

# HPV Viral Test for Primary Cervical Cancer Screening at the Nabil Choucair Health Center in Senegalese Women 30 to 65 Years Old

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**Abstract:** The objective of this study was to describe demographics of patients who had benefited from a cervical cancer screening by an HPV viral test; to specify the protocol used to establish diagnosis using the test results; and to describe treatment and follow-up methods on positively tested patients. This was an descriptive prospective cohort study conducted at the Nabil Choucair health center and the Military Hospital of Ouakam from May 1<sup>st</sup> 2017 to January 30<sup>th</sup> 2018. The study involved 144 patients who had benefited from an HPV ABBOOT m2000 viral test. The studied parameters included socio-demographic characteristics, clinical aspects, test results, diagnosis, treatment and follow-up. The data was collected on a form and the statistical analysis was performed using Epi-info 7. In this study we collected 144 women. The mean age of the patients was 39.9 years. Patients were predominantly married (84%) and mostly housewives (48.1%), with slightly more than half (55.6%) of them who attended school. More than half of the patients 61.8% were under contraception. Almost all patients (92.4%) were of child bearing age. The average gravidity was 3.4 with an average parity of 2.7. The average age at marriage was 22.6 years mostly in a monogamous household (56.8%). The average age at first intercourse was 22.1. The average age at first pregnancy was 23.9. More than ¾ of women (78.3%) had one partner; however, note that 21.7% of the patients had 2 or more partners. The viral test was positive in 17 patients (11.8%). Papillomaviruses 16 and 18 were the most encountered (56%). Colposcopy was normal and satisfactory in 9 patients (53%), 2 patients had abnormal minor changes (11.7%) and 2 cases had major changes (11.7%). Cervical biopsy was performed in 2 patients (11.7%), histology showed CIN3 and micro invasive carcinoma. For those patients a conization was performed. The postoperative course was simple. The HPV viral test for primary cervical cancer screening offers opportunities and is possible in developing countries such as Senegal despite its limited means.

**Keywords:** HPV Viral Test, Nabil Choucair Health Center, Cervical Cancer Screening

## 1. Introduction

Cervical cancer is a worldwide public health problem with 569847 new cases per year, 311365 deaths in 2018. More than three quarters of cervical cancer deaths occur in poor countries [1]. However, it is a preventable cancer if detected

at an early stage. In addition, the natural history of cervical cancer has been disrupted when it has been proven that infection with human papillomavirus (HPV) is the essential factor for the tumor's development. H. Zur Hausen established the causal link between human papillomavirus and cervical cancer.

Numerous tests for HPV detection are available. The

hybridization test and the PCR are intended to detect high-risk papillomavirus (HPV-HR), who are the necessary agents for cervical tumor development. The sensitivity of this test to detect high-grade lesions likely to progress to an invasive cancer would be greater than 95% [2]. The objective of this work is to describe the profile of patients who received an HPV viral test at the Nabil Choucair health center in semi-urban Dakar, Senegal.

## 2. Materials and Methods

It was an analytical descriptive prospective cohort study conducted at the Nabil Choucair Health Center maternity center from June 1st, 2017 to January 31st, 2018 (8-month period).

### 2.1. Selection Criteria

It included all patients 30 to 65 years old who came for a regular gynecological visit.

The studied parameters included demographics, protocol for diagnosis on positively tested patients, treatment, and follow-up.

The data was collected in a form established for that purpose.

All patients included had received a liquid based cervicovaginal sampling at the Nabil Choucair health center. The samples were then sent to the military hospital of Ouakam where the search for the viral DNA was done by PCR. Patients with a positive HPV viral test had benefited from a colposcopy. If there was abnormal changes on colposcopy, a biopsy was performed. Patients in whom the biopsy showed a precancerous lesion either underwent a conization by diathermic loop or an hysterectomy depending on the lesion and the age of the patient.

