

# SEXUALLY TRANSMITTED INFECTIONS IN PRIMARY HEALTH CARE

Over time, estimates of sexually transmitted infection (STI) cases have been pointing to a higher incidence in developing countries<sup>(1)</sup>, and although the real magnitude of the problem is not known, these infections are possibly among the ten most frequent causes of demand for health services, with health, social, and economic consequences<sup>(2)</sup>.

In Brazil, the real epidemiological profile is unknown. There is no official estimate of the prevalence of these infections and their complications or their cost to the public health system (*Sistema Único de Saúde* – SUS). The underreporting of cases is high, resulting in a lack of knowledge about their actual incidence or prevalence, thus hampering the decision-making about interventions and evaluation of the effectiveness of actions.

This unawareness can lead to an erroneous understanding that these agents are related to diseases of the past, with minor importance and limited interest to professionals. In fact, these infections are a huge health burden, as they can represent up to 17% of economic losses caused by the health-disease binomial<sup>(3,4)</sup>.

The lack of routine diagnosis and early treatment results not only in individual health worsening, with severe consequences, but in STI continuing to be a major public health issue<sup>(2)</sup>.

The association of STIs with multiple complications has already been established, including an increase in human immunodeficiency virus (HIV) infection, and efforts to reduce them, mainly in adolescents and young adults, might have a significant impact on the morbidity of these diseases. It is crucial to develop intervention strategies on the sexual practices of young Brazilians who, despite knowing the mechanisms of prevention, still neglect to use condoms<sup>(5,6)</sup>.

One of the reasons for the resurgence of STIs in many countries is the lack of access to effective and reliable health services<sup>(7)</sup>. Diagnosis, early treatment, and vaccination are the main strategies to control STIs, as they allow the reduction of morbidity and indicate the efficiency and success of care services for people with STIs.

By adopting effective interventions, health services can improve the quality of care provided and consequently the sexual and reproductive health of the population<sup>(8)</sup>. These interventions seek to preserve individual and collective health, focusing on the transmission chain. The goals are to reduce the risks of infection, the period of transmissibility, the signs and symptoms, and prevent complications and physical and mental sequelae.

Historically, STIs are diagnosed based on clinical evaluation and/or laboratory tests. Even with high sensitivity and specificity, these laboratory tests are not available in primary health care services. In addition, they require a long time to reach the result, which leads to a delay in diagnosis and treatment. For laboratory diagnosis, health professionals usually refer patients to specialized clinics, resulting in even further delays.

The Brazilian Ministry of Health has recommended a flowchart approach to STIs to minimize the limitations of both etiological and clinical management of these infections, particularly among patients treated in primary health care, which is the gateway to the health system. This approach is an important strategy for STI management and control in places where the etiological diagnosis is difficult or

time-consuming, ensuring that people are promptly diagnosed and treated, with an optimized appointment time for counseling.

The discussion on the best approach to case management needs to be broadened and better understood. It is not a question of choosing between etiological or flowchart approach. Faced with an STI patient, the treatment should be immediate, which does not exempt the etiological investigation of the case whenever possible. This situation points to the need for STI programs to make a significant effort for secretariats of health to invest in laboratory network.

## SEXUALLY TRANSMITTED INFECTIONS IN HEALTH CARE LEVELS

In most cities, health care services work by scheduled appointments. There is little or no availability for spontaneous demand, indicating a lack of access to services and leading a large proportion of men with some STIs to seek emergency services, pharmacies, or self-medication.

Women are known to be mostly asymptomatic and are rarely investigated for possible risk behaviors. This scenario shows that guidelines for early diagnosis and treatment of STIs, whose goal is to break the transmission chain, are little known or assumed by primary health care professionals. SUS has actions to control STI in the country, but in a fragmented way and with important regional differences to consider.

STI services are usually located in specialized clinics, which causes the stigma of seeking them out among the population. Conversely, etiologic diagnosis becomes prominent in a context of scarce laboratory backup, leading to a low-resolution level for health professionals.

There is little emphasis on prevention, such as health education, information to recognize signs and symptoms, early search for assistance, media campaigns, among others.

With primary (education, condom, vaccine) and secondary (early diagnosis and treatment) control strategies, the incidence of STIs and, consequently, of HIV will decrease.

