Scholars Journal of Applied Medical Sciences
Abbreviated Key Title: Sch J App Med Sci
ISSN 2347-954X (Print) | ISSN 2320-6691 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Gynecology & Obstetrics

Multicenter Cervical Cancer Screening, using Kayes (Mali) Visual Inspection Methods

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DOI: 10.36347/sjams.2023.v11i07.015 | **Received:** 03.06.2023 | **Accepted:** 08.07.2023 | **Published:** 15.07.2023

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Abstract **Original Research Article**

***Introduction*:** Cervical cancer is a tissue neoformation due to excessive, abnormal, uncontrolled and autonomic cell proliferation that develops at the expense of the cervix [1]. The aim of this study was to take stock of the multicenter cervical cancer screening campaigns carried out in the Kayes region using IVA visual methods; IVL. ***Materials and Methods*:** this was a multicentre descriptive and analytical cross-sectional study. Extending over a period of 12 months from 1 January 2017 to December 2018; on women of childbearing potential who have had sex and agree to participate in screening. Data entry was done on Microsoft Word 10 and analyzed on Microsoft Excel 10, IBM SPSS 20.0 software. The statistical test used was the khi2 test to compare our results which were significant for a probability $p< 0.05$. ***Results*:** our study took place in 4 screening campaigns and involved 1000 women who agreed to undergo cervical cancer screening. The average age was 31.16 years with extremes ranging from 14 to 70 years. Married women accounted for 87.5% compared to 7.1% of single women. Among the women screened married, 409 had a polygamous partner or 46.74%. Among the women screened the multiparous were the most numerous 299/1000 or 29.9% followed by the pauciparous 26.5%. The JPC (squamocolumnar junction) was visible in 986/1000 or 98.6%. The positivity of IVA and IVL was equal to 49/1000 or 4.9%; with suspicion of cancer at 2/1000 or 0.2% each. The biopsy was performed in 5.1% (51/1000) of the women screened. The frequency of precancerous and cancerous lesions of the cervix was 1.9% and 0.5%, respectively. The most common histological type was CIN1 found on 27.45% of biopsy pieces. Twenty-five women received anti-infective treatment (cervicitis); 6 women received a total hysterectomy; 2 cases of conization for CIN1 and 16 women referred to the CHU-GT (Centre Hospitalo-Universitaire GABRIEL TOURE) in Bamako (MALI) for treatment. ***Conclusion*:** cervical cancer is a public health problem. The high frequency of this cancer is due to a lack of diagnosis of precancerous lesions of the cervix. In the hope of reducing this frequency, special emphasis must be placed on screening for precancerous lesions of the cervix by visual methods in our country. This screening must be extended to the whole country.

Keywords: Cervical cancers, precancerous and cancerous lesions, IVA, IVL.

INTRODUCTION

Cervical cancer is a tissue neoformation due to excessive, abnormal, uncontrolled and autonomous cell proliferation that develops at the expense of the cervix [1]. This malignant tumor originates on the cervix and the two forms most often encountered are: squamous cell carcinoma the most common with 95%, and adenocarcinoma rarer [2]. A l´échelle mondiale, le cancer du col de l´utérus est, en terme de fréquence, le 2ème cancer touchant les femmes après le cancer du sein et, représente 15% des cancers de la femme [3, 4]. En France, il occupe le 7ème rang, avec 3500 nouveaux cas par an soit une incidence de 9,9 /100000 femmes [5]. Aux Etat –Unis, le cancer invasif du col de l'utérus est 3 fois moins fréquent que le cancer in situ (CIS); avec une fréquence de 5% des cancers chez la femme [5]. En Afrique et dans les caraïbes, le cancer du col de l'utérus reste la 2ème cause de décès après la mortalité maternelle. It affects more and more young women, the average age being between 40 and 45 years and also

among older multiparous [5]. The frequency in Congo Brazzaville, Senegal and Côte d'Ivoire is respectively 60%, 19% and 11% [5]. In Mali, screening by the visual method began in 2001 and provided a statistically representative sample of the population studied [6]. According to recent data from the Mali Cancer Registry, cervical cancer is the first female cancer, with a frequency of 26.6% and an incidence of 35.1 per hundred thousand inhabitants [7]. Indeed, from the early 80s, studies reported that the simple observation of the cervix with the speculum and especially after the application of acetic acid and lugol, made it possible to detect operable precancerous and cancerous lesions of the cervix, with a sensitivity comparable, if not better than, that of the smear [8]. It should be noted that no such study has been conducted specifically in the Kayes region. Yet national and international organizations and foundations are involved in the field. This study will provide up-to-date data on cervical cancer screening in the region. In addition, it will contribute to the orientation of the actors who regularly intervene in the field. It is in this context that we undertook this work, in order to evaluate the interest of the IVA and IVL methods in the screening of precancerous and cancerous lesions of the cervix in the Kayes region.

