Prevalence And Risk Factors In Positive Cervix Cytology

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ABSTRACT: An analytical study of cases and controls was carried out to identify the magnitude of the presence of precancerous and malignant lesions in the cervix, as well its relationship with etiologic and risk factors in the primary care area of the Mario Muñoz Teaching Polyclinic. The study showed that 36.4 out of every thousand women had premalignant and malignant lesions in the cervix, where precancerous lesions were predominant. Malignant lesions were found in very low percentages and in very early stages. The kind of cervical-uterine lesion was related with whether HPV was present, as this infection was more frequently found in women with malignant lesions. A significant association was found between women under 30 years of age, the number of child births, the risk of sexually transmitted diseases, and smoking, and the development of a premalignant or malignant uterine lesion. The latter variables were considered as risk factors in our environment in the development of cervical-uterine cytological lesions. It is recommended that research should be continued on cervix cancer risk factors and the application of its results in medical practice.

INTRODUCTION

Cancer has been one of the most dreadful diseases striking mankind for centuries, as it deteriorates quality of life and almost always ends fatally in a short period of time: Sufficient reason for scientists to focus study on cancer from the very moment of its appearance.

Unfortunately, the results of this continuous scientific endeavor are not spectacular as far as a cure is concerned once the disease has started. Thus, today prevention is the most successful and encouraging way to achieving better life quality.

No other variety of cancer shows the positive effects of prevention, early diagnosis and curative treatment better than cervical cancer. Fifty years ago cervix carcinoma was the leading cause of death from cancer in women in the United States. This rate has decreased considerably to the point that it now ranks as the eighth cause of death by cancer. 1 In poor countries, however, this pathology remains the first or second clinical cause of death by neoplasia. 2 In Cuba, the number of new cases of cervical cancer every year is around 20 for every one hundred thousand women, which amounts to about one thousand cases per year. 3

In contrast with a lower mortality rate, the frequency of diagnosis of early cancerous and pre-cancerous processes is very high. It is obvious that the selective detection techniques by means of the Papanicolaou smear test have increased the detection and eradication of pre-infiltrating lesions. 1,4
Aiming at unifying several cytological schools, the National Cancer Institute of the United States has put forward some concepts to classify dysplasias or CIN (cervical intra-epithelial neoplasia) in two categories of squamous intraepithelial lesions (SIL), of low and high grades. The low grade lesions include CIN I and HPV (papilloma virus), while the high grade lesions include CIN II and III. 5,6,7,8

The evolution of these pre-invasive lesions towards a possible cervical-uterine cancer seems to be closely linked with the presence of some internationally recognized risk factors resulting from clinical-epidemiological, anatomical-pathological and molecular studies. These risk factors include:

- First sexual intercourse at an early age
- Numerous sexual partners
- A male partner with many previous sexual partners 1

All of the other risk factors are conditioned by these three influences, mainly by the high number of sexual partners. As regards sexual transmission agents, the human papilloma virus (HPV) is considered to be a decisive factor in cervix oncogenesis. 1, 9, 10, 11, 12, 13, 14

Our National Program for Cervix Cancer Prevention and Early Diagnosis indicates cervix-vaginal cytological tests every three years for women aged between 25 and 60. This program, however, does not include test administration based on each woman’s individuality in terms of the presence of risk factors associated with the presence of pre-cancerous and malignant lesions in the cervix. There is also an important group of female patients with an active sexual life who are not tested with exfoliative cervix-vaginal cytology because they are aged under 25. The National Commission for the Early Diagnosis of Cervix Uterine Cancer recommends the promotion of research aimed at establishing risk groups in the country. These research projects can demonstrate what has been internationally established or may find regional variables that can lead to the establishment of national patterns. 15

Once the risk factors have been defined for a certain population, and their qualitative and quantitative relationship with pre-cancerous and/or malignant lesions in the cervix has been established, it will be possible to identify women who are potentially susceptible to developing cervical cancer early, to act on risk factors that can be corrected, and to contribute to increasing scientific knowledge on clinical and epidemiological aspects of the disease as well. All this will enhance the efficacy of the National Program for Early Diagnosis of Cervix-Uterine Cancer of our Ministry of Public Health, in its ambitious and just goal that not a single woman in our country die of this disease.

