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LIFESTYLE FACTORS PREDISPOSED TO CERVICAL DYSPLASIA IN WOMEN ATTENDED AT THE MARÍA AUXILIADORA HOSPITAL DURING THE PERIOD OF 2013 TO 2017

FACTORES DEL ESTILO DE VIDA PREDISPONENTES A DISPLASIA CERVICAL EN MUJERES ATENDIDAS EN EL HOSPITAL MARÍA AUXILIADORA, 2013-2017

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ARTÍCULO ARTICLE

ABSTRACT

Introduction: Cervical dysplasia is the precursor lesion of cervical cancer, in which abnormalities of the cervical cells are observed without adopting characteristics of malignancy. **Objective:** To identify the predisposing factors for cervical dysplasia in patients treated at the María Auxiliadora Hospital from 2013 to 2017. **Methods:** Case-control, analytical and observational design study. We analyzed 216 clinical records of patients, divided into 72 cases and 144 controls. **Results:** In the bivariate analysis, early menarche was significant (OR = 2.071, p = 0.024), early onset of sexual relations (OR = 2.213, p = 0.017), having multiple sexual partners (OR = 3.036, p = 0.001) and multiparity (OR = 2.316, p = 0.005). In the multivariate analysis, the independent variables were having multiple sexual partners (OR = 2,626, p = 0.003) and multiparity (OR = 2,759, p = 0.045), which were significant. **Conclusion:** It is concluded that women with multiple sexual partners and with multiparity are at higher risk to develop cervical dysplasia.

Key words: Cervical dysplasia; Multiparity; Preventive medicine; Lifestyle. (source: MeSH NLM)

RESUMEN

Introduccion: La displasia cervical es la lesión precursora del cáncer de cuello uterino, en el que se observan alteraciones de las células cervicales sin llegar a adoptar características de malignidad. **Objetivo:** Identificar los factores predisponentes para displasia cervical en las pacientes atendidas en el hospital María Auxiliadora durante el 2013 al 2017. **Métodos:** Estudio de diseño casos y controles, analítico y observacional. Se analizaron 216 historias clínicas de pacientes, dividiéndose en 72 casos y 144 controles. **Resultados:** En el análisis bivariado, resultaron significativos la menarquia temprana (OR=2,071;p=0.024), el inicio temprano de relaciones sexuales (OR=2,213;p=0.017), el tener múltiples parejas sexuales (OR=3,036;p=0.001) y la multiparidad (OR=2,316;p=0.005). En el análisis multivariado las variables independientes fueron el tener múltiples parejas sexuales (OR=2,626; p=0.003) y la multiparidad (OR=2,759;p=0.045) las cuales resultaron significativas. **Conclusión:** Se concluye que los factores del estilo de vida predisponentes a displasia cervical fueron tener múltiples parejas sexuales y la multiparidad.

Palabras clave: Displasia cervical; Multiparidad; Medicina Preventiva; Estilo de vida. (fuente: DeCS BIREME)

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INTRODUCTION

Cervical cancer is defined as the malignancy that affects cells that line the cervix. Cervical dysplasia is the precursor lesion of cervical cancer, in which alterations of the cervical cells are observed without adopting malignant characteristics[1].

According to the World Health Organization (WHO), it is the fourth most frequent cancer in women. It is estimated that in 2018 there were 570,000 new cases, which represented 7.5% of female mortality from cancer. Of the approximately 311,000 deaths per cervical cancer recorded each year, more than 85% occur in less developed regions[2].

According to GLOBOCAN, in 2018 the most significant world incidents occur in the regions of South Africa and South America, with rates higher than 26.0 and 18.1 respectively, for every 100,000 inhabitants. However, the USA, Canada, and Australia have the lowest incidences, with rates below 7.3. Latin American countries with incidence rate higher than 30 x 100 000 women are Guyana (44.7), Nicaragua (39.9), Honduras (37.8), El Salvador (37.2), Bolivia (36.4), Paraguay (35.0), Peru (34.5), Venezuela (31.4) and Guatemala (30.5). In the GLOBOCAN report of 2018, the Latin American country with the highest incidence of this disease in Bolivia, with a rate of 38.53.

