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Research Paper

Prevalence of precancerous lesions of the uterine cervix according to VIA, VILI and cytological aspect: analysis of usefulness of combination

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Abstract

Precancerous lesions mostly evolve into cancer of the cervix, which is a major health problem worldwide and particularly in developing countries as Cameroon. The study was initiated to determine the prevalence of cervical uterine lesions using visual inspection with acetic acid (VIA) and visual inspection with Lugol's iodine (VILI) and cytology techniques. During this descriptive study, 800 women were enrolled, their mean age was 45±6.3 years old, VIA, VILI and cytology allowed us to determine the prevalence of precancerous lesions which presented a rate of 20.52%. These three techniques helped us also to identify the usefulness to combined many methods one time for diagnose. The age was swinging between 20 to 30 years age, this suggest many women in Cameroon are in risk to develop cervical cancer. An observation of the marital status showed that: 44% of the women were single, 33% were married, and 11% were widowed whereas the status of 12% of the women was unknown. Among pathologies identified by cytology, dysplasia occupied 39.02% while condylomas represented 11%. The performance of the test used respectively represented 56% and 65.8% of specificity for the VIA and VILI, the sensitivity was 76.3% for VIA and 72% for VILI. Around 20.52% of Cameroonian women have precancerous lesions probably induced by a bad management of their sexual live, and this at the early stages of their life extended from 20 to 30 years old. The combination of the three techniques increased the accuracy of test. These results showed the usefulness to frequently take part to screening of precancerous lesions this can help to early detect lesions and reduce their prevalence.

Keywords: VIA, VILI, Pap test, Precancerous lesions, Cervical cancer, Cameroon.

Introduction

The cervical cancer still remains the second most common cancer of women in developing countries [1]. It is estimated to 530,000 cases and 275,000 deaths per annum worldwide [2]. The cancer of the cervix is always appreciated as a public health problem due to the frequent increasing of morbidity and mortality [3]. The special characteristic of developing countries remains at the level of absence of human resources and materials platform. The efficiency of screening is scarce and information system at the level of national health system is basic concerning precancerous lesions screening [4]. In country where precancerous lesions screening are achieved frequently, morbidity decreased [5]. The main technique is the Papanicolau test, which can prevents cancer by detecting precancerous lesions, and early treatment of precancerous lesions can prevent progression into cancer [6]. Precancerous lesions, after their detection are presented as atypical squamous cells with undetermined significance (ASCUS) or low-grade squamous intraepithelial lesion (LSIL) or high-grade

squamous intraepithelial lesion (HSIL). Some HPV types are commonly responsible of skin lesions such as benign skin warts [7], generally, ASCUS corresponds to ill-defined abnormalities of superficial cells and represents 2% to 3% of all cervical smears. LSIL can be the mildly abnormal squamous cells all cervical smear. All these lesions can regresses spontaneously, especially in young patients. HSIL showed abnormal squamous cells and represented a few part of all cervical smears.

Materials and Methods

This descriptive study was carried out in Yaounde Cameroun, Sexually active women were those screened. The study protocol was approved by the Institute Ethics Committee and each woman signed consent form to attend of the study. The Visual inspection with acetic acid was performed according the atlas of cytoloy. For the visual inspection with Lugol's iodine was perform following recommendations. The visual results were classified into three categories: normal cervix, abnormal cervix, and cervix with suspected cancer. The cytological analysis has been performed using the papanicolau test, and the Bethesda classification has been used. Statistical Analysis was performed using two programs: Excel program helped in managing tables and graph pad 5 software helped to compute statistical analyses.

Results

A total of 800 women were screened. The mean age was 45 ± 6.3 years (range 20-75 years). The difference of distribution among women with and without dysplasia was significant (P<0.0001) but the difference between women with condyloma and dysplasia was not significant (P<0.05). Among the 800 women enrolled in this study, 165 (20.62%) of them presented precancerous lesion according to VIA, VILI and cytology tests. Meanwhile 635 (79.37%) did not present any lesions (Figure 1).

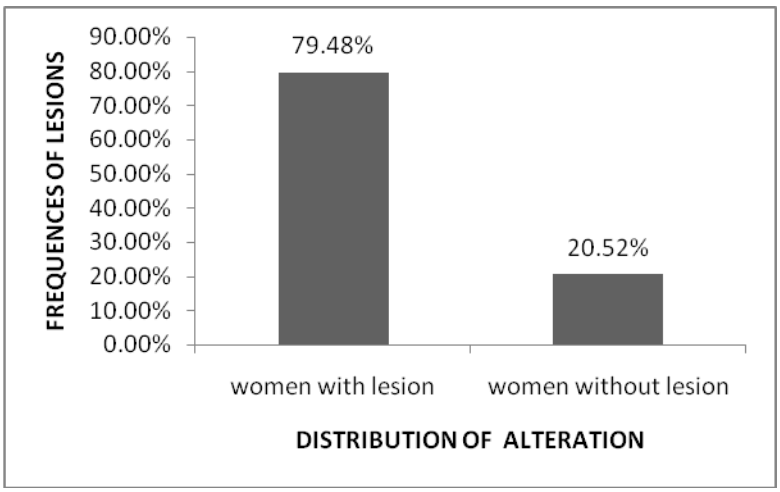

Figure 1: Distribution of precancerous lesions among women

Marital status and social occupation

The marital status of infected women of the study has been distributed into 4 groups. The group of single women has presented an incidence of 44%, the higher among infected women. The married women have presented 33% of all the persons of the study, the widowed and divorced women have presented around 11% among enrolled women. The last group which presents 12% was concerning women who were living with boy friend (Figure 2).

