

Risk factors associated with histological alterations of the female genital tract in patients attending a first-level medical care facility

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Abstract

Background: We undertook this study to determine risk factors for histological alterations of the female genital tract in an open population who attend a first-level care medical facility.

Methods: We conducted a case/control cohort study that included patients from outpatient consultation who responded to a cervical cancer control and prevention program. We studied 1933 patients; 88 patients (cases) had cellular alterations and were matched with 88 patients without alterations (controls). Statistical analysis was carried out with one-way ANOVA for comparison between groups and association of variables with relative risk for 95% confidence interval; $p < 0.05$.

Results: Mean age of the case group was 36.1 ± 1.6 years and the control group had a mean age of 35.8 ± 2.1 years. Diagnoses obtained in the case group showed a greater frequency of ectropion, human papilloma virus infection and CIN1. Risks factors analyzed in these patients showed statistical differences in number of gestations >2 (RR = 2.33) and the early initiation of sexual activity (<19 years) (RR = 1.14) for experiencing histological problems of the female genital tract.

Conclusions: Prevention of cervical cancer can be accomplished through timely and opportune detection in order to avoid the disease or to decrease risk factors by using condoms, delaying initiation of sexual activity and limiting the number of sexual partners. These are all strategies that the general population should be aware of.

Key words: cervical pathology, neoplasm.

Introduction

Cervical cancer (CC) is a major public health problem in Mexico. It is one of the three most common neoplastic diseases and is responsible for 35% of all cancers in women. In the last decade, >4950 deaths per year have been reported in Mexico, with a rate of 19.9/100,000 women. This represents a marked increase from previous years.^{1,2} This neoplasm accounts for 21.4% of the total

number of malignancies and 85% of gynecological malignancies, particularly in the 25- to 64-year-old age group.^{3,4} Even though prevention and control activities of CC were initiated in Mexico in 1975, mortality rates due to this neoplasm persist with increasing tendencies. An analysis of mortality for this disease conducted in Mexico showed that this increase is mainly in older women.^{5,6}

Cells of the cervical wall are very active during the years that menstruation occurs. The constant hormonal activity promotes abnormal cell growth when certain conditions are present. Therefore, cellular alterations are not considered cancer; however, abnormal cells possess the potential to develop into cancer if left untreated. According to the results obtained in several diverse epidemiological studies, the factor most consistently associated with CC is human papilloma virus (HPV) infection.^{7,8} Although many questions have been resolved on the etiology of CC and there are developments in alternative therapies and prevention, one must achieve high coverage of early detection through Papanicolaou (Pap) cytology to ensure an appropriate level for the treatment and monitoring of affected women.^{9,10} This study was necessary to determine the frequency of histological abnormalities of the genital tract and associated risk factors of users of primary care in the general population.

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Materials and Methods

We performed a case-control, nested cohort study, which included the total number of patients who spontaneously attended the CC screening program in the Unidad de Salud Urbano Jardines de Guadalupe under the jurisdiction Nezahualcōyotl in the state of Mexico from August 1, 2007 to July 31, 2008. We carried out monitoring and implementation of the collection of clinical history information for the study, as well as integration of clinical records obtained from the cytologic reports of each patient. These contain all the obstetric-gynecological variables in the study, in addition to the signs and symptoms present at the time the Pap smear was taken.

Cases included all patients diagnosed and histologically confirmed of any histological alteration of the genital tract and they were recruited into this screening. Age-matched controls were also selected from the group being monitored. Both groups of women were considered well matched by the date of the case to the cervical cytology and had a negative Pap report and were users of the same program. One control was selected for each case. Data obtained from each patient were collected according to precoded data and prepared in a spreadsheet for analysis in Excel (Microsoft).

Statistical Analysis

Descriptive statistics with simple frequencies to display the variables of the study were used. We also carried out ANOVA for comparison between groups and for association of variables we determined the relative risk (RR) for a 95% confidence interval; $p < 0.05$ was considered significant.

