Diagnostic Efficacy of Cervical Lesions by Cytology and Colposcopy

**I. Hernández Pacheco [a#], J. C. Ruvalcaba Ledezma [b*], M. Rivera Gómez [b],
J. Reynoso Vázquez [c], L. López Pontigo [d], L. O. Aguirre Rembao [b],
Sánchez Martínez Diana Verónica [e] and A. Moya Escalera [f†]**

[a] *Departamento de Medicina, Maestría en Salud Pública [ICSa-UAEH], Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo, Pachuca Hidalgo, México.*
[b] *Departamento de Medicina, Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo [UAEH], Pachuca Hidalgo, México.*
[c] *Departamento de Farmacia, Maestría en Salud Pública, Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo [ICSa-UAEH], Pachuca Hidalgo, México.*
[d] *Departamento de Posgrado, Gerontología de la UAEH, México.*
[e] *Departamento de Medicina, Campus Tepeji Universidad Autónoma del Estado de Hidalgo [UAEH], Pachuca Hidalgo, México.*
[f] *Instituto de Ciencias de la Salud, Universidad Autónoma del Estado de Hidalgo, Hidalgo, México.*

Authors' contributions

This work was carried out in collaboration among all authors. All authors listed have made a substantial, direct and intellectual contribution to the work, and approved it for publication. All authors read and approved the final manuscript.

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ABSTRACT

Cervical cancer is the third most commonly diagnosed cancer and the fourth leading cause of death in women worldwide. The highest incidence rates are found in developing countries; in Mexico, it represents one of the main causes of death in women, which is why it is a real public health problem.

Objective: To compare the diagnostic efficacy of low and high grade lesions in the cervix using colposcopy and cytology in women attending the medical services unit the of the State of Hidalgo.

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[#] *Autor Principal, Servicios Médicos Universitarios,*
[†] *Director*
Corresponding author: E-mail: dcspjcarlos @gmail.com;

Material and Methods: A retrospective, descriptive, observational epidemiological study was carried out in 243 women with complete information in the database who attended the cervical-uterine and qualitative cancer screening test from the ethnomethodology focused on the key informants' discourse.

Results: Out of 278, 243 subjects were selected for the analysis, of which 115 (47%) attended during 2012, 111 (46%) during 2013 and 17 (7%) during the months of January to May of the year 2014, with a minimum age of 19 years, a maximum age of 63, a mean of 41 and a standard deviation of 9.92 years, and in none of the cases differences were detected in general for the diagnosis of low- and high-grade injury. Currently the problem of non-unified codes for capturing information continues.

Conclusions: It is necessary to unify the information capture codes, since diversity was found in the codes used that denote information on each captured case. Currently, this problem continues regarding the information capture codes, which denotes difficulty and negative results operationally.

1. INTRODUCTION

Cervical-uterine cancer (CaCu) is the fourth most common cancer in women and the eighth most common cancer overall, with an estimated 570,000 new cases in 2018, representing 6.6% of all female cancers [1, 2]. Among the Americas, the highest incidences are observed in Bolivia, Chile and Mexico. Peru, Brazil, Paraguay, Colombia and Costa Rica report the lower rates [3]. In Mexico, medical care is provided to approximately 9,000 women with invasive CaCu and 4,000 deaths are recorded annually. In 2008, an incidence rate of 19.2 and a mortality rate of 9.7 / [4] were reported.

Cervical-uterine cancer is mostly caused by an infection whit the human papillomavirus (HPV) that infects the mucosal site of the female anogenital tract, which are divided into high and low risk categories according to their oncogenic potential. Types 16 and 18 are responsible for approximately 70% of all cases [5,6,7].

This type of genital cancer, unlike other neoplasms, can be diagnosed and treated at an early stage. The diagnostic methods for cervical cancer are cytology tests, hybrid capture and CPR, colposcopy and biopsy [8, 9].

Exfoliative cytology with Papanicolaou stain, also known as PAP, is the most widely used test for the timely detection of CaCu. The interpretation of results is based on the Bethesda System, which classifies squamous intraepithelial lesions, subdivided into squamous intraepithelial lesions of low grade (LEIBG) and high-grade squamous intraepithelial lesions (LIEGA). The sensitivity, specificity, positive predictive value (PPV) and negative (NPV) are determined, obtaining a sensitivity of 85%, specificity of 90%, a PPV 83.3% and a NPV of 98%. [10, 11].

