

Research Article

Assessment of Two Mass Screening Campaigns for Pre-Cancerous and Cancerous Lesions of the Uterine Cervix using Colposcopy

Niang MM, BA NM, Samb F and Cisse CT

Department of Gynaecology-Obstetrics, Institute of Social Hygiene Hospital of Dakar, Senegal

*Corresponding author: Niang MM

Associate Professor, Cheikh Anta Diop University of Dakar, Senegal

Received: January 18, 2023; Accepted: February 21, 2023; Published: February 28, 2023

Abstract

Objectives: Study the epidemiological profile of patients seen for colposcopy, specify the indications for colposcopy, describe the lesions encountered and their treatment and determine the factors associated with cervical lesions.

Material and methods: This was a cross-sectional study conducted during October 2021. It concerned 2 “fairground” campaigns for systematic mass screening of pre-cancerous and cancerous lesions of the cervix at the Institute of social Hygiene in Dakar and at the Inter-Army Medical Center in Thiès. The parameters studied were the epidemiological data, the results of the colposcopic examination and histology. Data analysis was performed with Excel 2010 and Epi info 7.2. softwares.

Results: During the two mass screening campaigns, we performed 50 colposcopic examinations. The epidemiological profile was a woman aged 45 on average, married (86%), multiparous (54%), in period of genital activity (54%) with a first sexual intercourse made on average at 22 years old.

All the patients had benefited from a visual inspection with acetic acid and lugol. Visual inspection with acetic acid and lugol showed 15 positive VIA (30%), 14 positive VIL (28%) and 21 cases of positive VIA and VIL (42%). Colposcopy was satisfactory in most patients (78%). It found 36% atypical grade 2 transformation, 10% atypical grade 1 transformation, 2% association of atypical grade 1 and 2 transformation and 10% viral colpitis. We also recorded 18% of normal colposcopy. In our series, the majority of patients in whom the VIA and VIL tests were positive presented at colposcopy either an atypical grade 2 transformation lesion (72.2%) or a ATG 1+2 lesion (5.5%). This rate was only 14.3% in those who only had the positive IVA test and 50% in the case of positive VIL. A biopsy under colposcopy was performed in 20 patients (40%). Of these, only 5 (25%) had brought back the results. It was a CIN 2 and 4 normal results. A multivariate analysis allowed us to find that TAG 2 lesions were more frequent in patients aged 45 and over (60%) ($p=0.46$), primiparous (100%) ($p=0.62$), those who had had first sexual intercourse before the age of 20 (69.2%) ($p=0.39$) and who had not used a contraceptive (88.9%) ($p=0.13$).

Conclusion: Mass screening campaigns constitute in our developing countries an opportunity to diagnose and treat pre-cancerous and cancerous lesions of the cervix. However, it will be necessary to sensitize the patients screened for a better adherence to the follow-up.

Keywords: Mass screening; Colposcopy; Visual inspection with acetic acid and lugol; Cervical dysplasia; Cervical cancer

Introduction

Cervical cancer is a major public health problem. It is the second most common cancer among women worldwide [1]. In 2018, the World Health Organization (WHO) estimated that there were approximately 569,000 new cases of cervical cancer worldwide, more than 80% of which occurred in developing countries. It is also estimated that 3.2 million women over the age of 15 are at risk [2] with 1,800 new cases per year including 795 deaths [3]. In Senegal, cervical cancer remains the number one cancer among women, although there is no population-wide screening policy organised by the health authorities. It is only a matter of individual screening of opportunity or carried out during informal consultations. In this study, we wanted to assess two mass screening campaigns for precancerous and cancerous lesions of the uterine cervix carried out in October 2021 in order to demonstrate the feasibility of this strategy. The specific objectives of this work were to study the epidemiological profile of the patients received for colposcopy, to analyse the indications for colposcopy, to describe the lesions encountered and their management and to specify the factors associated with cervical lesions.

Patients and methods

Type of study

This was a cross-sectional study. It concerned 2 "mobile" campaigns of systematic mass screening for pre-cancerous and cancerous lesions of the cervix.

Patient selection criteria

Screening was voluntary and women presented themselves for screening. All women were first screened visually after application of acetic acid and lugol to the cervix. We then conducted a comprehensive recruitment of all women who had a positive visual inspection and subsequently underwent colposcopy.

Data collection and analysis

Data were reported on a survey form. The following parameters were studied: patient characteristics, colposcopic findings and follow-up. The data were entered into Excel 2010. The analysis was performed with the following software: Excel 2010 and Epi info 7.2. For the description of colposcopic lesions, we used the classification of the French Society of Colposcopy and Cervico-Vaginal Pathology (SFCPCV).