## ASSISTANCE TO SEXUALLY TRANSMITTED INFECTION PATIENTS IN PRIMARY HEALTH CARE

It is essential to optimize financial and human resources to offer care to individuals with STIs in basic health units. Therefore, an intersectoral approach must be established to add activities and promote a flow in which all services are affordable and effective, providing diagnosis and treatment without stigmatization.

Due to the large number of asymptomatic infections among women and the existing studies showing the high prevalence rates of some STIs in this population, managers should consider implementing routines with the acquisition of necessary and indispensable

inputs to screen this large contingent of asymptomatic women, which ultimately will be the main victims of the resulting complications and sequelae.

A reference service to diagnose cases unresolved by the primary health care level – an estimated average of 5% – is necessary. These services should be part of the SUS structure or follow its basic principles of universality, regionalization, hierarchization, and integrality (municipal, state, and federal departments; universities; philanthropic services), and be selected by State and Municipal Coordination, networking with primary health care units.

The topics presented here occur in Brazil and can, with many similarities, happen in several countries worldwide, indicating the need to reorganize the health care model for people with STI complaints seeking assistance. To recover the management of these diseases, we must reassess all care levels, especially primary health care, which is the gateway to the health system, as well as to laboratory network.

The increasing impact of STIs on sexual and reproductive health and the link between them and the prevention of sexual transmission of HIV are a priority public health issue in our times.

STIs can be brought under control as long as there is enough political will with mobilization of resources to implement the required programs and research.

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## Conflict of interests

Each author had equal participation in the writing and final revision of this work.

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# KNOWLEDGE ABOUT SYPHILIS AMONG PATIENTS OF TWO BASIC HEALTH UNITS IN THE STATE OF SÃO PAULO

## CONHECIMENTO SOBRE SÍFILIS ENTRE PACIENTES DE DUAS UNIDADES BÁSICAS DE SAÚDE DO INTERIOR DO ESTADO DE SÃO PAULO

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### ABSTRACT

**Introduction:** The number of new cases of syphilis remains high in Brazil, which may be related to the influence of demographic factors on the sexual behavior of individuals and the lack of basic knowledge about the disease, which is very important for prevention and treatment. **Objective:** To evaluate the knowledge about syphilis in a sample of patients from Basic Health Units (BHUs) in the city of São José do Rio Preto, São Paulo. **Methods:** This is a cross-sectional descriptive study. We assessed the perception of the participants about the disease through a questionnaire with objective questions. We analyzed the results using descriptive statistics. **Results:** We interviewed 193 patients – 95 in BHU1 and 98 in BHU2. With regard to syphilis, 65% of participants from the two BHUs claimed to know about the disease, and even though most have answered correctly about its means of transmission, more than 11% of BHU1 patients and almost 5% of those from BHU2 chose options not related to intercourse. Almost half of the patients did not know the main symptom in early syphilis. More than 50% of patients never talked to their sexual partner about this disease. 80% of patients from BHU1 and 95% from BHU2 were not tested for syphilis in the past 12 months. **Conclusion:** The patients' lack of knowledge about syphilis was evident in both BHU1 and 2, which is a real concern due to the severity this disease can reach. The results reinforce that health actions are necessary to prevent syphilis in the districts surveyed.

**Keywords:** syphilis; knowledge; primary prevention.

### RESUMO

**Introdução:** O número de casos novos de sífilis continua elevado no Brasil, o que pode estar relacionado à influência de fatores sociodemográficos no comportamento sexual do indivíduo e à falta de conhecimento básico da doença, importante para sua prevenção e tratamento. **Objetivo:** Avaliar o conhecimento sobre a sífilis de uma amostra de pacientes de duas Unidades Básicas de Saúde (UBSs) do município de São José do Rio Preto, estado de São Paulo. **Métodos:** Foi realizado um estudo descritivo e transversal. A percepção dos participantes sobre a doença foi avaliada mediante aplicação de questionário com perguntas objetivas. Os resultados obtidos foram analisados por estatística descritiva. **Resultados:** Foram entrevistadas 193 pessoas nas duas UBSs, sendo 95 na UBS 1 e 98 na UBS 2. No tocante à sífilis, 65% dos entrevistados nas duas unidades afirmaram saber a respeito da doença, e mesmo que a maioria tenha respondido corretamente sobre o meio de sua transmissão, mais de 11% dos pacientes da UBS 1 e quase 5% dos participantes da UBS 2 escolheram opções não associadas à relação sexual. Quase metade do total dos entrevistados não soube responder qual o principal sintoma no início da patologia. Mais de 50% das pessoas nunca conversaram com seu/sua parceiro(a) sexual sobre essa doença. Quanto à realização do teste para diagnóstico de sífilis nos últimos 12 meses, 80% dos entrevistados na UBS 1 e 95% dos entrevistados na UBS 2 responderam não o ter realizado. **Conclusão:** Entre os entrevistados das duas UBS, ficou evidente a falta de conhecimento sobre a sífilis, fato preocupante diante da gravidade que a doença pode gerar. Os resultados reforçam que ações de saúde precisam ser aplicadas como medidas de prevenção contra a sífilis nos bairros pesquisados.