In Peru, a woman dies of cervical cancer every 5 hours[3]. According to the oncological profile of the countries published by the WHO in 2014, in Peru, cervical cancer is the most frequent cancer, and, in turn, this cancer is second cancer with the highest mortality in the female population (12.3 per 100 000 inhabitants)4. The regions with the highest adjusted mortality rates for cervical cancer are Loreto (18.0), Huánuco (12.8), Ucayali (10.3), with values that double and even quadruple that of Lima (4.2)[5].

In 2015, 6627 patients were treated by the Oncology Gynecology department at the María Auxiliadora Hospital, of which 59% (3965) cervical cytology screening studies were performed, with the diagnosis of cervical dysplasia at 44.98%. Women (2981) which indicates the importance of the education of this precancerous lesion to prevent its progression to cervical, uterine cancer[6].

The cervix consists of 2 parts: the ectocervix, which is covered by a stratified squamous epithelium and the endocervix covered by a single cylindrical epithelium layer. The squamous metaplasia of the cervix consists in the physiological replacement of the cylindrical epithelium everted to the ectocervix by a neoformed squamous epithelium. The metaplastic epithelium can evolve in two ways. In the vast majority of women, it becomes mature squamous metaplastic epithelium; however, in the minority, it can develop to the atypical dysplastic epithelium. The invasive cervical cancer of squamous cells is preceded by a long phase of preinvasive diseases, called cervical intraepithelial neoplasia (CIN). The CINs are classified in grades 1, 2 and 3 according to the proportion of the epithelial thickness that presents mature and differentiated cells. Most cervical abnormalities are unlikely to progress to CIN or high-grade cervical cancer. The lowest-grade NIC returns to normal in relatively short periods or does not advance to a high degree. It is much more likely that high-grade CIN will become invasive cancer. The precursor lesion originated in the cylindrical epithelium is called adenocarcinoma in situ (AIS). AIS can be associated with CIN between one and two-thirds of cases[30].

Human papillomavirus (HPV) is a necessary, but not sufficient, cause to develop cervical cancer[7,8]. HPV types 16 and 18 are responsible for 70% of cervical cancers[9]. Because only a small proportion of HPV infections progress to cancer, other cofactors, external and proper to the host, must be involved in the carcinogenesis process.

For this reason, the present study was conducted to identify the predisposing factors for cervical dysplasia in the patients treated at the María Auxiliadora Hospital from 2013 to 2017.

Figure 1. View of low-grade cervical dysplasia (CIN I) base and invasive cancer.

ORIGINAL ARTICLE

METHODS

Case study and controls of observational, retrospective and analytical research. The population consisted of all the patients who had a cervical cytology study, with or without a diagnosis of cervical dysplasia in the Oncology Gynecology Service of the María Auxiliadora Hospital during the period 2013 to 2017. According to the study conducted by Ruiz et al., taken as reference the 20% prevalence of altered cervical cytology in the controls. Therefore, it was estimated that the prevalence in the cases was 38%. The possibility of obtaining an OR of 2.5, with a confidence interval of 95% and a statistical power of 80%, was considered, matching the study units in 2 controls for each case.

The sample consisted of 216 patients: 72 cases where patients with a diagnosis of cervical dysplasia were found; and 144 controls, who do not present a diagnosis of cervical dysplasia.

Inclusion criteria were female patients with altered cervical cytology, with or without a diagnosis of cervical dysplasia and clinical histories with complete data to be studied. The exclusion criteria were incomplete and/or illegible clinical histories, pregnant patients, patients diagnosed with invasive carcinoma (cervix) or other neoplasms. The variables studied were: cervical dysplasia, sociodemographic characteristics, and gynecological-obstetric characteristics.

Data collection was carried out using data from medical records provided by the Statistical and Information Office of the María Auxiliadora Hospital. Data analysis was performed from the database constructed in the statistical program SPSS version 25. All comparisons were made with a confidence interval of 95% and a degree of error of 0.05% ($p < 0.05$).