Results

Descriptive results

Patient characteristics: The average age of the patients was 45 years, with extremes of 24 and 66 years. They were most often married (86%) and multiparous (54%). Most of them were of them were in a period of genital activity (54%). The age at first sexual intercourse ranged from 14 to 45 years with an average of 22 years. The contraceptive rate was 70% and the pill was the most commonly used contraceptive method (57.14%).

Results of visual inspection with acetic acid and lugol: VIA and VIL were positive in 30% and 28% of patients respectively. Forty-two percent (42%) of patients were positive for both tests (Table 1).

Table 1: Résultats de visual inspection with acetic acid and lugol (N=50).

| Résultats de VIA/VIL | N | Fréquence (%) |
|----------------------|-----------|---------------|
| IVA positive | 15 | 30 |
| IVL positive | 14 | 28 |
| IVA et IVL positive | 21 | 42 |
| Total | 50 | 100 |

VIA : Visual Inspection with acetic acid, VIL : Visual Inspection with lugol

Colposcopy findings

Colposcopy findings were dominated by ATG 2 lesions (36%), menopausal atrophy (18%) and ectropion (18%) (Table 2).

Table 2: Résultats de colposcopy (N=50).

| Résultats of colposcopy | N | Fréquence (%) |
|-------------------------|----|---------------|
| Normal | 9 | 18 |
| ATG 1 | 5 | 10 |
| ATG 2 | 18 | 36 |
| ATG 1 + 2 | 1 | 2 |
| Menopausal atrophy | 9 | 18 |
| Ectropion | 9 | 18 |
| Colpitis | 5 | 10 |
| Cervical polyp | 5 | 10 |

ATG 1 : Atypical Transformation Grade 1;

ATG 2 : Atypical Transformation Grade 2

Performance of visual inspection techniques

In our series, the majority of patients with positive VIA and VIL tests had either a ATG 2 lesion (72.2%) or a ATG 1+2 lesion (5.5%) on colposcopy. This rate was only 14.3% for those with only VIA positive and 50% for VIL positive (Table 3).

Table 3: Performance of visual inspection techniques.

| | VIA et VIL + | VIA + | VIL + |
|-------------------|--------------|-----------|----------|
| Normal colposcopy | 4 (22,2%) | 5 (71,4%) | - |
| ATG 1 | - | 1 (14,3%) | 4 (50%) |
| ATG 2 | 13 (72,2%) | 1 (14,3%) | 4 (50%) |
| ATG 1+2 | 1 (5,5%) | - | - |
| Total | 18 | 7 | 8 |

Analytical results

Age and colposcopy findings: In our series, ATG 2 lesions were more frequent in patients aged 45 years and over (60%) compared to those aged less than 45 years (55.5%) with no statistically significant relationship between age and colposcopy findings ($p=0.46$) (Table 4).

Table 4: Results of colposcopy according to patient age.

| Age | Results of colposcopy | | | p |
|----------|-----------------------|-----------|------------|------|
| | Normal | ATG 1 | ATG 2 | |
| < 45 ans | 6 (33,3 %) | 2 (11,2%) | 10 (55,5%) | 0,46 |
| ≥ 45 ans | 3 (20%) | 3 (20%) | 9 (60%) | |

Parity and colposcopy findings

In our series, ATG 2 lesions were more frequent in primiparous women (100%) compared to multiparous women (50%) and large multiparous women (70%) without a statistically significant relationship between parity and colposcopy findings ($p=0.62$) (Table 5).

Table 5: Results of colposcopy according to patient parity.

| Parity | Results of colposcopy | | | p |
|------------------|-----------------------|-----------|----------|------|
| | Normal | ATG 1 | ATG 2 | |
| Primiparous | - | - | 1 (100%) | 0,62 |
| Multiparous | 7 (31,8%) | 4 (18,2%) | 11 (50%) | |
| High multiparous | 2 (20%) | 1 (10%) | 7 (70%) | |

Age at first intercourse and colposcopy findings: ATG 2 lesions were more common in patients who had first intercourse before the age of 20 (69.2%) compared to those who had first intercourse after the age of 20 (50%). However, there was no statistically significant association between age at first intercourse and colposcopy findings ($p=0.39$) (Table 6).

