The Relationship between Risk Factors for the Use of Oral Contraception and Sexual Activity with Cervical Cancer Incidence at Dr. M Djamil General Hospital, Padang, Indonesia

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A B S T R A C T

Introduction: Cervical cancer is a malignancy of the cervix caused by the human papillomavirus (HPV). Cervical cancer often has no symptoms. Most patients are known to be positive for cervical cancer at an advanced stage. This study aimed to determine the relationship between the use of oral contraceptives and sexual activity with the incidence of cervical cancer at Dr. M. Djamil General Hospital, Padang, Indonesia. **Methods:** This study was an analytic observational case-control study. A total of 37 subjects were researched as a case group and a total of 111 subjects as a control group. This study made observations of variable age, Education, work, use of oral contraceptives, and sexual activity for the first time. Data analysis was carried out using SPSS software univariate and bivariate. **Results:** Use of oral contraceptives ≥ 5 years was not significantly associated with the incidence of cervical cancer, p> 0.05. Age at first sexual intercourse <18 years was significantly associated with the incidence of cervical cancer, p<0.05. Age at first pregnancy <18 years was significantly associated with the incidence of cervical cancer, p<0.05. **Conclusion:** Sexual activity is a risk factor that plays a role in the incidence of cervical cancer at Dr. M Djamil General Hospital, Padang, Indonesia.

1. Introduction

Cervical cancer is a malignancy of the cervix caused by the human papillomavirus (HPV). Epidemiological data show that in 2020 of the 528,000 new cases of cervical cancer in the world, 85% of them will occur in developing countries. In the same year, 266,000 women died of cervical cancer. Almost all over the world, in 9 out of 10 cases, around 231,000 women live and die in lower-middle-income countries. In contrast, 1 in 10 of these cases, or 35,000 women, live and die in high-income countries.[1-3]

Cervical cancer often has no symptoms. Most patients are known to be positive for cervical cancer at factors for cervical cancer, signs, and symptoms, so they are late for cervical cancer screening. Most Indonesians currently use contraception to limit and keep their children's birth spacing. The increasing number of family planning acceptors is due to a government program to prevent the explosion of the resident. Oral contraceptives or pills are still in great demand, while oral contraceptives themselves are a risk factor for cervical cancer, especially if their use is longer or more than 5 years. Sexual activity, such as age at first sexual intercourse, age at first pregnancy, and history of abortion, are also risk factors for cervical cancer.[4-7] This study aimed to determine the relationship between the use of oral contraceptives and sexual activity with the incidence of cervical

cancer at Dr. M Djamil General Hospital, Padang, Indonesia.

2. Methods

This study was an analytic observational case-control study and used primary data obtained from research subjects at the obstetrics-gynecology polyclinic of Dr. Mohammad Hoesin General Hospital, Palembang, Indonesia. A total of 37 research subjects as a case group and as many as 111 subjects as a control group. The research subjects as the case group were patients who were treated at the obstetrics-gynecology polyclinic at Dr. M Djamil General Hospital, Padang, Indonesia, and diagnosed with cervical cancer. Meanwhile, research subjects as a group control are patients who have been treated at the obstetrics and gynecology polyclinic at Dr. M Djamil General Hospital, Padang, Indonesia, has not been diagnosed with cervical cancer. This study was approved by the medical and health research ethics committee at Dr. M. Djamil General Hospital, Padang, Indonesia.

This study made observations on sociodemographic data and data on risk factors for research subjects. This study made observations of variable age, Education, work, use of oral contraceptives, and sexual activity for the first time. Data analysis was carried out using SPSS software version 26 for Windows. Univariate analysis was performed to present the frequency distribution of each variable test. Bivariate analysis was carried out to link the test variables, $p < 0.05$.

3. Results and Discussion

Table 1 presents the frequency distribution of the basic characteristics subject study. The majority of research subjects were aged ≥ 50 years, both in the case group and the control group. The majority of research subjects in the case group had primary school education, and the majority of research subjects in the group control had education final senior high school. The majority of research subjects have jobs as housewives, both in the case group and in the control group.

Table 1. Basic characteristics of the research subject.