### 2.2. Exclusion Criteria

Patients less than 30 years old or over 65 were excluded in our study. Patients with known pre-cancerous or cancerous lesions, pregnant patients, and patients who refused to participate even with counseling were also not included.

### 2.3. Statistical Methods

We used version 7 Epi info software for data entry and analysis. Studied parameters were the average and frequency.

The frequency was used to perform the qualitative analysis.

### 2.4. Ethics Approval

This study had the approval of the local ethics committee.

## 3. Results

### 3.1. Socio-Demographic Characteristics

The mean age of the patients was 39.9 with a standard deviation of 6.6 and extremes of 30 to 55 years. The mode

and median were respectively 45 and 39 years old. Just over half of the patients (52.8%) were 30 to 39 years old. Patients were primarily married (84%). The gravidity mean age was 3.4 with a standard deviation of 2.3 and extremes of 0 to 10 gravidities. The mode and the median were respectively 2 and 3 gravidities.

*Table 1. Distribution of patients by gravidity (n).*

Gravidity	Sample size (n)	Percentage (%)
Nulligravida	16	11,1
Primigravida	13	9,0
1 to 3	29	20,1
4 to 6	19	13,2
6 +	67	46,5
Total	144	100

The average parity was 2.7 with a standard deviation of 2 and extremes of 0 to 9 parities. The mode and the median were respectively 1 and 2.5 gravidities.

The average age of first-time patients was 22.6 with a standard deviation of 6.6 and extremes of 10 to 43. The mode and the median were 20 years old.

Patients were mainly married between 18-24 years old (44.9%).

The number of partners was reported in 144 patients. More than  $\frac{3}{4}$  of these (78.3%) had 1 partner; however, note that 21.7% of patients had 2 or more partners.

### 3.2. Clinical Data

Perineo vulva inspection was normal in 124 patients (86.1%) and abnormal in 20 patients (13.9%). Those 20 patients who had abnormal changes mainly presented leucorrhea, the cervix was pink in almost all patients (91%).

### 3.3. Biological Data

The viral test was positive in 17 patients (11.8%).

Human papillomaviruses 16 and 18 were the most frequently found in 35.2% and 23.5%.

*Table 2. Viruses Repartition.*

Type of virus	Sample size (n)	Fréquence (%)
Autres	4	23,5
16+18+Autres	1	5,9
16+18	2	11,7
16	6	35,2
18	4	23,5
Total	17	100

### 3.4. Colposcopy

Vulvoscopy was almost normal in all patients 94.1% (n = 16). However we had 1 case (5.9%) of hypertrophy of the large right lip.

The examination without preparation showed peri-orificial redness of the cervix in 4 patients (23.5%) and 1 case of pink cervix (5.9%).

The examination with acetic acid was done on 12 patients (70.5%).

The acidophilic reaction was mild in 9 patients (75%); but

intense in 3 patients (25%).

The junction area was seen in 11 patients (84.6%) yet invisible in 2 patients (15.4%).

Lugol staining was homogeneous in 8 patients (61.5%) but inhomogeneous in 5 patients (38.5%).

The contour was neat in 3 patients (60%) yet blurry in 2 patients (40%).

Colposcopy was normal in 9 patients (53%).

Minor changes were found in 4 patients with 2 cases grade 1 (12%) and 2 cases grade 2 (12%).

In our study, 3 patients (17.6%) presented viral colitis.

The presence of a polyp was noted in 1 patient (5.9%).

### 3.5. Therapeutic and Histological Aspects

In our study, 4 patients (23.5%) with major changes and unsatisfactory colposcopy had undergone a biopsy.

The biopsy revealed a micro-invasive carcinoma in 25%, a CIN3 in 25% and a CIN 1 in 50%.

In our series, the 4 patients (23.5%) had undergone a diathermic loop conization.

The resection margin was clear for all of our patients.

### 3.6. Monitoring

After a 6 months follow-up, all patients who had undergone diathermic loop conization had a normal conventional cervicovaginal smear.