Results

A total of 1933 patients were included during the study period, of which 88 cases were identified as patients diagnosed with

Table 1. Frequency of histological alterations of the female genital tract in the case group

Diagnosis	Cases	%
CIN1	17	19.3
CIN2	6	6.8
CIN3	7	7.8
Ectropion	31	35.2
Cervical polyp	4	4.5
HPV infection	20	22.7
Endometrial hyperplasia	3	3.4
Total	88	100.0

CIN, cervical intraepithelial neoplasm; HPV, human papilloma virus.

Table 2. Number of gestations as a risk factor associated with histological alterations of the female genital tract

Gestations	Cases	Controls	p
≤ 1	22	11	NS
≥ 2	66	77	<0.05
Total	88	88	—
			RR = 2.33

NS, nonsignificant; RR, relative risk.

histopathological injury of the cervix detected early during a prevention and control program for CC during outpatient services. Patients had an average age of 36.1 ± 1.6 years. Control group was also composed of 88 patients (average age 35.8 ± 2.1 years).

Diagnoses obtained in the case group showed a higher frequency for the presence of cervical ectropion due to HPV infection and cervical intraepithelial neoplasia 1 (CIN1). The remaining alterations are shown in Table 1.

When analyzing risk factors between groups, we found a statistically significant difference in the number of gestations <2 (RR 2.33) (Table 2). Also, when analyzing age of onset of sexual activity, it was found that women who initiate sexual activity <19 years of age had an RR of 1.14 (Table 3). This was statistically significant for any disorder to demonstrate cervical histology. The remaining study variables such as marital status, educational level, obstetric resolution, number of sexual partners and family planning methods showed no statistical difference.

Discussion

The majority of published studies associate the high number of sexual partners with the development of CC. Prevention of deaths from CC is simple and effective, but precancerous lesions must be detected early and treated successfully in order for women to not develop cancer. It has been established that this cancer is curable if detected early.^{11,12}

Table 3. Prevalence of histological changes of the female genital tract in relation to initiation of sexual activity

Age (years)	Cases	Controls	p
≤ 19	46	43	<0.05
≥ 20	42	45	NS
Total	88	88	—
			RR = 1.14

NS, nonsignificant; RR, relative risk.

In Mexico, epidemiological studies show an increase in the incidence of this disease, and it is considered a public health problem. It is necessary to emphasize, as the main strategy, coordination of the private, public and social sectors to confront this condition with greater commitment, efficiency and effectiveness. It will also be important to achieve active community participation for the solution of this health problem, which can be achieved through education, outreach and awareness of the risks and complications. In Mexico, many barriers continue to exist that prevent the female population from seeking services for detection, among which are the lack of information about prevention of CC or Pap test. Some of these are poor relationship with healthcare providers, opposition from their partner to submit to cytology exam and anxiety associated with pelvic examination.

It is important to establish other risk factors as well as to identify at an early stage lesions of the cervix. CC represents 15% of all variants of cancer diagnosed in women. It is the second most common cancer in female patients and in addition to the annual deaths due to this cancer, ~80% occur in developing countries where CC is the most lethal of all cancers among women.^{13,14} Early detection of this cancer is a cost-effective measure that will save many lives. Therefore, programs must be based on a clear understanding of the natural history of CC. Pap test is an analysis used to detect CC and is done during a pelvic examination. According to the World Health Organization (WHO), in countries with limited resources all women approaching 40 years of age should undergo this screening at least once. In Mexico, every woman should have a yearly Pap exam after initiation of sexual activity.

In conclusion, to prevent risk factors for CC according to this study, use of condoms is recommended to reduce the spread of venereal diseases. In addition, early initiation of sexual activities should be postponed and the number of sexual partners should be limited, but risk factors already established globally should also be considered.

It is important to consider that the average number of pregnancies, use of contraceptives and regular Pap exams (at least yearly) are designed to avoid or reduce risk factors because they influence the detection, prevention and control of CC. It is important to keep in mind the natural history of CC in order to decide when to initiate screening exams, the frequency with which these exams should be administered and when to recommend treatment or monitoring.

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