**Palavras-chave:** sífilis; conhecimento; prevenção primária.

## INTRODUCTION

Syphilis is a systemic infectious disease caused by the etiologic agent *Treponema pallidum*, a bacterium most commonly transmitted by sexual contact, vertically (maternal), and rarely by blood. The disease affects only humans, has a chronic progression, and may be classified in terms of time (recent and late) and clinical manifestations (primary, secondary, and tertiary)<sup>(1)</sup>.

Due to the various ways the disease manifests and its asymptomatic periods, patients often feel healed or do not even identify signs and symptoms of the illness. Therefore, added to the increase in early sexual activity and risky sexual practices, the chance of infection and transmission of the disease becomes greater.

A study conducted by the Ministry of Health in partnership with the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* – IBGE) evaluated the sexual behavior of 60,973 male and female adolescents and showed that

about a quarter of them had intercourse, most of them at 13 years of age or younger, and about 25% did not use protection during the last intercourse. These factors considerably raise the transmission of syphilis and other sexually transmitted diseases like human immunodeficiency virus (HIV), becoming a public health problem. In addition, other elements may explain the increasing number of reported cases of the disease in Brazil, such as care failures during the prenatal period, diagnosis, and, more recently, the supply of penicillin G benzathine, used in the treatment of adults and pregnant women, and crystalline penicillin G, for newborns with congenital syphilis<sup>(2)</sup>.

The Epidemiological Bulletin of the Ministry of Health of the State of São Paulo announced an increase of 9.5 times the number of cases of acquired syphilis and five times of syphilis in pregnant women including, besides the capital, the city of São José do Rio Preto, as one of the main detection rate increase of the disease in the period from 2007 to 2014<sup>(3,4)</sup>.

It is also worth mentioning that with the quality of life improvement in old age and the development of treatments, such as hormone replacement, prostheses, and impotence drugs, older adults

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have experienced an extension of their sexual life. However, unsafe sexual practices contribute to this population vulnerability to sexually transmitted infections. Thus, it is extremely important to control syphilis by interrupting the transmission chain and preventing new cases, based on the population's knowledge of the disease, as well as ways of avoiding it. This process can achieve positive results with the constant and continuous recycling of health teams that play a fundamental role in patient counseling, seeking to show the need to communicate with the partner and encouraging them to use condoms during intercourse<sup>(5)</sup>.

## OBJECTIVE

To evaluate the knowledge about syphilis, its forms, transmission, and prevention in Basic Health Unit (BHU) patients from two districts of the city of São José do Rio Preto, State of São Paulo, and to relate it to the socioeconomic profile of the participants.

## METHODS

This is a cross-sectional descriptive study, whose instrument was a questionnaire in simple language, adapted to the users' reality, composed of objective questions addressing the means of transmission, signs and symptoms, and prevention of syphilis.

We selected two public BHUs in the city of São José do Rio Preto, São Paulo State. The selection criteria were the following: belonging to the Community Integration Program (*Programa de Integração da Comunidade – PIC*) of the medicine course from Faceres and having distinguished socioeconomic development. The first BHU is located in a region with a lower socioeconomic profile than the second<sup>(6)</sup>.

Patients in the waiting room of each BHU were invited to participate in the survey two mornings a week of July and September 2018 until the calculated sample size was reached. Considering an 86% estimate of people with the correct knowledge about syphilis transmission<sup>(7)</sup>, a 5% sampling error, and 95% confidence level, the calculation of the total sample size resulted in 186 participants (93 in each BHU).