**OBJECTIVES**

**General Objective**

To identify the magnitude of the presence of pre-cancerous and malignant lesions in the cervix and its relationship with etiological and risk factors.

**Specific Objectives**

- To determine the prevalence of precancerous and malignant lesions of the cervix in the female population under study.
- To establish the characteristics of the population sample in the study in relation to some risk factors in the presence of pre-cancerous and malignant lesions of the cervix.
- To identify the existence of an association between the kind of lesion and the presence of the human papilloma virus.

**METHOD**

A retrospective, transversal, analytical case-control study was conducted. The referential universe included all the women aged between 20 and 60 years who had an exfoliative cervix-vaginal cytology test. All of
these women lived in the primary care area of the Mario Muñoz Teaching Polyclinic in Guanabo at the end of the year 2001, a total of 1923 individuals.

The sample included all of the women with a positive cytological diagnosis of a pre-malignant or malignant intraepithelial lesion in the cervix. They made up the group of “cases” that included 70 patients.

The “control” group was formed by women with a negative diagnosis in exfoliative cytology, selected by simple random sampling. The criterion adopted was that the case/control proportion would be 1/1.

The necessary data was taken from secondary sources like cytology control cards, individual clinical records, and the continuous assessment and risk evaluation records in every doctor’s office.

**Methodology**

In order to meet the first specific objective it was necessary to calculate the prevalence rate of cancerous and malignant cervix lesions in a population of women aged between 20 and 60 where organic cytology tests are performed. The following formula was used for the calculations:

Rate = Total number of women with positive organic cytology X 1000

Total number of women between 20 and 60 years old in the area, who had positive exfoliative cervix-vaginal cytology. The women with positive cytology were grouped by the kind of lesion, according to the present classification used in Cuba.

- CIN I (Light Cervical Intraepithelial Neoplasia)
- CIN II (Moderate Cervical Intraepithelial Neoplasia)
- CIN III (Severe Cervical Intraepithelial Neoplasia)
- CIS (Carcinoma in situ)
- MIC (Micro-invasive Infiltrating Carcinoma)

The second specific objective consisted in the analytical section of the study. A “case” – “control” design was applied. Each group was presented in contingency tables with the following variables, which are known to be risk factors for cervical cancer.

- **Age**: In terms of how old the patient was at the time the cytological diagnosis was made. Four intervals with different amplitudes were grouped together, in order to highlight the behavior of the younger women, under 25 years of age. They were grouped as follows:
  - Under 25 years
  - 25 – 29 years
  - 30 – 39 years
  - 40 years and older

- **Age at the time of their first sexual intercourse**: This variable refers to the age at which they had sex for the first time. Three-year intervals were used to group the individuals, ranging from under 15 to over 24 years.

- **Births**: The number of births ranging from none to three and more (based on the patient’s previous obstetric history).

- **Abortions**: The number of abortions from none to three and more (based on the patient’s previous obstetric history).
• **STI Risk:** Whether primary health care records showed that the woman was likely to contract a sexually transmitted disease, which is an indicator of risky sexual behavior in this woman or her partner.

• **Smoking:** Whether the woman smoked, considering a smoker to be someone who smoked at least one cigarette a day.

• **Prolonged used of oral contraceptives:** Whether the woman ever used oral contraceptives for 2 years or more.

The Square Chi ($X^2$) statistical test was applied to all of this data to be able to classify the results as significant or not (results were taken as significant when the test-associated probability was equal or lower than 0.05). When the variables were associated, the factor was grouped in two categories: Risk and Lower Risk. These categories were compared and the OR indicator was estimated. When the OR indicator was higher than 1, it was concluded that the factor was influential in our environment. Then the reliability interval was calculated at 95% according to Cornfield, in order to validate the OR estimate. The lower limit had to be higher than 1 to accept such value as significant.