MATERIALS AND METHODS

This was a multicentre descriptive and analytical cross-sectional study. Extending over a period of 12 months from 1 January 2017 to December 2018; on women of childbearing age. The Kayes region is located in western Mali. It covers an area of 120,760 km2 and has 2338999 inhabitants. The screening activities took place in: the gynaecology- obstetrics department of the Fousseyni DAOU hospital in Kayes (main site, which is a public hospital of 2nd reference with a capacity of 160 beds); the Csréf (reference health centre) of Kayes; three CSCOMs (community health centres): Lafiabougou, Diboli, Kayes n'di; one (1) Private clinic "Fraternité de Kayes n'di"; the Department of Anatomy Pathology of the CHU du PG: where biopsies and operating rooms were systematically sent after formalin fixation for the histopathological study. Included in our study were women of childbearing potential who had sex and agreed to participate in screening. Excluded from this work were: women who had not had sexual intercourse, women already followed for cervical cancer, pregnant women, women who had undergone a total hysterectomy, women in the immediate postpartum period.

The workflow of work:

An awareness-raising campaign for the women concerned was carried out during medical and gynaecological consultations on screening and its benefits and in some X-rays of the place inviting them to come and be screened. Screening was only done after the woman's informed consent had been obtained. When there was an abnormality in the VIA and IVL, a biopsy was performed based on the result of the colposcopic examination. The biopsied fragments were immediately fixed to 10% formalin and sent to the laboratory for histological confirmation. Based on the results of visual testing, colposcopy, histology and extent of the lesion, a treatment regimen and periodic follow-up were developed. Data collection was done by an individual survey sheet for each woman. Data entry was done on Microsoft Word 10 and analyzed on Microsoft Excel 10, IBM SPSS 20 software. The statistical test used was the khi2 test to compare our results which were significant for a $p<0.05$ probability. The anonymity and confidentiality of the participants in the study were respected.

RESULTS

During the 4 screening campaigns in our study, 1000 women agreed to undergo cervical cancer screening. The highest participation was observed during the 4th screening campaign with 57.8% (578) of women screened.

Table I: Distribution of women screened by age group

Age range	Effectif	%
14-23	255	25,5
24-33	386	36,6
34-43	222	22,2
44-53	95	9,5
54-63	40	4,0
64-70	2	0,2
Total	**1000**	**100,0**

The average age was 31.16 years with extremes ranging from 14 to 70 years. Married women accounted for 87.5% of women screened compared to 7.1% of single women of the women screened married, 409 had a polygamous partner or 46.74%. Among the women screened, multiparous women were the most numerous with 299/1000 or 29.9% followed by pauciparous women with 26.5%. The majority of our patients had a menstrual date of less than one month, or 81.7%. Women who used a contraceptive method accounted for 49.1% (491/1000). Thirteen/24 women with precancerous and cancerous lesions used contraception or 54.16%.

Table II: Distribution of women by IVA and IVL/Centre outcome

Centre /IVA and IVL	Negative	Positive	Suspected cancer	Total
FDK Hospital	329	21	1	351
Csref of kayes	80	4	1	85
Cscom of Lafiabougou	89	6	0	95
Cscom of Kayes n'di	114	8	0	122
Cscom of Diboli	133	2	0	135
Fraternity Clinic	204	8	0	212
Total	**949**	**49**	**2**	**1000**

Chi2 = 2868,714; p = 0,077

The IVA and IVL tests gave the same results without difference. The JPC (squamocolumnar junction) was visible in 986/1000 or 98.6%. The biopsy was performed in 5.1% (51/1000) of the women screened.

Table III: Distribution of women according to biopsy results

Lesions	Effectif	%
dysplasias	19	1,9
Cancers	5	0,5
Cervicitis +HPV	25+5=30	3,0
Leukoplakia	1	0,1
condyloma	13	1,3
Ectropion	8	0,8
Metaplasia	2	0,2
Total	**78**	**7,8**

NB: some biopsy pieces had double lesions

Table IV: Distribution of women according to precancerous and cancerous lesions found on biopsy pieces

Histology	Effectif	%
CIN 1	14	58,34
CIN 2	3	12,50
CIN 3	2	8,34
Squamous cell carcinoma	4	16,66
Adenocarcinoma	1	4,16
Total	**24**	**100**

Table V: Distribution of dysplasias and cancers by age group

Age range (years) Lesions	14-23	24-33	34-43	44-53	54-63	≥ 64
CIN I	2	2	6	2	2	-
CIN II	1	-	2	-	-	-
CIN III	-	2	-	-	-	-
Invasive cancers	-	-	-	3	1	1
Total	**3**	**4**	**8**	**5**	**3**	**1**

Chi2 =11,318; p = 0,006

Table VI: Distribution of precancerous and cancerous lesions according to parity.