The sample consisted of participants of both genders over 18 years of age with sufficient intellectual capacity to understand the questions and answer properly. Literate individuals responded without help, and the illiterate or with difficulty in reading were assisted by researchers who read the questions, indicating the answer chosen by them. A moment was reserved for clarifying any pertinent questions.

After agreeing to participate in the research, patients received a tablet connected to the Internet to answer the questionnaire prepared in Google Forms ([https://docs.google.com/forms/d/e/1FAIpQLSdtE-Qe5BIGQu9273yzO3S1b30nkZ2B0I34VAIvDntMR83aEGw/viewform?usp=sf\\_link](https://docs.google.com/forms/d/e/1FAIpQLSdtE-Qe5BIGQu9273yzO3S1b30nkZ2B0I34VAIvDntMR83aEGw/viewform?usp=sf_link)). The front page showed the Informed Consent Form (ICF); the participants should read and agree to it to access the questionnaire. The collected data were analyzed by descriptive statistics in Excel software (Microsoft).

The Research Ethics Committee (REC) received and approved this project (report number: 2,719,045). The confidentiality of the participants was maintained during all study procedures, both in the process of data collection and result analysis.

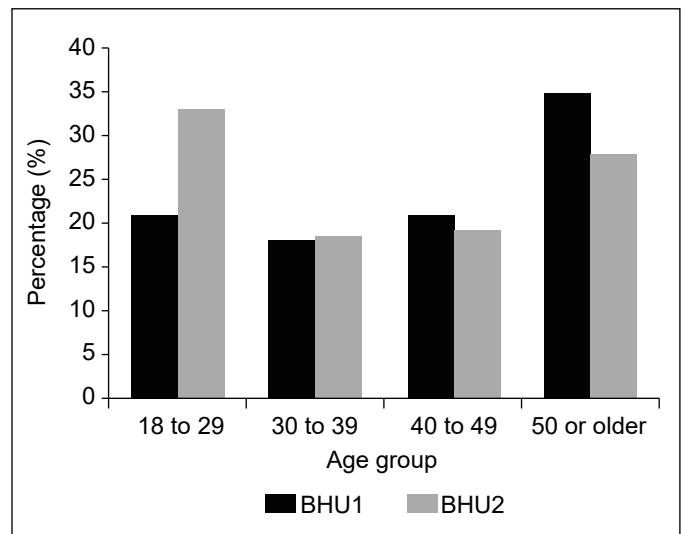
## RESULTS

The total of interviews conducted in both BHUs was 193: 95 in BHU1 and 98 in BHU2. Both BHUs showed a discreet predominance of female participants, with a prevalent age over 50 years (36.8%) in BHU1, and 18 to 29 years (33.6%) in BHU2 (**Figure 1**).

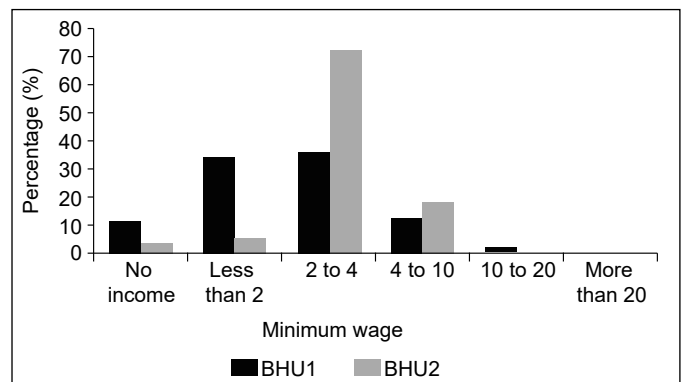
The prevalent household income was two to four times the minimum wage in the two BHUs; however, there was a significant difference in the percentages obtained, since 38% of patients from the first BHU indicated this income range, while in the second, it reached 73.4%. In addition, no participant from BHU2 declared 10 to 20 or over 20 times the minimum wage, unlike BHU1 (**Figure 2**).

Regarding schooling, most BHU2 patients declared having attended school for a longer period than the participants from BHU1 (**Figure 3**). However, no BHU2 patient reported ever attending school, unlike the results from BHU1.

When asked about the prevalent type of sexual partnership in the last 12 months, most BHU1 patients claimed not having a partner (48.83%) and 54% from BHU2 declared having only one steady partner. These data may corroborate the results on the use of condoms during sexual intercourse, as most patients from both BHUs answered not to use them.