No.	Variable	Case group (%)	Control group (%)
1.	Age (years)		
	< 50	17 (45,95%)	27 (24,3%)
	≥ 50	20 (54,05%)	84 (75,7%)
2.	Education		
	Not completed in primary school	6 (16,2%)	2 (1,8%)
	Primary school	18 (48,6%)	32 (28,8%)
	Junior high school	6 (16,2%)	32 (28,8%)
	Senior high school	6 (16,2%)	40 (36%)
	College	1 (2,7%)	5 (4,5%)
3.	Occupation		
	Housewife	19 (51,35%)	64 (57,7%)
	Trader	2 (5,41%)	2 (1,8%)
	Self-employed	8 (21,62%)	38 (34,2%)
	Farmer	1 (2,7%)	3 (2,7%)
	Civil servant	7 (18,92%)	4 (3,6%)

Table 2 presents the relationship between the use of oral contraceptives and sexual activity with the incidence of cervical cancer. Use of oral contraceptives ≥ 5 years was not significantly associated with the incidence of cervical cancer, $p > 0.05$. Age at first sexual intercourse <18 years was significantly associated with the incidence of cervical cancer, $p < 0.05$. Age at first pregnancy <18 years was significantly associated with the incidence of cervical cancer, $p < 0.05$.

Table 2. The relationship between the use of oral contraceptives and sexual activity with the incidence of cervical cancer.

Variable	Case	Control	p-value*	OR (95%CI)
Use of oral contraceptives			0,53	1,3(0,6-2,8)
≥ 5 years	16	41		
< 5 years	21	70		

				p*	OR (95% CI)
Age of first sexual intercourse				0,01	2,3(1,1-4,9)
< 18 years old	22		43		
≥ 18 years old	15		68		
Age at first pregnancy				0,01	2,3(1,1-5,1)
< 18 years old	18		32		
≥ 18 years old	19		79		

*Chi-square test, p<0.05.

This study shows that there is no relationship between the use of oral contraceptives and the incidence of cervical cancer. Use of oral contraceptives for > 5 years does not increase the risk of cervical cancer. This study shows that the case group or respondents with a diagnosis of cervical cancer mostly have a history of using combined oral contraceptives for < 5 years. These results were obtained by asking about the history of combined oral contraceptive use because all respondents were diagnosed with cervical cancer. Currently, no one is using contraception, and only a few are using the female surgical method (MOW) contraceptive method. This research is in line with the study, which shows the results that the use of oral contraceptives for 5–10 years has no significant relationship with the incidence of cervical cancer. The results of the multivariate test analysis showed that the use of oral contraceptives for 5–10 years with the incidence of cervical cancer obtained an OR of 1.9 (95% CI = 0.9 <OR <4.1), so the risk is not significant epidemiologically. So it can be concluded that the use of oral contraceptives for 5-10 years does not increase the risk of cervical cancer.[8-12]

In this study, it was found that the majority of respondents who had cervical cancer had a history of having sexual intercourse for the first time at the age of <18 years. Meanwhile, most of the respondents who did not suffer from cervical cancer had their first sexual intercourse at the age of > 18 years. This study shows that there is a relationship between the age at first sexual intercourse and the incidence of cervical cancer. Having intercourse for the first time at the age of <18 years can increase the risk of cervical cancer. The results of this study are in line with other studies, which state that there is a relationship between the age at first sexual intercourse and the incidence of cervical cancer. In this study, it was stated that the age of first sexual intercourse <20 years and> 35 years had a risk of 14.3 times causing cervical cancer when compared to women who had sexual intercourse at the age of 20-35 years where the value of 95% CI = 1.747 < OR < 117,058. Other studies also showed the same results as this study, namely women with age of first sexual intercourse <20 years had an increased risk of cervical cancer of 1.75 when compared to women who had sexual intercourse for the first time at age> 20 years with a value of 95%. CI (1.01 <OR <3.03).[13-16]

