the variable family history is the most influential factor in the incidence of cervical cancer with an Exp (B) value of 16,897 and a significance of 0,000. Thus, family history is a risk factor for cervical cancer incidence in Bima Hospital in 2019. Based on multivariate analysis conducted using multiple logistic regression tests, variables related to cervical cancer incidence are family history, hormonal contraceptive use and smoking.

DISCUSSION

In this study it can be seen that of all the variables studied there were four significant risks to the incidence of cervical cancer, namely, family history, use of hormonal contraception, and smoking.

Family history such as mother and sister also determine the high potential for cervical cancer. At least the risk has doubled compared to those without a family history. This happens because in the family history there is the same immune system, cells carried by heredity, and the same immune system and infected factors.(Sulistiowati & Sirait, 2015) This study found that respondents who had a family history of cancer had a risk of 5,231 times greater risk of cervical cancer when compared with respondents who did not have a history of cancer in the family. This research is in line with the research conducted by Rahmah *et al.,* (2017). Mothers with hereditary cancer have a risk of 2.70 times greater risk of developing cervical cancer compared to women without hereditary cancer (Rahmah, Winarti, & Trisniwati, 2017).

Women who smoke have twice the risk of cervical cancer than non-smokers. The chemicals found in cigarettes after being sucked through the lungs can be widely distributed throughout the body through the bloodstream. Some of these compounds can be found in cervical mucus of women who smoke. Researchers believe that these chemicals can damage DNA in cervical cells and contribute to the development of cervical cancer. This study found that mothers who smoke or are exposed to smoke have a risk of 5,600 times greater risk of cervical cancer when compared to mothers who do not smoke or are exposed to cigarette smoke. This research is in line with research conducted by Natphopsuk *et al.,* (2012) in Thailand. The results showed that women who had never smoked but were exposed to cigarette smoke were 3.36 times more at risk of developing cervical cancer than women who were not exposed (OR = 1.73). This shows that passive smokers significantly increase the risk of cervical cancer (Natphopsuk *et al.,* 2012).

Hormonal contraceptives contain the hormones estrogen and progesterone which have properties that are structurally and chemically very different even though they are functionally similar. Endogenous hormones produced by the body that have physiological properties, while exogenous hormones synthesized by plant growth do not guarantee physiological properties that are considered safe and this condition is thought to give the risk of cervical cancer for the wearer. Guven *et al.,* (2009) in Nurwijaya (2010). This study found that mothers who used combination hormonal contraception continuously for ≥ 4 years had a risk of 5,500 times

greater risk of cervical cancer than women who used combination hormonal contraception <4 years. This research is also in line with the research conducted by Dianti and Isfandiari (2017). The results of the study found that the use of hormonal contraception is also a risk factor for cervical cancer. Women who used combination hormonal contraception ≥ 4 years were 3.147 times more at risk for cervical cancer when compared to respondents who used combination hormonal contraception <4 years (Dianti & Isfandiari, 2017).

CONCLUSION

It can be concluded that family history, use of hormonal contraception, and smoking pose a significant risk to the incidence of cervical cancer. It is recommended for women not to smoke and avoid exposure to cigarette smoke, not to use hormonal contraception for more than four years and routinely pass cervical cancer screening through pap smear to detect the presence of a virus that can cause cervical cancer.

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