Likewise, the study was approved by the support office for teaching and research of the María Auxiliadora Hospital.

RESULTS

In Table 1, it was observed that, according to the sociodemographic characteristics, the degree of predominant instruction was secondary (70.8%), being the only statistically characteristic significant ($p = 0.016$).

Likewise, table 2 indicates that the majority of the cases (70.8%) presented multiple sexual partners, greater than two pregnancies (76.4%) and greater than two deliveries (68.1%).

In table 3, it describes the bivariate analysis of the characteristics studied. Early menarche increases the risk of presenting cervical dysplasia by 2.07 times ($P = 0.024$), and the early onset of sexual life increases the probability of introducing this disease in 2.21 times ($P = 0.017$). Similarly, having 3 or more sexual partners increases up to 3.03 times ($P = 0.001$) the risk of suffering from this pathology. On the other hand, presenting more than 2 pregnancies would increase the risk of dysplasia by 1.77 times; however, it is not statistically significant ($P = 0.078$). Having 3 or more births raises the possibility of this disease up to 2.31 times ($P = 0.005$). Finally, regarding the use of contraceptive methods, it would be treated as a protective factor, but this finding is not statistically significant ($OR = 0.673$, $P = 0.173$).

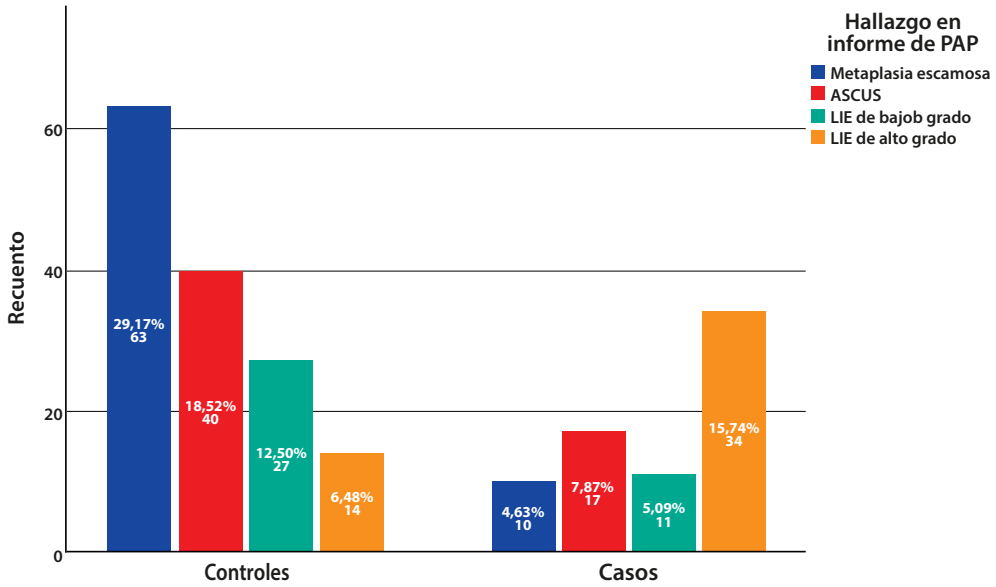
Likewise, in table 4, it was identified that having multiple sexual partners ($OR = 2,626$, $P = 0.003$) and having more than 2 births ($OR = 2,759$, $P = 0.045$) are statistically significant for the development of cervical dysplasia.

It should be mentioned that the presence of HIV infection was not considered as a predisposing factor in the present study; however, it was found that the10.6% ($n = 23$) of the patients had an infection by this virus, of which 14 belonged to the cases, and the remaining 9 were controls.

Table 1. Sociodemographic characteristics of patients with abnormal cervical cytology treated at the María Auxiliadora Hospital.