The interval limits were labeled as follows in our study:

- **LL:** Lower limit
- **HL:** Higher limit

The third specific objective was met by including the women with positive cytology in contingency tables according to whether the Human Papilloma Virus (HPV) was present or not, and to the type of cervix-uterine lesion. The aforementioned classification was used in conjunction with that made by the U.S. National Cancer Institute (Bethesda Classification) as follows:

- **LGSIL** (Low-grade squamous intraepithelial lesions), which include:
  - HPV infections
  - CIN

  (only women with CIN I were registered in our study)

- **HGSIL** (High-grade squamous intraepithelial lesions), which include:
  - CIN II
  - CIN III

The Square Chi statistical test was also applied to these results, in order to assess the hypothesis that the kind of lesion and the presence of HPV were independent variables.

The data was transcribed to an Excel database and was processed with the EPI-INFO package using the programs called ANALISIS and STATCALC. The results were presented in the form of tables and graphics according to the type of variable.

**RESULTS ANALYSIS AND DISCUSSION**

Graphic 1 shows the prevalence of women with pre-cancerous or malignant lesions in the female population between 20 and 60 years of age in the Guanabo Polyclinic area in 2001. Around 36 out of 1000 women were found to be affected. The Statistics Department in our municipality and the National Statistics Registries do not keep record of this data (prevalence of pre-cancerous and malignant cervix lesions). They do keep important data of cervix-uterine cancer incidence rates as well the death rate due to these tumors (national rate of 6.7 in 2001 16). Therefore, the result of our research shows a high prevalence of women with cervix lesions, which were detected by the administration of periodical cervix-vaginal cytological tests. This shows the enormous importance and efficacy of these tests to improve women’s life quality in general.
Graphic 2 shows women with positive cytology in terms of the kind of lesion diagnosed. Most women had been diagnosed with CIN II (27 women). CIN I followed in order of frequency with 16 patients. Fifteen patients showed CIN III, 9 had CIS, while 3 women had MIC. It became manifest that for around every 5 women diagnosed with pre-malignant lesions (all the CIN) there was one with carcinoma in either of its stages (in situ or micro-invasive). This speaks very highly of the efficacy of the Cervix-Uterine Cancer Early Detection Program. It implies that lesion detection takes place at a stage previous to malignancy. It should be highlighted that there were no patients in advanced stages, which indicates good prognosis for the life of these women. Millions of women have gone through cervix-vaginal cytology studies through the years, and thousands of them have benefited from early diagnosis of this disease. 15

**Percentage of Women with Positive Cytology According to the Type of Lesion Diagnosed**

- CIN I: 49%
- CIS: 13%
- NIC I: 23%
- NIC II: 39%
- NIC III: 21%
Age was significantly associated ($p << 0.05$) with the development of a pre-malignant or malignant lesion of the cervix (Table 1). In comparison with the control group, the cases showed a higher percentage of women in the under-25 and the 25-29 age groups. A higher percentage, however, was found for the 40-years-and-older group among the controls. Therefore, we set up groups of “under 30” and “30 and older” to establish the influence of age on the appearance of cervical lesions. A positive cytology is three times more probable in the under-30 group. This influence can be up to 7 times higher (HL of the interval). The group of women under 25 years of age was particularly analyzed. Although 25 years is the lower age limit established by our National Program for the Early Detection and Diagnosis of Cervical-Uterine Cancer for cervix-vaginal exfoliative cytology, there were women between 20 and 24 years of age (8.6% of the total of cases) who were referred by doctors and tested positive for pre-cancerous lesions.