Table 6: Results of colposcopy according to the patient age at the first sexual intercourse.

| Age at the first sexual intercourse | Résultats de colposcopie | | | p |
|-------------------------------------|--------------------------|-----------|-----------|------|
| | Normal | ATG 1 | ATG 2 | |
| < 20 ans | 2 (15,4%) | 2 (15,4%) | 9 (69,2%) | 0,39 |
| ≥ 20 ans | 7 (35%) | 3 (15%) | 10 (50%) | |

Discussion

During these two screening campaigns, we collected 50 colposcopies, 28 of which were performed at the Centre Médical Interarmées de Thiès and 22 at the Hôpital Institut d'Hygiène Sociale de Dakar. In our developing countries, where there is no policy of organised screening for cervical lesions, this strategy has several advantages but also some disadvantages. The strengths were as follows :

- the high attendance of these mass screening campaigns by women,
- easy performance of screening tests and the possibility of immediate colposcopy following a positive visual inspection
- accessibility of consultation sites,
- and the availability of medical consumables.

Areas for improvement were :

- follow-up of screened patients with colposcopic lesions who had undergone biopsy. Of the 20 patients who had received a biopsy, only 5 had returned the histology results; the other 15 were contacted by telephone and could not afford the cost of the histology examination;
- the lack of thermocoagulation and cryotherapy equipment for the immediate management of lesions detected according to the "screen and treat" strategy.

The epidemiological profile was that of a married woman, multiparous, in period of genital activity. The average age of the patients was 45 years with a first sexual intercourse around 22

years. These results are similar to those published by Dembélé [4] and Gassama [5] in Dakar and Ngekoum et al [6] in Cameroon who found an average age of 44.5, 43.6 and 43 years respectively. They are also comparable to those of Afoutou [7] in Dakar and Sonfack [8] in Mali. On the other hand, it appears to be higher than that found by Firnhaber in South Africa [9] and Sankaranarayanan in India [10] which were respectively 38 and 40 years old. The advanced age of the patients can be explained in part by the fact that this was a selected population recruited in the context of opportunistic or mass screening. In our country, as in developing countries, organised screening should be done at a younger age, given the incidence and average age of onset of cervical cancer in these countries [11]. Screening programmes vary from country to country. In the USA, screening is carried out from the age of 20 years; the same is true in Scandinavian countries, whereas in France screening is carried out from the age of 25 years [12]. In our study, colposcopy revealed 18 GAT 2 lesions (36%), 9 normal colposcopies (18%), 9 menopausal atrophies (18%), 9 ectropions (18%), 5 cases of viral colpitis (10%), 5 GAT 1s (10%), 5 cases of cervical polyps (10%) and one combination of GAT 1 and 2 (2%). Our results are comparable to those recorded by some African authors. Indeed, in his work in Dakar, Gassama found a GAT 2 lesion in 36.6% of cases, a GAT 1 in 31.5% and a viral colpitis in 10.4% of cases [5]. Iloki's study of 150 women found GAT 2 in 36.7%, normal colposcopy in 17.3%, GAT 1 in 9.3%, GAT 2 + GAT 1 in 9.3%, cervical buds in 8.6% and colpitis in 19.3% [13]. On the other hand, our rate of GAT2 was higher than that found by Diallo [14] in a study carried out in Mali involving 5016 women, which was 15.1% GAT2. In our series, colposcopy was satisfactory in the majority of our patients (78%). Our results are similar to those of Gassama who found 78% of satisfactory colposcopy [5]. Nevertheless, we note that there seem to be more GAT 2 lesions in our developing countries than in developed countries. Indeed, Coupez and Barrasso in France found GAT2 in 8.4% of a population of 13,798 patients and viral colpitis in 13.2% of cases [15]. In our series, the majority of patients (72.2%) with a positive visual inspection with acetic acid and lugol had GAT 2. Patients with a positive visual inspection with acetic acid alone had a majority of normal colposcopies (71.4%). Patients who had only a positive visual inspection with lugol had 50% GAT 1 and 50% GAT 2. The visual inspection methods are based on naked eye examination aided by a magnifying glass and the results depend on the experience of the practitioner. These methods should be considered as a means of guidance and sometimes require further diagnostic examination. The performance of colposcopy is operator dependent. The most common diagnostic errors are due to similarities between the colposcopic appearance of various conditions: immature metaplasia and high-grade intraepithelial lesion, inflammation or infection and invasive cervical cancer, decidual and high-grade intraepithelial lesion, high-grade cytology and perimenopausal cervix. Hormonal imbalances are the cause of a large number of diagnostic errors. For example, in postmenopausal women, but also in adolescents, the squamocolumnar junction is frequently buried in the cervical os, making it difficult to explore. The prescription of oestrogens in the days preceding the examination usually allows this situation to be corrected and the squamocolumnar junction to be revealed. The examiner should therefore not hesitate to reconvene the patient to schedule the examination under better conditions [16]. In all cases, a presumptive diagnosis should always be avoided. If abnormalities are found, the next step is to perform a biopsy for histology, which is the only way to make a diagnosis and decide on an appropriate therapeutic approach. In our