	CASES (n=72)	CONTROLS (n= 144)	TOTAL	P-VALUE
Age (%)				0.066
Less than 31 years old	7 (9.7)	27 (18.1)	34 (15.3)	
31-50 years old	45 (62.5)	93 (64.6)	138 (63.9)	
Greater tan 50 years old	20 (27.8)	24 (16.7)	44 (20.4)	
Marital status (%)				0.828
Single	33 (45.8)	72 (50.0)	105 (48.6)	
Married	23 (31.9)	41 (28.5)	64 (29.6)	
Partner	16 (22.2)	31 (21.5)	47 (21.8)	
Degree of education (%)				0.016
No education / Primary education	14 (19.4)	10 (6.9)	24 (11.1)	
High school	44 (61.4)	109 (75.7)	153 (70.8)	
Higher education	14 (19.4)	25 (17.4)	39 (18.1)	
District (%)				0.646
Chorrillos	10 (13.9)	14 (9.7)	24 (11.1)	
San Juan de Miraflores	18 (25.0)	34 (23.6)	52 (24.1)	
Villa el Salvador	15 (20.8)	33 (22.9)	48 (22.2)	
Villa María del Triunfo	11 (15.3)	25 (17.4)	36 (16.7)	
Lurín/Pachacamac	12 (16.7)	17 (11.8)	29 (13.4)	
Others	6 (8.3)	21 (14.6)	27 (12.5)	

Out of all women, the most common PAP findings were: Squamous metaplasia and Squamous cells atypical of indeterminate meaning (ASCUS). (Graph 2).



Source: Database of the reviewed medical records.

Graph 2. Distribution of Pap test findings in women with abnormal cervical cytology seen in the María Auxiliadora Hospital.

Table 2. Gynecological-obstetric characteristics of patients with abnormal cervical cytology treated at the María Auxiliadora Hospital.

	CASES (n=72)	CONTROLS (n= 144)	TOTAL	P-VALUE
Menarche age (%)				0.051
Under 11	24 (33.3)	28 (19.4)	52(24.1)	
11 to 14 years	28 (38.9)	77 (53.5)	105 (48.6)	
Greater than 14 years	20 (27.8)	39 (27.1)	59 (27.3)	
Age of sexual initiation (%)				0.006
Under 15 years	16 (22.2)	13 (9.0)	29 (13.4)	
15 to 18 years	41 (56.9)	78 (54.2)	119 (55.1)	
Older than 18 years	15 (20.8)	53 (36.8)	68 (31.5)	
Multiple sexual partners (%)				0.001
YES	51 (70.8)	64 (44.4)	113 (52.3)	
NO	21 (29.2)	80 (55.6)	103 (47.7)	
Greater than two gestations (%)				0.078
SI	55 (76.4)	93 (64.6)	148 (68.5)	
NO	17 (23.6)	51 (35.4)	68 (31.5)	
Greater than two deliveries (%)				
YES	49 (68.1)	69 (47.9)	118 (54.6)	
NO	23 (31.9)	75 (52.1)	98 (45.4)	
Contraceptives (%)				0.390
None	35 (48.6)	56 (38.9)	91 (42.1)	
Oral Contraceptives/ Injectables	27 (37.5)	63 (43.8)	90 (41.7)	
Others (IUD, implant)	10 (13.9)	25 (17.4)	35 (16.2)	
Findings in PAP				0.000
Squamaous metaplasia	10 (13.9)	63 (33.8)	73 (43.8)	
ASCUS	17 (23.6)	40 (27.8)	57 (26.4)	
Low-grade LIE	11 (15.3)	27 (18.8)	38 (17.6)	
High-grade LIE	34 (47.2)	14 (9.7)	48 (22.2)	
Diagnostic age				0.066
Under 25 years old	4 (5.6)	12 (8.3)	16 (7.4)	
25 to 45 years	39 (54.2)	96 (66.7)	135 (62.5)	
Greater than 45 years	29 (40.3)	36 (25.0)	65 (30.1)	

Table 3. Bivariate analysis of the predisposing factors for cervical dysplasia in patients with abnormal cervical cytology treated at the María Auxiliadora Hospital.