Table 1: Cases and Controls by Age

<table>
<thead>
<tr>
<th>Age in years</th>
<th>CASES</th>
<th>CONTROLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Under 25</td>
<td>6</td>
<td>8.6</td>
</tr>
<tr>
<td>25 – 29</td>
<td>20</td>
<td>28.6</td>
</tr>
<tr>
<td>30 – 39</td>
<td>25</td>
<td>35.7</td>
</tr>
<tr>
<td>40 and more</td>
<td>19</td>
<td>27.1</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

$X^2 = 10.3$
$gl = 3$
$p = 0.016$

<table>
<thead>
<tr>
<th>Categories compared</th>
<th>OR</th>
<th>LL</th>
<th>HL</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 30 years / ≥ 30 years</td>
<td>3.17</td>
<td>1.32</td>
<td>7.7</td>
</tr>
</tbody>
</table>

Such results matched those of a study conducted by Dr. María Beatriz Sosa in Buenos Aires. She states that “this pathology is mainly found in young women. It has been confirmed that the metaplasia epithelium in younger women is more susceptible to HPV infection.” Other authors also argue that the prevalence of intraepithelial lesions occurs in the age group between 20 and 40 years, with a peak of incidence at the age of 30. 6

A number of authors consider the evolution from pre-invasive lesions in the cervix to proper cancer could involve an estimated period of 25 years, 14 (a slow progression tumor taking between 15 to 20 years to appear 19), depending to a lesser or greater degree on some risk factors. It is then understood why cervix cancer lesions show up at late ages as a rule (about 60% of the new cases of cervical-uterine cancer every year appear in women between 40 and 60 years of age 3). Nowadays, however, with the application of the early detection and diagnosis programs for cervical-uterine cancer, a high percentage of women with squamous intraepithelial cervix lesions are diagnosed much earlier before the malignant transformation takes place. Present-day knowledge of the natural history of the disease presupposes a close link between it and such risk factors as sexual promiscuity and sexually transmitted diseases. It is then obvious that since these risk factors are also more frequent in early stages of life, a diagnosis of squamous intraepithelial cervix lesions is more likely in younger women.

Early sexual relations has been found to be an important co-factor in the pathogenesis of cervical cancer. Several authors argue that sexual activity seems to be positively related with this disease, and that sexual intercourse at an early age is an important risk factor. 20, 21, 15, 19, 22

The relation of age of first sexual intercourse however, was not found in our study to be a factor associated with the presence of pre-cancerous or cancerous lesions in the cervix ($p > 0.05$). It was noted that the proportions between cases and controls were very similar for each age group. (Table 2).

Table 2: Cases and Controls by Age of Their First Sexual Relations
In spite of the results reached, medical literature indicates that the start of sexual relations before 20 years of age is an important risk factor highlighted by a number of specialists. Therefore our National Program for Early Detection and Diagnosis of Cervical-Uterine Cancer considers that a high risk sub-group for the development of cervix lesions is those women who started to have sexual relations before they were 20, and more remarkably those who started before the age of 18.

It is difficult to establish the relationship between cervical lesions and the age of first sexual intercourse, since it is not easy to know the independent effect of this factor in relation to the number of sexual partners. Nevertheless, it could indicate a longer exposure time of the cervix to carcinogenic agents.

The number of births was significantly associated (p<0.05) with the appearance of a positive cytology (Table 3). Twenty percent of the women in the control group and only 7% of the cases had not had children. Fifty six percent of the cases and 41% of the controls, however, had two or more children. The number of women with one birth was very similar for both of the groups compared. Those women who had at least one child were three times more at risk of a positive cytology than those who had never had a child. This risk, however, can be up to 11 times higher.