## 4. Discussion

### 4.1. Socio-Demographic Characteristics

In our study, the average age of the patients was 39.9. Just over half of the patients (52.8%) were between 30 and 39 years old. ZOHOCON [3] in Benin found almost similar results. On his study, the average age was 40.05 with extremes of 18 and 88. Our results are also similar to the ones found by OUEDRAOGO [4] in Burkina Faso where the average age was 41.5. The disparity is explained by the fact that their study was opportunistic, contrary to our study that was a mass screening.

In our study, the majority of patients were married 84% and 56.3% were monogamous. Married or widowed women were the most common participants in cervical cancer screening campaigns [5].

In our series, the average age at first intercourse was 22.

With extremes of 13 to 43, but almost half of our patients (49.3%) had their first sexual intercourse before age 24. Those results were higher than the age at first intercourse found by OUEDRAOGO in Burkina where 75.7% of the patients were between 15 and 20 years old. They were also higher than the results found by TEBEU [6] in Cameroon where the average age at first sexual intercourse was 19 and by REBECCA [7] in Senegal with 93.7% of patients who had their first sexual intercourse before age 20.

The average age at first pregnancy was 23.9 with extremes of 14 and 46, with an average gestational age of 3.9 with extremes (0 and 10). The average parity was 2.7 with

extremes of 0 and 9. Our study population was predominantly multi-skilled women and only half were multiparous. Our data are identical to those found in the literature [8-11].

Some authors consider gravidity as a cofactor linked with uncontrolled sexual activity or unplanned maternity [12].

Others, on the other hand, consider that gravidity is a risk factor by itself, causing physiological changes during pregnancy evolution. That would impact local immune defense mechanisms, therefore the cervical uterine epithelium [6, 13].

### 4.2. Biological Data

The test was positive in 11.8% of screened patients. These results are lower than those found by MBAYE in Senegal 23.2% [14]. These differences can be explained by the small size of our cohort, the sociodemographic and cultural variations of the populations and the high age of our patients. In our series, the most common types of virus were HPV16 (35,2%) followed by HPV 18 (23,5%). These results are similar to those found in the HPV 16 literature (50%) followed by HPV 18 (14%) [15-17]. By contrast, OUEDRAOGO in Burkina Faso had found an opposite prevalence of HPV 18 followed by HPV 16 and MBAYE had found in Dakar in a study in five regions of Senegal a predominance of Papillomaviruses 52 and 58 [4, 14]. The migrations of populations, the variability of geographical areas and the size of our sample can explain these disparities.

### 4.3. Colposcopy

In our study colposcopy showed major changes in 11.7%, a minor changes in 11.7%, a viral colitis in 17.6% of cases. Our results are lower than those of GASSAMA [8] in Dakar, with 36.6% of major changes, 31.5% of minor changes, a viral colitis in 10.4%. In our series, colposcopy was normal and satisfactory in 53% of cases. Colposcopy being an operator-dependent examination, its sensitivity to differentiate a normal cervix from an abnormal cervix is good to excellent, 73% to 100% of cases in the literature. But the problem lies in its poor specificity, that is to say, the ability to carry an accurate lesional check-up, which is less than 50% [8, 18]. The colposcopist may have difficulty assessing an atypical Grade II transformation lesion or immature metaplastic images.

## 5. Therapeutic and Histological Aspects

The implementation of HPV testing in a cervical cancer screening program allows an earlier detection of precancerous lesions, but there is no evidence that this earlier screening reduces the number of invasive cervical cancers [19, 20].

In our series, 17 patients had a positive HPV viral test, but only 4 had colposcopic abnormalities that required biopsy. The biopsy under colposcopy had found a CIN1 +.

## 6. Conclusion

The viral test with Papillomavirus research is feasible in Senegal but it is necessary to define the targeted populations. In our study, papillomaviruses 16 and 18 are more frequently at the Nabil Health Center. Studies with a larger cross-sectional cohort will confirm these results.

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