**Figure 1** – Age group of research participants. BHU: Basic Health Unit.



**Figure 2** – Household income of research participants. BHU: Basic Health Unit.

With regard to syphilis, 65% of patients from both BHUs declared to know about the disease, and even though most of them have answered correctly about its means of transmission, more than 11% of BHU1 patients and almost 5% of those from BHU2 chose options not related to intercourse (Figure 4).

It is noteworthy that almost half of the patients (40%) did not know the main symptom in early syphilis (Table 1).

We found a significant difference regarding the knowledge about red spots appearing in the body after a period in the person with syphilis. Most BHU2 patients (95.9%) chose this option, while over 50% of those from BHU1 answered correctly (60%).

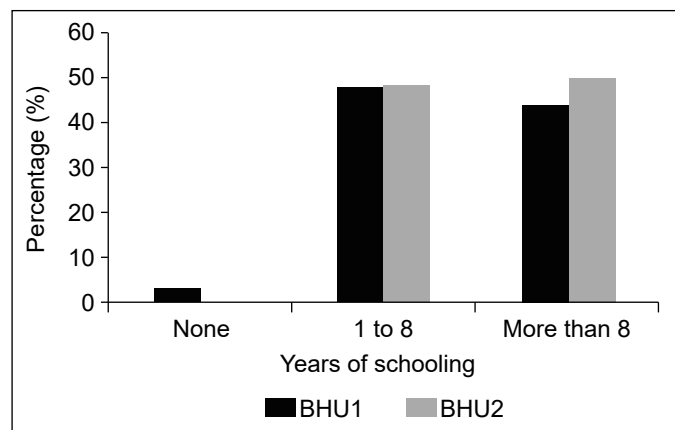


Figure 3 – Years of schooling of research participants. BHU: Basic Health Unit.

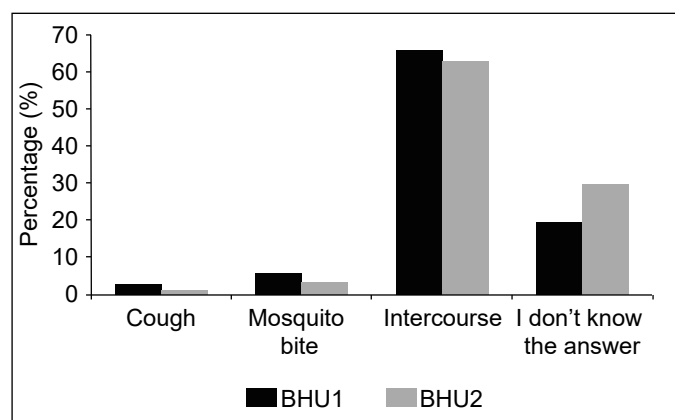


Figure 4 – Percentage of patients who selected means of syphilis transmission. BHU: Basic Health Unit.

Table 1 – Main symptom of early syphilis according to research participants.

Symptom	BHU 1 (%)	BHU 2 (%)
Diarrhea	3.2	2.0
Genital lesions	44.2	56.1
Night sweats	4.2	5.1
Cough	4.2	0
Does not know the answer	44.2	36.7

BHU: Basic Health Unit.

Most patients stated that syphilis can harm important organs, be transmitted to the newborn, and be treated in the public health system (SUS – *Sistema Único de Saúde*).

More than 50% of the participants never talked to their sexual partner about syphilis, justifying it by their trust in them. Shyness was a cause chosen by 15 and 27% of BHU1 and BHU2 patients, respectively (Figure 5).

Regarding the test for syphilis diagnosis in the last 12 months, 80% of BHU1 patients answered not having undergone any tests, more than half (64%) would like to undergo the rapid test and obtain information about the disease (89%), and 70% denied having received information from a doctor.

Similar results were found in BHU2, as even though most (90%) patients stated they would like to undergo the rapid test, 95% did not undergo syphilis tests in the last 12 months. Almost all participants (96%) would like to receive information about the disease, and most individuals in the district revealed they had not received information from their doctor about the subject (80%).