Women who become pregnant for the first time at puberty or <18 years are associated with an immature cervix. Besides that, pregnancy is associated with decreased immunity during pregnancy, so young pregnant women exposed to the HPV virus are younger than those who are pregnant for the first time in adulthood. Women who become pregnant for the first time at <18 years of age indicate that the woman had sexual intercourse for the first time at a younger age than the age at which they had sexual intercourse for the first time. Meanwhile, sexual intercourse at the age of puberty or <18 years triggers the emergence of a transformation zone, which is a zone formed from a shift in the squamocolumnar junction (SCJ) from the original to the new SCJ. The transformation zone is especially pronounced in women with dysplasia. Although the age of first menstruation and menopause have no effect on the risk of cervical cancer, having a history of first pregnancy at a young age and the number of pregnancies can increase the risk of cervical cancer, and improper delivery management can also increase the risk of cervical cancer.[17-20]

4. Conclusion

Sexual activity is a risk factor that plays a role in the incidence of cervical cancer at Dr. M. Djamil General Hospital, Padang, Indonesia.

5. References

1. Walboomers JM, Jacobs MV, Manos MM. Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. J Pathol. 1999; 189: 12–9.
2. Garland SM, Giuliano A, Brotherton J. IPVS statement moving towards elimination of

cervical cancer as a public health problem. Papillomavirus Res. 2018; 5: 87–8.

3. Herrero R Elimination of cervical cancer in Latin America. Salud Publica Mex (in Spanish) 2018; 60: 621–3.

4. A cervical cancer-free future: First-ever global commitment to eliminate a cancer. 2020.

5. Mattiuzzi C, Lippi G Cancer statistics: A comparison between World Health Organization (WHO) and Global Burden of Disease (GBD) Eur J Public Health. 2020; 30: 1026–7.

6. Song B, Ding C, Chen W. Incidence and mortality of cervical cancer in China, 2013. Chin J Cancer Res. 2017; 29: 471–6.

7. Ferlay J, Shin HR, Bray F. Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. Int J Cancer. 2010; 127: 2893–917.

8. Bray F, Ferlay J, Soerjomataram I. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. CA Cancer J Clin. 2018; 68: 394–424.

9. Prabhu M, Eckert LO. Development of World Health Organization (WHO) recommendations for appropriate clinical trial endpoints for next-generation human papillomavirus (HPV) vaccines. Papillomavirus Res. 2016; 2: 185–9.

10. Ferlay J, Colombet M, Soerjomataram I. Global and regional estimates of the incidence and mortality for 38 cancers: GLOBOCAN 2018. Lyon: International Agency for Research on Cancer/World Health Organization, 2018.

11. Olorunfemi G, Ndlovu N, Masukume G. Temporal trends in the epidemiology of cervical cancer in South Africa (1994-2012) Int J Cancer. 2018; 143: 2238–49.

12. Small W Jr, Bacon MA, Bajaj A. Cervical cancer: A global health crisis. Cancer. 2017; 123: 2404–12.

13. Chen W, Zheng R, Baade PD. Cancer statistics in China, 2015. CA Cancer J Clin. 2016; 66: 115–32.

14. Lei T, Mao WM, Lei TH. Incidence and mortality trend of cervical cancer in 11 cancer registries of China. Chin J Cancer Res. 2011; 23: 10–4.

15. Zhao FH, Lewkowitz AK, Hu SY. Prevalence of human papillomavirus and cervical intraepithelial neoplasia in China: a pooled analysis of 17 population-based studies. Int J Cancer. 2012; 131: 2929–38.

16. Wu EQ, Liu B, Cui JF. Prevalence of type-specific human papillomavirus and pap results in Chinese women: a multi-center, population-based cross-sectional study. Cancer Causes Control. 2013; 24: 795–803.

17. Chen W, Zhang X, Molijn A. Human papillomavirus type-distribution in cervical cancer in China: the importance of HPV 16 and 18. Cancer Causes Control. 2009; 20: 1705–13.

18. Wang Z, Wang J, Fan J. Risk factors for cervical intraepithelial neoplasia and cervical cancer in Chinese women: large study in Jiexiu, Shanxi Province, China. J Cancer. 2017; 8: 924–32.

19. Cohen PA, Jhingran A, Oaknin A. Cervical cancer. Lancet. 2019; 393: 169–82.

20. Yuan Y, Cai X, Shen F. HPV post-infection microenvironment and cervical cancer. Cancer Lett. 2021; 497: 243–54.