study, 20 patients (40%) underwent colposcopy. Of these, only 5 (25%) had returned the results. These were CIN 2 and 4 normal results. The patient with CIN 2 had a hysterectomy. In our series, GAT 2 lesions were more frequent in patients aged 45 years and over (60%) ($p=0.46$), in primiparous women (100%) ($p=0.62$), in patients who had had first intercourse before 20 years (69.2%) ($p=0.39$) and in patients who had not used contraception (88.9%) ($p=0.13$). However, the small size of our sample does not allow us to establish a statistical relationship between these different parameters and the results of colposcopy.

Conclusion

Colposcopy is still not widely used in our developing countries where visual inspection methods are more accessible. However, it remains an essential examination in the diagnosis of precancerous and cancerous lesions of the uterine cervix, reliable and easy to perform.

References

1. Monsonogo J. Cervical cancer prevention (II): prophylactic HPV vaccination, current knowledge, practical modalities and emerging issues. *La Presse Médicale* 2007; 36: 640-666.
2. Khaoula B. High grade lesions of the uterine cervix. Thesis Méd. Fes, 2016; n°13.
3. ICO (Institut Català Oncologia). Information centre on HPV and cancer Senegal: Human Papillomavirus and related cancers fact sheet, 2014.
4. Dembélé B. Screening and management of cervical intraepithelial neoplasia at the Institut Curie de Dakar: Pilot study. Thesis Med, UCAD, 2006; 53.
5. Gassama O. Bilan des activités de colposcopie à la clinique gynécologique et obstétricale du CHU Aristide Le Dantec de Dakar. Thesis Med, UCAD, 2011; N° 62: 47-56.
6. Nkegoum B, Belley-Priso E, Mbakop A, Gwet-Bell E. Precancerous lesions of the cervix in Cameroonian women. *Cytological and epidemiological aspects of 946 cases. Gynaecology Obstetrics & Fertility* 2001; 29: 15-20.
7. Afoutou JM, Diallo AS, Silou J, Faye O, Abong Alipio R, et al. A decade of colposcycological screening at the CHU of Dakar (1981-1990). *J Sci.* 2008; 8: 1-16.
8. Sonfack EPT. Assessment of colposcopy activities and cervical cancer screening using the cervico-vaginal smear in the pathological anatomy department of INRSP. Med. thesis, Bamako, 2008.
9. Firnhaber C, Goeieman B, Faesen M, Levin S. Prospective One Year Follow Up of HIV Infected Women Screened for Cervical Cancer Using Visual Inspection with Acetic Acid, Cytology and Human Papillomavirus Testing in Johannesburg South Africa. *Journal.pone.* 2016; 11: 1-11.
10. Sellors JW, Sankaranarayanan R. *Colposcopy and Treatment of Cervical Intraepithelial Neoplasia A Beginners Manual*; Lyon 2004; Edited by the International Agency for Research on Cancer (IARC) 579.
11. Monsonogo J. Human papillomavirus infections: State of knowledge, practices and vaccine prevention. Springer Paris 2006; 264.
12. Fender M, Schaffer P, Dellenbach P. Can and should cervical cancer screening be organised in France? *J Gynecol Obstet et Biol Reprod.* 1998; 27: 683-691.
13. Iloki LH, N'Dinga HG, Mbongo JA, Panpandi-Ikourou A. Assessment of one year of colposcopy at the maternity ward of the CHU of Brazzaville. *Tropical Medicine and Health.* 2012; 22: 401-404.
14. Diallo O. Multicenter study of precancerous and cancerous lesions of the cervix by visual inspection methods about 5016 cases in the district of Bamako. Thesis Med. Bamako 2007; n° 61.
15. Barrasso R, Coupez F. Colposcopy as a screening tool for cervical cancer detection: News developments in cervical cancer screening and prevention. *Science.* 1997; 109: 100-405.
16. Carcopino X, Boubli L, Benmoura D. Pitfalls and limitations of colposcopy. In *Cancer du cerv uterin XXXIIème JTA 2006 Service de Gynécologie Obstétrique, Hôpital Nord, Chemin des Bourrely 13015 Marseille: 1-5.*