## DISCUSSION

Data analysis of the present study revealed that the BHU1 sample consisted of older people, with less education, and household income with more heterogeneous distribution compared to BHU2. This fact is relevant for health actions, which can be programmed according to the socioeconomic profile of people in each district. According to the Ministry of Health, the patients' level of understanding influences the perception of health dilemmas and the ability to grasp information concerning this disease, as well as the use of healthcare systems and acceptance of healing procedures. Besides, the lower the level of education and information, the more exposed people are to the succession of pathological states, making deficient the process of health promotion and disease prevention<sup>(8)</sup>.

Even with the difference in the distribution of household income among participants from both BHUs, the option 2 to 4 times the minimum wage had the highest percentage in the total sample of the study, indicating that access to health programs in these two districts of the city would be important, since low income restricts adequate and up-to-date information<sup>(9)</sup>.

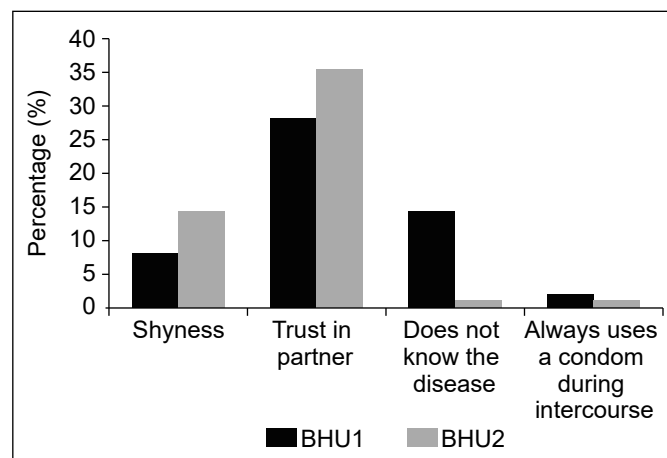


Figure 5 – Percentage of patients who have selected reasons for not talking about syphilis with their partner. BHU: Basic Health Unit.

Most BHU1 participants claimed to have only one steady sexual partner in the last 12 months, followed by those who revealed having no partners. However, BHU2 showed a prevalence of different sexual partners in the past six months, indicating that this district requires increased attention from health agencies to develop actions to prevent transmission of sexually transmitted infections (STIs).

We found little reference on the incidence of syphilis related to the number of sexual partners. In any case, condom use protects the most common contamination points, and reducing the number of sexual partners also decreases the risk of acquiring syphilis<sup>(10)</sup>. In addition, individuals who do not have steady partners constitute a group vulnerable to STIs, with increased difficulty in identifying and treating the partner concomitantly<sup>(11)</sup>.

The participants in this study who reported not using a condom during sex corresponded to the majority of the sample. Male or female condoms should be offered to and used by sexually active people as an effective method to reduce the risk of transmission of STIs, in addition to preventing pregnancy. Appropriate guidelines for the conservation and proper and regular use of male and female condoms must be part of the approach, as well as providing female condoms to increase the possibilities of prevention for women, considering the difficulties experienced mainly by sex workers in negotiating condom use with the sexual partner<sup>(12)</sup>.

It is important to observe that almost half of the participants could not answer what the main symptom in early syphilis is, and most of them claimed never having talked to their sexual partner about syphilis, justifying it by trusting them, followed by shyness. Lack of information about syphilis was notorious in this study. According to studies, even though syphilis is a disease that exists since antiquity, a very high percentage of men and women are not aware of it, which increases the risk of developing the infection, thus maintaining the transmission chain, requiring a rapid mobilization to increase the level of knowledge about this STI<sup>(13)</sup>.

We underline that knowledge about syphilis can help those infected to face the disease, minimizing negative feelings and the consequences of this problem in their lives. The lack of dialog about sexuality between couples influences their preventive attitudes, leading to conflicting moments, such as the diagnosis of some STIs<sup>(14)</sup>.

Most participants in this study know about the main means of syphilis transmission. Nonetheless, a fair amount of individuals from both BHUs chose the option "don't know the answer". In addition, half of the sample could not answer what the main symptom at the onset of this disease is, and identifying its clinical signs is essential for the patient to visit a doctor and start treatment to prevent the transmission of the bacteria. It became evident that although participants had answered what syphilis is, the correct knowledge about symptoms and prevention of the disease was still unsatisfactory. This fact can be aggravated by the lack of communication about syphilis with the sexual partner, as was the case with most participants. Knowing the general aspects of this disease is crucial to prevent possible systemic complications, such as blindness, paralysis, and brain damage, in addition to fetus transmission<sup>(15,16)</sup>.