Table 3: Cases and Controls by the Number of Births

<table>
<thead>
<tr>
<th>Births</th>
<th>CASES</th>
<th>%</th>
<th>CONTROLS</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>5</td>
<td>7.1</td>
<td>14</td>
<td>20.0</td>
</tr>
<tr>
<td>1</td>
<td>26</td>
<td>37.2</td>
<td>27</td>
<td>38.6</td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>41.4</td>
<td>18</td>
<td>25.7</td>
</tr>
<tr>
<td>3 and more</td>
<td>10</td>
<td>14.3</td>
<td>11</td>
<td>15.7</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

X² = 4.93
gl = 3
p = 0.0263

Some authors have considered multiparity as an additional (non-determining) factor which favors the development of pre-invasive cervical disease. It has more recently been treated as a possible risk factor,
not mainly due to the traumatic action caused by labor, as has been statistically stated, but due to the hormones that are produced during pregnancy and the frequent simultaneous HPV infection. 13

The number of abortions was not significantly related (p>0.05) with the presence of a positive cytology (Table 4). A proportional distribution is similarly shown in both groups for each abortion interval. It is, however, worth mentioning that 58% of the women in the study had at least one abortion (81 women). This figure is important if we consider the risk this contraceptive operation entails for the woman’s health and the immediate and mediate complications that may arise from such manipulation. The results obtained matched those of other studies nationally conducted. 21

Table 4 : Cases and Controls by the Number of Abortions

<table>
<thead>
<tr>
<th>Abortions</th>
<th>CASES</th>
<th></th>
<th>CONTROLS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>None</td>
<td>31</td>
<td>44.3</td>
<td>28</td>
<td>40.0</td>
</tr>
<tr>
<td>1</td>
<td>21</td>
<td>30.0</td>
<td>20</td>
<td>28.6</td>
</tr>
<tr>
<td>2</td>
<td>12</td>
<td>17.1</td>
<td>13</td>
<td>18.6</td>
</tr>
<tr>
<td>3 and more</td>
<td>6</td>
<td>8.6</td>
<td>9</td>
<td>12.8</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>

X ² = 0.82  
gl = 3  
p = 0.845

An important role in neoplastic cervix transformation seems to be played by sexually transmitted infections. The promiscuous individual is much more exposed to these infections. 6

Table 5 shows the relation between the risk of sexually transmitted infections and the appearance of a positive cytology. Thirty one percent of the cases and 11% of the controls were at risk. About 89% of the controls did not show any risk of sexually transmitted infection, as compared to 69% of the cases. Positive cytology was three times more frequent in women with a risk of sexually transmitted infections when they are compared with those without a risk, but the possibility of a pre-cancerous or malignant disease can be up to 11 times higher.

Table 5 : Cases - Controls and STI Risk

<table>
<thead>
<tr>
<th>Risk</th>
<th>CASES</th>
<th></th>
<th>CONTROLS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>22</td>
<td>31.4</td>
<td>8</td>
<td>11.4</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>68.6</td>
<td>62</td>
<td>88.6</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>70</td>
<td>100</td>
</tr>
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</table>

X ² = 8.32  
gl = 1  
p = 0.0039

<table>
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<th>Categories compared</th>
<th>OR</th>
<th>LL</th>
<th>HL</th>
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<tbody>
<tr>
<td>Yes / No</td>
<td>3.55</td>
<td>1.35</td>
<td>9.55</td>
</tr>
</tbody>
</table>

Other research projects reviewed measured this variable taking the number of sexual partners into consideration. Not very high percentages of sick women claimed to have more than 2 sexual partners. 20 In
addition to women's sexual plurality, men's promiscuity also increases the possibilities of developing cervical tumors. Infidelity is more cruel with women. Scientists have labeled sexual disloyalty as a double punishment for women. Promiscuous husbands multiply their wives' risk of suffering from cervical cancer. In this sense our study did not only consider the number of sexual partners of the affected woman, but also her spouse's possible promiscuous sexual behavior, both situations being considered as risks in contracting sexually transmitted infections.

Recent studies state that cervical cancer must be considered as a sexually transmitted infection. They state that the only way to prevent sexually transmitted diseases is to avoid promiscuous sexual relations. The risk is higher when a woman has had sexual relation with two or more men. The risk increases considerably when a woman has sexual relations with only one man, but this man has sex with several women. Chronic vaginal infections and infestations create a favorable environment for cervical cancer.