Figure 2 present the marital status of patients. The most prevalence is observed to single women properly associated to their sexual behavior. The married women took the second place of prevalence with 33% and the widowed-divorced-other come with 23%. Five main social activities were listed, 35% of women presenting uterine alterations were commercial while 22% were unknown.

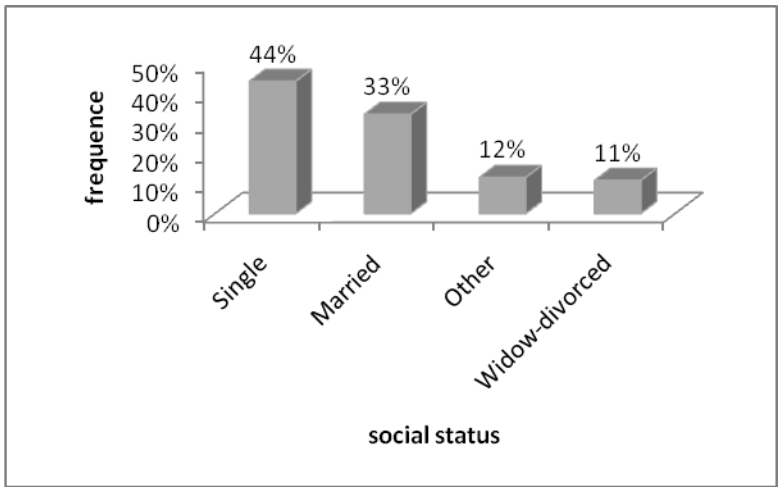

Figure 2: Marital status and presence of lesions

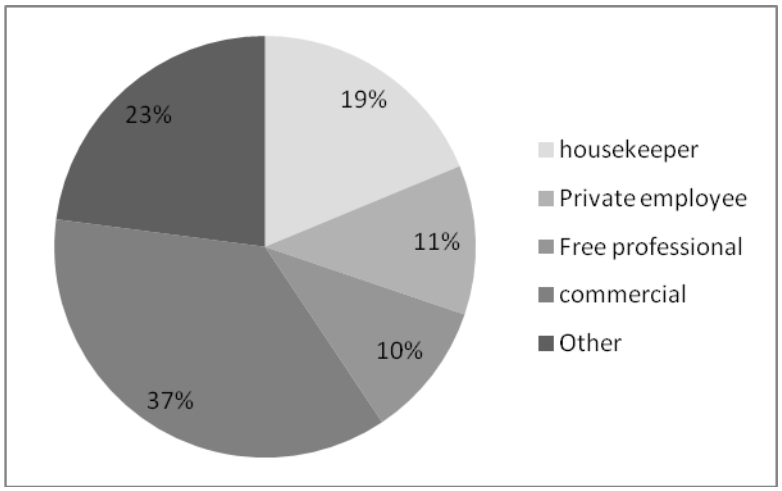

Figure 3: Distribution of social occupation

Prevalence of cervical alteration according to ages

Many pathologies were identified, the commonest type of cervical alteration was cervicitis (33.53%). The various grade of dysplasia (mild, moderate and severe) occurred to 39.02% of the cases. Carcinoma was also represented to the oldest women (more than 50 years) with 9.75% of infected women only one woman has presented the carcinoma with less than 30 years old. The flat Condyloma ($P<0.0001$) and the mild dysplasia ($P<0.0001$) distribution have been significantly through ages.

Accuracy of techniques

Although the cervix was normal, pathologies were identifying. The VIA observation was not efficient as VILI. We have cases where false negative were identified by VIA and other cases where it was the VILI which provided false positive. All this was corrected with cytology data.

Performance of techniques

The usefulness of diagnostic tests is the capacity to detect a sample positive or negative. It is described by sensitivity, specificity and presented in table 3. Performance of Visual inspection with acetic acid (VIA), is presented in table 3, we observe specificity and sensitivity up to 56% and 66.3%. Meanwhile the Visual inspection with Lugol's iodine (VILI) has the same observation concerning sensitivity and specificity (respectively 65.8% and 72%). The combination of cytology increased these observations up to 98% and 97.7%. Therefore it is important to suggest the high accuracy rate of combination technique for better screening. The sensitivity and the specificity increase with association of VIA/VILI and Cytology.