Colposcopy uses a type of low-power microscope; to examine the cervix, acetic acid or lugol's solution is applied to the birth canal or cervix with a swab to aid visualization. The results according to the colposcopic examination will describe the lesions, and the diagnosis will be reported as follows without alterations, nonspecific inflammatory alterations, low-grade intraepithelial lesion, high-grade intraepithelial lesion, lesions suggestive of invasion, invasive cancer according to the Official Mexican Standard NOM-014-SSA2-1994. For the prevention, detection, diagnosis, treatment, control and epidemiological surveillance of cervical-uterine cancer, this study reports a sensitivity for premalignant lesions between 80 and 90% and a specificity of 50%; however, these values are considerably increased (above 90%) in invasive cancer [12, 13].

Hybrid Capture and RPC detects the presence of cancer HPV types 16 and 18 DNA or RNA in cells of the cervix. There are two main approaches: the polymerase chain reaction (PCR) method and the hybrid capture method [12].

The comparison between screening tests is based on sensitivity, specificity, and cost of the test. For example, colposcopy is considered a more sensitive, less specific and more expensive technique than cytology for the detection of pre-invasive and invasive cervical disease [14, 15].

1.1 Objective

To compare the diagnostic efficacy of low and high grade lesions in the cervix using colposcopy and cytology in women attending the medical services unit the of the State of Hidalgo.

2. MATERIALS AND METHODS

A descriptive, retrospective and qualitative epidemiological observational study was carried out from the ethnomethodology, focused on the speech of key informants, with the general objective of comparing the diagnostic efficacy of low and high grade lesions in the cervix using colposcopy and cytology in women who attended the medical services unit the of the State of Hidalgo.

2.1 Spatial-temporal Location

The research was carried out at the facilities the University Medical Services Unit, by structuring a corresponding database from the year 2012 to May 2014 in clinical records of the study population: 'women who had HPV detection and whose reports were recorded in the database during the year 2012 to 2014' Inclusion criteria was defined as all women who attended the HPV detection study and that were found in the database from the days of detection. Exclusion criteria was defined as women who in their registry did not have specific data regarding the transcendent information for the construction of the database. The non-probabilistic sample design was used, by continuous inclusion of consecutive cases, for obtaining information. Through bibliography, the variables considered at risk were identified and, subsequently, extracted from the clinical record. An Excel database was structured and the statistical analysis was performed in SPSS-17 (qualitative analysis) through in-depth interviews, to determine whether or not there was any impediment (from the perspective of the women who agreed to be interviewed under the required confidentiality) to undergo the HPV detection tests. At the beginning of the covid-19 pandemic, a review of the database was carried out and it was detected that the problem of non-unified codes for capturing information continues, which makes it necessary to carry out the proposal to unify codes.

Ethical criteria of research in accordance with article 17 of the regulations of the General Health Law on Research for Health, is classified as Research with minimal risk, therefore it is carried out under informed consent.

3. RESULTS

This research refers to the analysis carried out on 243 of 278 adult women who attended the University Medical Services of the Autonomous University of the State of Hidalgo to carry out the Papanicolaou study with a total deficit of error in various aspects of 35 women who did not present all variables, and for which 243 were selected for the analysis. 115 (47%) attended during 2012, 111 (46%) during 2013 and 17 (7%) during the months of January to May 2014 (Table 1).

The diagnosis by means of colposcopy, 81% denote being a healthy woman, 5.3% with LEIBG, and 4.9% present atrophy. It also stands out that on one occasion it was registered that the colposcope did not work; it is unknown on what date this occurred. Also, this event hindered the completion of the test (Table 2).

Table 1. Analysis of frequency and percentage of women who attended the cervical cytology examination

Year of attendance to DSMU-UAEH	Frequency	Percentage
2012	115	47%
2013	111	46%
2014	17	7%
Total	243	100%

Source: Direct. Retrospective analysis of SMU-UAEH files

The cytological examination denotes that there is independent negativity in each of the levels: 29% at level 1, 45.6% at level II, and 24.6% at level III. Although two cases of women who indicated that they had submitted the examination in the IMSS are unknown. Broadly, women are healthy from this cytological technique (Table 3), and in general there is no significant difference between performing colposcopy or cytology, although the former detected 0.4 with respect to LEIBAG corresponding to a case. In none of the cases were significant differences detected for the diagnosis of HPV and cervical-uterine cancer.

Table 2. Diagnosis of colposcopy, frequency and percentage

Diagnosis of colposcopy	Frequency	Percentage
Atrophy	12	4.9%
Cervicitis	1	0.4%
Inflammation	5	2.0%
Colpitis	1	0.4%
Ectropion	1	0.4%
Healthy	196	81%
Healthy / polyp	1	0.4%
Healthy atrophy	1	0.4%
Hypoestrogenism	1	0.4%
SC	1	0.4%
Focal HPV	2	0.8%
Niva	2	0.8%
NIC I	1	0.4%
NIC I IVPH	3	1.2%
LEIBG	13	5.3%
LIEAG	1	0.4%
The colposcope did not work	1	0.4%
Total	243	100%

Source: Direct. Retrospective analysis of SMU-UAEH files

Table 3. Cytology diagnosis, frequency and percentage

Diagnosis	Frequency	Percentage
Negative with inflammatory process +	70	29
Negative with inflammatory process ++	111	45.6
Negative with inflammatory process +++	60	24.6
Delivered to IMSS	2	0.8
Total	243	100

Source: Direct. Retrospective analysis of SMU-UAEH files.