Table 6 deals with smoking in cases and controls. The cases included 43% of smoking women, while the controls indicated only 23%. The results were significant and the association evidence of both variables was positive. Positive cytology was 2 to 5 times more frequent in smoking women. These findings show certain correspondence with an epidemiological study conducted in our country that included cases and controls, and also rendered a percentage of smoking women in the group of cases that was similar to that in our research. Mutagenic substances like nicotine and cotinine are found in cigarette smoke. High concentrations of these substances have been found in a condensed state in the cervical mucus of smoking patients. Experts assert that women addicted to cigarette smoking are four times more likely to suffer from cervical cancer. A study conducted by British researchers at York University concludes that women who take oral contraceptives and also smoke are more likely to suffer DNA damage in the cervical cells.

Table 7 shows the prolonged use of oral contraceptives in the groups under comparison, indicating a statistical independence between both variables (p>0.05) as the percentages were very similar in both groups. Most women never used oral contraceptives in a prolonged way (63% of the total). There is no complete correspondence between these results and other epidemiological studies in which the use of oral contraceptives has been found to cause a higher risk.

### Table 6: Cases - Controls and Smoking

<table>
<thead>
<tr>
<th>Smoking</th>
<th>CASES</th>
<th></th>
<th>CONTROLS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>30</td>
<td>42.8</td>
<td>16</td>
<td>22.8</td>
</tr>
<tr>
<td>No</td>
<td>40</td>
<td>57.4</td>
<td>54</td>
<td>77.1</td>
</tr>
<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>70</td>
<td>100</td>
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</tbody>
</table>

X² = 6.35  
gl = 1  
p = 0.0117

<table>
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<th>Categories compared</th>
<th>OR</th>
<th>LL</th>
<th>HL</th>
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<tbody>
<tr>
<td>Yes / No</td>
<td>2.53</td>
<td>1.15</td>
<td>5.63</td>
</tr>
</tbody>
</table>

### Table 7: Cases - Controls and the Prolonged Use of Oral Contraceptives

<table>
<thead>
<tr>
<th>Use of Oral Contraceptives</th>
<th>CASES</th>
<th></th>
<th>CONTROLS</th>
<th></th>
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<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Yes</td>
<td>31</td>
<td>44.3</td>
<td>21</td>
<td>30.0</td>
</tr>
<tr>
<td>No</td>
<td>39</td>
<td>55.7</td>
<td>49</td>
<td>70.0</td>
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<tr>
<td>Total</td>
<td>70</td>
<td>100</td>
<td>70</td>
<td>100</td>
</tr>
</tbody>
</table>
We can suppose that the external hormone influx, associated with other determining risk conditions, may facilitate the transformation of the cervix-uterine epithelium, and thus its progression towards pre-malignant intra-epithelial lesions and/or cancer itself. Nevertheless, the results reached in our research indicate that a prolonged use of oral contraceptives does not by itself constitute a determining risk factor for the development of cervical lesions.

HPV related infections are known today as one of the most frequent sexually transmitted diseases. The relationship between the type of cervical lesion and the presence of HPV is presented in Tables 8 and 9. Table 8 shows that there are differences in percentage distributions, given by a higher percentage of no HPV infection in the diagnosis of CIN I (31.6% vs. 12.5%), while the opposite happens with CIS and MIC, for which there is a 25% of HPV infection in comparison with 10.5% of no infection. The Square Chi test shows that the results are significant (p=0.05), rejecting the independence hypothesis and claiming that there is an association between the type of cytological lesion and the presence of HPV.

Table 8: Women with Some Kind of Pre-Cancerous or Cancerous Cervical Lesion and the Presence of HPV.

<table>
<thead>
<tr>
<th>Type of Cervix-Uterine Lesion</th>
<th>HPV infection</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>CIN I</td>
<td>4</td>
<td>12.5</td>
<td>12</td>
</tr>
<tr>
<td>CIN II and CIN III</td>
<td>20</td>
<td>62.5</td>
<td>22</td>
</tr>
<tr>
<td>CIS</td>
<td>7</td>
<td>21.9</td>
<td>2</td>
</tr>
<tr>
<td>MIC</td>
<td>1</td>
<td>3.1</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>32</td>
<td>100</td>
<td>38</td>
</tr>
</tbody>
</table>

X² = 7.74  
gl = 3  
p = 0.0517

Table 9: Women According to the Kind of Squamous Intraepithelial Cervical Lesion and the Presence of HPV.