Parity Lesions	Nulliparous	Primiparous	paucipare	Multiparous	Large multiparous
CIN 1	-	2	2	8	2
CIN 2	-	1	1	1	-
CIN 3	-	-	2	-	-
Invasive cancers	-	-	-	2	3
Total	**0**	**3**	**5**	**11**	**5**

Chi2 = 86.889; p = 0.018

Table VII: Distribution of women screened by therapeutic approach

Actions performed	Effectif	%
Reassured and advice of a new test 1 year later	927	92,7
Reassured and advice of a new test 6 months later	24	2,4
Anti-infective treatment	25	2,5
Continization	2	0,5
Total hysterectomy	6	0,6
Referred to the University Hospital in Bamako for treatment	16	1,6
Total	**1000**	**100**

DISCUSSION

The methodological approach: this study made it possible to detect precancerous and cancerous lesions of the cervix in Kayes. This work has provided useful information not only to improve the quality of our work but also to raise awareness among our patients and the local population. Our work was essentially based on simple visual tests that require little resources. These tests have their place in developing countries that lack the means to do cervical smears (CVFs).

During this work, the difficulties were the absence of a colposcope for guided biopsies, as well as the device for cryotherapy. This resulted in the majority of women with dysplastic lesions being referred to Bamako for treatment and post-therapeutic follow-up. The average age was 31.16 years with extremes ranging from 14 to 70 years. Our result differs from that of Megavand *et al.,* in South Africa which was 20 to 83 years [11]; also different from that of Diallo D in 2006 in Mali which was 25 to 49 years old [9], and that of Koné G which was 18 to 77 years old [12]. Many of our patients were out of school and were unaware of STI (sexually transmitted infections) prevention. The majority of our patients had a menstrual date of less than one month, or 81.7%. This is higher than that of Diallo D which found 71.8% [9], and Koné G which found 70% [12]. The concept of contraception was found in 49.1% of cases. Contraception is not directly involved in the genesis of cervical cancer. But it promotes frequent sexual intercourse, especially if they are not protected, they expose to micro-traumas, promoting the transmission of viruses (HPV16 and HPV18) [13]. Thirteen out of 24 women with precancerous and cancerous lesions used a method of contraception or 54.16%. Some studies have shown that IUD thread may induce mild dysplasia that may disappear after removal of the device, but may be used after treatment of dysplasia [10]. Multiparous were the most numerous with 299/1000 or 29.9% followed by pauciparous with 26.5%; Multiparity and early motherhood remain classic risk factors for cervical cancer [14]. Polygamous partner accounted for 47.74%. Polygamy is not directly involved as a risk factor for cervical cancer; but with unprotected sex, it increases the risk of STIs [15]. Tobacco being considered by some authors as a cofactor of cervical cancer is not taken into account in our study, because many women in our country do not actively use it. The IVA and IVL tests gave the same results 4.9% positivity with 0.2% suspicion of cancer. Our rate is much lower than that of Nene MB *et al.,* in India who find 57.3% positivity [16] for IVA and Sankaranarayanan who found a positivity of 17.8% [17] for IVL. The frequency of LIEBG (CIN1) ranges from 0.6% to 11.5% [16, 17]. In our study, the biopsy detected 1.9% CIN1 abnormality. The frequency of LIEHG (CIN2 and CIN3) ranges from 0.3% to 4.6% [16, 18]. In our study, we obtained 0.5% LIEHG or 0.3% for CIN2 and 0.2% for CIN3. We identified 0.5% of invasive cancer. Our rate is close to the rates of some authors who estimate invasive carcinoma between 0.2% [19, 17] and 2.5% [20]. In our study, 24 women had precancerous and cancerous lesions of the cervix out of the 51 biopsy fragments performed, including 19 cases of dysplasia and 5 cases of cancer. Of the 24 women, 8 women received treatment at FDK Hospital or 0.8%, among which 6 women benefited from a total hysterectomy or 0.6% (2 cases of CIN2, 2 cases of CIN3, 2 cases of stage IA cancer) and 2 women benefited from conization or 0.2% (2 cases of CIN1); 16 women referred to the CHU in Bamako for treatment, i.e. 1.6%. We did not perform cryotherapy due to the absence of the cryotherapy device. Our results do not agree with those of Basu *et al.,* who treated 58.2% (71/122) of patients with high-grade lesions with cryotherapy (48 cases), RAD "Resection at Anse Diathermic" (20 cases), conization (3 cases) [21]; 38.4% (129/336) of low-grade lesions were treated with cryotherapy (127 cases), RAD (2 cases). After treatment, patients are seen three months later, then at six months and then at one year. A new therapeutic approach is given according to the result of the follow-up.

CONCLUSION

Cervical cancer is a public health problem. The high frequency of this cancer is due to a lack of diagnosis of precancerous lesions of the cervix. In the hope of reducing this frequency, special emphasis must be placed on screening for precancerous lesions of the cervix by visual methods in our country. This screening must be extended to the whole country.

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