Despite all the efforts of SUS (providing prenatal care, diagnostic tests, and treatment for pregnant women and partner), the incidence of congenital syphilis in Brazil remains high. According to the Ministry of Health<sup>(17)</sup>, the incidence rate of congenital syphilis

in 2016 was 6.8 cases for every 1,000 live births, which represents exactly 20,474 new cases of congenital syphilis in the country. The state of São Paulo had 5.8 new cases reported for every 1,000 live births, totaling 3,650 newborns infected in 2016<sup>(17)</sup>.

Most participants declared not having undergone any test for syphilis diagnosis in the past 12 months, and that they would like to undergo the rapid test and receive information about the disease since most deny having received information from a doctor. Therefore, actions aimed at disease control are necessary, including notification, active search actions, appropriate treatment, and follow-up for serologic proof of healing, so changes to fight the infection and promote a better quality of life can be proposed. Healthcare professionals have the important role of producing and clarifying information and encouraging families and patients about treatments and prevention of STIs.

We emphasize that the costs and benefits of syphilis prevention, based on primary care, are more favorable than treatment, reducing public expenditure and allowing the application of funds in other public health sectors through new investments<sup>(18)</sup>.

The difference in knowledge between patients from the two BHUs used for this research was evident. BHU1 participants showed less knowledge about syphilis, which can be explained by the higher mean age and shorter schooling period. Even though the distribution of household income was more heterogeneous, BHU1 patients were more susceptible to contamination by *Treponema pallidum*. Despite the main mean of transmission of this disease being correctly identified by a higher percentage of patients from BHU1 than BHU2, the unawareness about symptoms of primary and secondary syphilis raises concern, since nowadays the older population is more sexually active and, therefore, vulnerable to STIs, either for lack of knowledge or for the controversial nature of the subject among this age group<sup>(19)</sup>.

## CONCLUSION

We underline the lack of information and understanding among the participants in this study, given the severity this disease can reach. Also, we emphasize that people increasingly become carriers of the bacterium due to lack of prevention, even though the disease can be eliminated in a simple and easy way through the use of condoms, essential at every intercourse.

Reducing the incidence of syphilis will only be possible with the systematic adoption of more effective measures of prevention and control.

## Participation of each author

Antônio Lourenço Pires Neto and Melissa Carol da Silva participated in the design of the project; data collection, analysis, and interpretation; and article writing. Tatiane Iembo contributed to the conception of the project; data analysis and interpretation; article writing; critical review of intellectual content; and approval of the final version of the manuscript.

## Funding

This case report had no financial support or funding.

## Conflict of interests

There is no conflict of interests to be reported.

This article is part of a project approved by the Research Ethics Committee.

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
Received on: 11.12.2018

Approved on: 12.30.2018

# LEEP IN THE TREATMENT OF CIN AND ITS IMPACT ON THE REDUCTION OF MORTALITY OF CERVICAL CANCER

## *A CIRURGIA DE ALTA FREQUÊNCIA NO TRATAMENTO DA NEOPLASIA*

### *INTRAEPITELIAL CERVICAL E SEU IMPACTO NA REDUÇÃO DA MORTALIDADE POR CÂNCER CERVICAL*

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#### ABSTRACT

**Introduction:** The adequate treatment of cervical intraepithelial neoplasia (CIN) is an important component of cervical cancer prevention programs and its inadequate management may increase the future risk of neoplasia. **Objective:** To evaluate the role of loop electrosurgical excision procedure (LEEP) conization in the treatment of CIN, in an important state capital in southern Brazil, and to determine the impact on reducing cervical cancer mortality in the next 20 years. **Methods:** A retrospective cohort study was conducted in patients who underwent CIN treatment from January 1999 to December 2007 at Erasto Gaertner Hospital, analyzing the treatment morbidity and recurrence rate of the disease, using the  $\chi^2$  test for statistical analysis and  $p \leq 0.05$ . **Results:** A total of 1,550 women, between 14 and 93 years of age ( $35 \pm 11.42$ ) were evaluated. Recurrence rate was 6.8%. The postoperative complications were 5.8% bleeding, 2% cervical stenosis and 2% infection. The cervical cancer mortality rate decreased from 12 to 3.8/100,000 women and there was an increase in the incidence of the lesion in situ as opposed to the reduction of other clinical stages. **Conclusion:** LEEP conization was proven to be a highly effective tool in CIN treatment, substantially contributing to the reduction of mortality from cervical cancer, justifying its use in a systematic way in prevention programs.