<table>
<thead>
<tr>
<th>Type of cervical intraepithelial lesion</th>
<th>HPV infection</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
<td>%</td>
<td>No</td>
</tr>
<tr>
<td>LGSIL</td>
<td>4</td>
<td>16.7</td>
<td>12</td>
</tr>
<tr>
<td>HGSIL</td>
<td>20</td>
<td>83.3</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
<td>100</td>
<td>34</td>
</tr>
</tbody>
</table>

X² = 2.44  
gl = 1  
p = 0.1179

The relationship between the type of squamous intraepithelial lesion, as in the classification made by the Bethesda system, and the presence of HPV is shown in Table 9. A higher percentage of no infection was observed in the patients with LGSIL, while the percentage of infections was higher in patients with a HGSIL diagnosis. If we calculate the HGSIL/LGSIL ratio we will notice that it is 5 for HPV infections, while does not even get to 2 for the absence of infection. This indicates a higher presence of HPV in HGSIL type lesions.
There is an evident correspondence between these results and those found in other international studies. Research carried out 25 years ago demonstrated that cervix tumors were much more frequent in prostitutes than in the rest of the population. A virus was then blamed for these findings, but it was not until very recently that its name has come to be known: the human papilloma virus (HPV). This virus is held responsible for 95% of cervical cancer, however, it is harmless to men. 19 Semen and the urethra are the reservoir for this virus, 27 which makes us suppose that condoms, which are essential in preventing the transmission of certain infectious diseases, can also be useful in fighting the transmission of HPV. However, this is not the case, because HPV in men is mostly found at the base of the penis, where there is no condom protection. Thus, even when used correctly and regularly, condoms may not be effective against HPV transmission. 11

The existence of negative HPV cancers has been formally questioned. Likewise, viral DNA is detected in most (70% to 90%) precursor lesions or high-grade intraepithelial lesions, and to a lesser proportion (20% to 50%) in those of a low grade. For the most part, the latter contain a low risk virus, which causes them rarely to progress. 28,29 A report published in the American Journal of Epidemiology indicates that the link between HPV and the risk of future cervical cancer is specially stronger in women infected with high risk virus subtypes. 30

The existence of an HPV infection does not mean that some day a tumor will be produced. Other factors appear to be necessary, but they are not well established yet. Scientific evidence, however, points to the virus as the initial necessary event. The virus manages to shatter the normal conduct of the infected cell, leading it through the path of tumorous transformation. This happens through the interaction of some of its proteins with those cell proteins which regulate its life cycle, including its death, thus inducing its immortality and uncontrolled proliferation, which are two key factors characterizing a tumorous cell. 31

Summing up, scientific and technological evolution in the detection of viral particles facilitated in very few years the statistic association between cervical cancer and the human papilloma virus (HPV). The next step immediately followed: determining the risk of viral subtypes and demonstrating that HPV was a determining etiopathogenic factor, with attributable fractions higher than 95%. A properly infectious etiology was thus established for an oncologic process. 32

CONCLUSIONS

1. Prevalence of premalignant and malignant lesions in the cervix was high, with remarkable predominance of precancerous lesions in relation to cervix-uterine cancer.

2. Cervical cytology lesions were predominant in women between 20 and 30 years of age.

3. Ages under 30, the number of births, risk of STI, and smoking, were, in our environment, risk factors for the appearance of premalignant and malignant lesions of the cervix.

4. The type of cervix-uterine lesion was associated with the presence of an HPV infection. In the case of precancerous lesions, a wide predominance of HPV infection was demonstrated in women with a diagnosis of high grade squamous intraepithelial lesions (HGSIL).

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