	OR	ORor	p
Early menarche (YES/NO)	2.071	(1.09-3.93)	0.024
Early start of sexual life (YES/NO)	2.213	(1.14-4.29)	0.017
Multiple sexual partners (Greater than 2/Less than 2)	3.036	(1.66-5-56)	0.001
Multiple pregnancies (Greater than 2/Less than 2)	1.774	(0-93-3.37)	0.078
Multiple births (Greater than 2/Less than 2)	2.316	(1.28-4.19)	0.005
Use of contraceptive methods (YES/NO)	0.673	(0.38-1.19)	0.173

Table 4. Multivariate analysis of the predisposing factors for cervical dysplasia in patients with abnormal cervical cytology treated at the María Auxiliadora Hospital.

	OR	IC de 95%	p
Early menarche (YES/NO)	1.507	(0.75-3.03)	0.249
Early start of sexual life (YES/NO)	1.553	(0.76-3.17)	0.227
Multiple sexual partners (Greater than 2/Less than 2)	2.626	(1.39-4.96)	0.003
Multiple pregnancies (Greater than 2/Less than 2)	1.466	(0.23-2.01)	0.488
Multiple births (Greater than 2/Less than 2)	2.759	(1.20-7.46)	0.045
Use of contraceptive (YES/NO)	0.764	(0.41-1.42)	0.395

DISCUSSION

DSeveral authors have shown evidence that a high percentage of cancers are caused by factors related to lifestyle, for the most part, things that can be changed. Cervical dysplasia is the abnormal change in cells on the surface of the cervix. HPV is an important cause but not the only one to develop cervical cancer; Other factors are involved in the carcinogenesis process.

In the present study, with respect to the age of the patients studied, 63.9% were between 31 and 50 years of age, a fact that is consistent with past Cifuentes investigations (average age: 42.2 years) 12, Count (25 to 35 years old: 72.9%) 17 and Mesares (mean of 39.87 ± 10.08 years old)19.

On the other hand, in the present study, most of the patients were single (48.6%), while in work done by Galván et al. (Mexico) 81.7% of the patients were married / free union13. Similarly, in the thesis carried out by Aguilar (Peru), cohabiting civil status was obtained as the most frequent (44.76%) 18. However, in the argument of Enciso Cebrián (Peru), single women predominated in a 36.8% .26 These different results indicate that there is no association between marital status and the risk of presenting cervical dysplasia, in addition to the value of p = 0.828 in our study, which is not statistically significant.

It should be mentioned that the level of education was the only statistically significant demographic item, with the second level being the most predominant (70.8%), this result is similar to the Mesares study, where the second level covered 78.0%19. However, in other studies such as that of Aguilar and Ruiz, primary education was the most frequent, 49.52% and 49.3% respectively18,15. This is related to the level of knowledge that patients have regarding cervical cancer, HPV infection and the vaccine against this virus. For example, in a study conducted by Valdéz in Andahuaylas (2015), 66.7% of the participants had a secondary level of education, and of that population, 37.5% did not know the benefits of vaccination against HPV. Which means that it is necessary to deepen the education of young women on sex education and preventive measures against HPV at the national level20.

Analyzing the gynecological and obstetric factors, the most frequent menarche age (48.6%) was between 11 and 14 years of age, a finding that correlates with studies such as Galván13, Mesares19, and Cifuentes12, where the average age of menarche was 12.7 ± 1.50, 12.88 ± 1.49 and 13.8 ± 1.38 years respectively.

The age of initiation of sexual relations was one of the most studied aspects in most of the studies, in the present study 55.1% of the women studied had their first sexual relationship between 15 and 18 years. These results coincide with the results obtained by Montesino et al., who found that 59.7% of the patients initiated their sexual life before the age of 1811, as well as the Montero study, where 68.8% of the participants began their sexual life between 15 and 19 years old10. Similarly, in our study, it was found that the early onset of sexual intercourse would increase the risk of presenting cervical dysplasia in 2.21 times (p = 0.017). These results are comparable to those obtained by Arotoma (OR = 2.757, p = 0.015), 16 Galvan (OR = 2.5, p = 0.02)13 and Abarca (OR = 1.95, p = 0.035)14, which it means that it is highly related and statistically significant.