Table 1: alterations observed by biopsy according to ages

	Pathologies observed after Biopsy (smears)						
Ages	Flat** Condyloma	Mild** Dysplasia	Moderate** Dysplasia	Severe** Dysplasia	Carcinoma** In situ	Polype**	Cervicitis**
] 20-25]*	2	2	1	0	0	1	2
] 25-30] *	4	9	2	0	0	1	9
] 30-35] *	2	4	3	1	1	3	10
] 35-40] *	5	8	4	1	0	1	11
] 40-45] *	3	9	5	0	1	1	5
] 45-50] *	0	1	1	1	4	1	6
] 50-55] *	1	2	2	1	3	2	5
] 55-60] *	0	0	2	0	0	0	4
] 60-65] *	1	1	2	1	2	0	1
] 65-70] *	0	1	0	0	2	1	0
] 70-75] *	0	0	0	0	3	0	2
TOTAL	**18**	**37**	**22**	**6**	**16**	**11**	**55**
Anova test results	(P<0.0001)	(P<0.0001)	(P<0.05)	(P<0.05)	(P<0.05)	(P<0.05)	(P<0.05)

* Results are not significantly different (P<0.05)
** Results are significantly different together (P<0.0001)

Table 2: Accuracy of techniques according to uterine observation

Observation of the uterine cervix	**Normal**				**Inflammatory**			
situation	**Negative**		**Positive**		**Negative**		**Positive**	
Pathologies observed	**Cervicitis**	**Dysplasia**	**Cervicitis**	**Dysplasia**	**Cervicitis**	**Dysplasia**	**Cervicitis**	**Dysplasia**
VIA	4.2%	4.8%	22.5%	13.4%	2.4%	2.4%	30.4%	18.9%
VILI	3%	0	24.3%	16.4%	2.4%	2.4%	30.4%	20.7%

(VIA): Visual inspection with acetic acid
(VILI): Visual inspection with Lugol's iodine

Table 3: Performance of techniques

PERFORMANCE	SPECIFICITY (95% CI)	SENSITIVITY (95% CI)
VIA	56%	66.3%
VILI	65.8%	72%
CYTOLOGY	91%	93%
VIA/CYTOLOGY	96.5%	97%
VILI/ CYTOLOGY	98%	97.7%

(VIA): Visual inspection with acetic acid
(VILI): Visual inspection with Lugol's iodine

Discussion

Although cytological screening is being carried out in some developing countries/regions [8], there are no organized schedules and the testing is often of poor quality, performed inadequately and inefficiently among the population [9]. The aim of this study was to assess the prevalence of precancerous lesions and the performance of VIA, VILI in Cameroon. As showed, prevalence is very high, situation presented by Da Ros and Schmitt, in 2008 concerning developing countries. High levels of sexual activity expose the youth to the risk of HPV, and cervical cancer development. Although these observations are characterized with a high prevalence of precancerous lesions (20.52%). These results correlate with the Danish study in which prevalence of precancerous lesions among women was 22.9% [10]. In Cameroon screening of precancerous lesions tooks 39.02% among the cervical alterations as is highlighted on figure 1.

Figure 2 which present the observation of the marital status of infected women has suggested that, high risk of exposure to precancerous lesions incurred for the single women. Their sexual behavior might be the problem with a lot of partner. in 2009, Mogtomo and colleagues, showed that sex related risk attitudes were significantly associated with the use of condoms and a low level of HPV related knowledge [11].

The higher rate of uterine alteration was observed among commercial women (35%). This might come from their acknowledge of prophylaxy mechanisms to avoid precancerous lesions as presented by Mogtomo and colleagues in 2009. The sexual behavior of men and women is a determining factor in the appearance of precancerous lesions and the risk to develop cervical cancer. Education remain very important to enhance good sexual behavior for young Cameroonian people [11].

The prevalence observed in Table 1 presents the rate of dysplasia prevalence at 39.02%. This rate is not different with data obtain from Davit and colleague study 39% in CIN [12]. Detailed investigations present exposure to cutaneous HPV types among patients with skin cancers or precursor lesions as the main cause [13].

The largest number of cervical alteration was observed (table 1) between the slice of age from 25 up to 35 years old. The overall prevalence of any type of HPV peaked in women aged 20–34 years and then decreased rapidly until about 40 years old. After this the prevalence did not change significantly with increasing age as observed by Susanne and colleagues [14].

Young women from 25 to 35 years old were those who was most infected with a rate of 53%, these data has presented the most dangerous period in which the leading cause of uterine alteration could take place. The accuracy of techniques has presented the VILI as better technique than VIA in this study. Specifity and sensitivity was emphasized with the combination of both and cytology. This suggestion at the end is that, the better way to obtain reliable results is to combine more methods.

Conclusion

This study has confirmed the high rate of prevalence of precancerous lesion and the usefulness of combining methods in order to increase the accuracy. Evaluation of the prevalence of precancerous lesions must become priority for authorities. The rate of women presenting precancerous lesions is very high, therefore it is very important to identify the true etiological agent of these lesions by performing molecular analysis to sample.

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