3.1 The Analysis of the Discourse of the Women Who Agreed to be Interviewed in Depth Indicates Several Aspects to be Considered from the Categories of Interest

3.1.1 Regarding the category of qualitative analysis

− Knowledge of the woman about the importance of having the Pap smear.

Regarding this category, it emphasizes the importance of going for said test, ruling out any disease, that is, being sure that you have not acquired any venereal disease and ruling out the presence of CaCu.

− Causes for which they do not attend the Pap test in a timely manner.

The speech denotes personal aspects such as grief, lack of financial resources, lack of information (from the health authorities), and regularly emphasizes that their husbands do not give them permission.

− The perception of risk for cervical-uterine HPV-Ca.

It is this category of, It refers to the doubts regarding risks for HPV such as CaCu. Also, to the regular association with death from not attending the exam, although ignoring the real risks and the importance of attending and being in constant monitoring and surveillance.

− Accessibility of health services.

This category, the respondents refer, has defined health services for their care, highlighting that the services must be certified or trusted, preferably performed in the private sector. This could be associated with the quality of institutional services.

4. DISCUSSION

We can confirm that there are conclusive details, since only 243 (from a total of278) were detected, that they had complete information regarding their diagnosis and general data present or absent in the database. This means that 35 people who came to their services for HPV detection by cytology - pap smear – did not have complete information. This suggests that the reliability or even the totality of the results allows to establish the need for a training course to fill out the form of the database, the unification of the codes for their capture and the importance of the standardization of added the said information.

These results also allow us to realize that it is necessary to strengthen the responsibility, which is required to have before performing an analysis, which allows a better detection to anticipate health problems such as cervical-uterine cancer. In addition, it is forceful to offer courses of training regarding the importance of assisting in the detection of HPV in a timely manner, so it will be necessary to design health education strategies and implement these in courses with those people who come to undergo the said examinations [16].

Finally, the results obtained allowed us to establish intervention measures from health education and, therefore, it is necessary and forceful to train staff in a comprehensive manner; that is, to the entire health team of the institution, from the standardization of codes to capture information and health education strategies to the treatment of others. In the strict sense that it is necessary to improve the treatment or relationship of staff with their users, although this aspect has not been visible in this research, but it is inevitable to increase the reliability of the information detected for subsequent evaluations in this regard [17].

It is important to point out that the quality of health services is one of the aspects to be improved and it is here and that the health professional and the social sciences and institutional administrative staff have to have a standard to carry out the capture and analysis of the information. This will increase the efficiency and quality of the health services provided; that is to say, that finally the results obtained will allow establishing a good health status of its users and added allow proposing the standardization of the training of information in databases to avoid under-registration and blunt diagnoses; aid its intrinsic validity to increase the validity and reliability of the results [18, 19]. These were carried out carried out and it was detected that the problem of non-unified codes for capturing information continues, which makes it necessary to carry out the proposal to unify codes. In addition, it is necessary to perform an analysis of the databases to detect whether or not there is confusion in the results, including current data, and to compare them to see if there are important differences.

5. CONCLUSIONS

The evaluation of the quality of services in University Medical Services allows concluding that it is necessary to standardize the data capture of each of the users, starting from training, where the unification of the criteria for the captured information is sought. Since it detected a diversity in the codes and lack of information even in the diagnosis of some of the patients. In general there were 35 people who had poorly captured or incomplete information. Currently, this problem continues regarding the information capture codes, which denotes difficulty and negative results operationally.

They emphasized on the importance of going for a Pap smear test, and, even though they have access to institutional health services, they seek care in the private sector. This could be derived from having resources to go to the private sector or by questioning the quality of the attention around the intervention. It should be noted that the European Union, according to the reviews made, determined that the gold standard is colposcopy; However, it is less sensitive and specific with 83 and 84% compared to conventional or liquid cytology [20], although in our country it is a test that is performed during the study protocol to confirm or rule out cervical cancer.

In general, they pointed out that some of the deterrences of going for a Pap smear are embarrassment, lack of resources, their husband (who does not allow her to attend these types of services), attempts against physical integrity, fear and lack of confidence in the personnel who carry out the intervention. Otherwise, the results in the operational part will continue to be negative.

CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

ETHICAL APPROVAL

It is not applicable.

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COMPETING INTERESTS

The authors declare that there is no conflict of interest for the publication of this article.

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