Regarding the number of sexual partners, the condition of having 3 or more sexual partners would increase the risk for cervical dysplasia by 3.03 times (p = 0.001), similar to the result obtained by Abarca et al., where the same condition presented an OR = 2.10 (P = 0.0)14.

Multiparity occurred in 54.6% of the patients studied. In the present study, presenting 3 or more births would increase the risk of this disease by 2.31 times (p = 0.005). This finding coincides with the results obtained in the Conde studies (OR = 3.835, p = 0.001) 17 and Mesares (OR = 2.364, p = 0.014) 19, which is why multiparity is accepted as a statistically significant risk factor28. However, presenting 3 or more pregnancies was not statistically significant in the study population (OR = 1,774, p = 0.078). Similarly, it was not significant in the studies of Conde (p = 0.0543) 17 and Galván (p = 0.376) 13, so this condition is not considered as a predisposing factor to present cervical dysplasia.

On the other hand, the use or not of contraceptive methods would be shown in this study as a protective factor (OR = 0.673), however, the P value is not statistically significant (p = 0.173), so it is not comparable to other previously mentioned studies, and in the population studied, would be rejected as a predisposing factor for cervical dysplasia. Likewise, when making a Pearson correlation between the type of contraceptive methods they used, it was only positive for patients who did not use contraceptives. However, the use of condoms should be considered as a protective factor against HPV and cervical dysplasia since it is a barrier method.

According to the Centers for Disease Control and Prevention (CDC) in the vaccination calendar for adults, they recommend vaccination in women up to 26 years of age, and at any age21. The vaccination program at the national level includes the vaccine against the Human Papilloma Virus since 2011, however, it is from 2016 that campaigns are carried out to promote this vaccine in girls in the 5th grade of primary education

from public and private institutions22. In a revised web application in February 2019, where the number of girls vaccinated is counted thanks to the national campaign initiated since January 2017, 200,485 girls have been vaccinated, thus having coverage of 79.0% nationwide and 64.77% in Metropolitan Lima23. For this reason, it is necessary to continue carrying out studies similar to this, to report the results to the Health Networks at the national level, and to continue the cervical cancer prevention and promotion measures.

In a study from Mexico in 2018, they point out that there is a possibility of an association between cervical cancer (CaCu) and changes in the vaginal ecosystem through the modification of the microbiota, and all these HPV and host characteristics contribute to cervical immunosuppression and promote carcinogenesis24. Another Mexican study of 2018 found predominance of bacterial communities of the genus Fusobacterium. Like other studies, the predominance of Lactobacillus crispatus and Lactobacillus iners was also found in cases without a cervical lesion with positive and negative HPV infection, respectively. Likewise, the predominance of Sneathia spp in cases with a premalignant lesion in the cervix. These results of the study of the cervix microbiome in CaCU indicate a different diversity and composition of the microbiota in each stage of the natural history of CaCU25 and these advances in molecular biology allow to characterize and estimate HPV infection in different populations, specific locations, and etiology.

As can be seen, unlike other cancers, most predisposing factors are modifiable, either with changes in lifestyles with preventive measures such as the vaccine in girls and adolescents, or cervical cytology screening in young women. Also and interval for progress to invasive cancer typically can be higher than 10 to 20years. Likewise, about 70% of ASCUS injuries and NIC 1 disappear in 6 years, while that around 6% of CIN 1 lesions progress to CIN 3 or more. Between 10 and 20% of women with injuries NIC 3, these progress to invasive cancer27,29.

It is recommended to develop studies at the molecular level on the cervical microbiome as a modifier of the natural history of the human papillomavirus (HPV), concerning the development of cervical lesions and neoplasms of the cervix.

LIMITATIONS OF THE STUDY

The study is unicentric. Likewise, the number of cases is 72 which is compensated with the 144 controls. This type of research only allows us to detect possible associations, and generate future hypotheses of relationship causes effect, in comparison with multicentric, longitudinal and prospective studies.

CONCLUSION

In the present study it is concluded that the lifestyle factors predisposing to cervical dysplasia were having multiple sexual partners and multiparity.

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