**Keywords:** cervical intraepithelial neoplasia; conization; electrosurgery; mortality; recurrence.

#### RESUMO

**Introdução:** O adequado tratamento da neoplasia intraepitelial cervical é um importante componente dos programas de prevenção do câncer cervical, e seu manejo inadequado pode aumentar o risco futuro de progressão para neoplasia. **Objetivo:** Avaliar os resultados da cirurgia de alta frequência no tratamento da neoplasia intraepitelial cervical em uma importante capital do Sul do país e o impacto na redução da mortalidade por câncer cervical nos 20 anos subsequentes. **Métodos:** Estudo tipo coorte retrospectivo de pacientes submetidas a tratamento da neoplasia intraepitelial cervical, no período de janeiro de 1999 a dezembro de 2007, no Serviço de Patologia Cervical do Hospital Erasto Gaertner, Curitiba, Brasil, analisando a morbidade do tratamento e o risco de recorrência da doença utilizando o teste das proporções ( $\chi^2$ ) e valor  $p \leq 0,05$ , relacionando esses dados às taxas de mortalidade no período dos últimos 20 anos. **Resultados:** O número de 1.550 pacientes, com idade entre 14 e 93 anos ( $35,3 \pm 11,42$ ). A taxa de recidiva foi 6,8%. As complicações pós-operatórias foram 5,8% de sangramento, 2% de estenose de colo e 2% de infecção. A taxa de mortalidade para câncer de colo na cidade de Curitiba caiu de 12 para 3,8 casos/100mil mulheres, ocorrendo o aumento da incidência da lesão in situ em contraposição à redução dos demais estádios clínicos. **Conclusão:** a cirurgia de alta frequência mostrou-se um instrumento relevante e de alta eficácia no tratamento da neoplasia intraepitelial cervical, contribuindo de forma efetiva para a redução da mortalidade por câncer de colo uterino, justificando seu uso de maneira sistemática dentro dos programas de prevenção.

**Palavras-chave:** neoplasia intraepitelial cervical; conização; eletrocirurgia; mortalidade; recorrência.

## INTRODUCTION

Cervical cancer is an important public health problem in adult women in developing countries, which is the second or third most common cancer among women, depending on the place<sup>(1)</sup>. Cervical cancer is mostly caused by persistent infection with certain subtypes of HPV (*Human papillomavirus*), a sexually transmitted disease that infects cells and can lead to precancerous lesions and invasive cancer<sup>(1)</sup>.

With about half a million new cases and 270,000 deaths every year in the world, the incidence of cervical cancer is twice as high in the least developed countries, and the high mortality rates could be reduced through effective screening programs of signal lesions of cervical intraepithelial neoplasia (CIN)<sup>(1)</sup>.

Screening programs for cervical cancer is a public health intervention in a target population to detect signal lesions, to decrease incidence and mortality. However, to achieve this goal, an organized program involves, besides the application of screening examinations, a complex structure for diagnosis and treatment of these lesions, along with appropriate follow-up<sup>(1)</sup>.

The adequate treatment of CIN is an important component of the cervical cancer prevention program. The inadequate handling of CIN may increase the risk of progression to a future invasive neoplasm, on the one hand, and future obstetric complications, on the other<sup>(2)</sup>.

Up to the 1960s, aggressive methods such as conization and hysterectomy were used for the treatment of all grades of CIN. The introduction of a more conservative approach, such as destruction or excision of the abnormal transformation zone (LEEP/CAF/EZT), developed by Cartier in 1981, and subsequently refined by Prendiville in 1987, represented important progress for women with premalignant cervical disease<sup>(3-5)</sup>.

Since the 1990s, high-frequency surgery has been the method of choice for removing high-grade CIN and has demonstrated some

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advantages over other approaches. However, persistent or recurrent disease after conization by this technique varies from 5 to 30%, requiring appropriate follow-up and new treatment of lesions that can be identified<sup>(6)</sup>.

Based on these data, this study aimed to evaluate LEEP in the treatment of CIN, analyzing its efficacy as a therapeutic method, recurrence rate, data on the morbidity of treatment and, above all, the reduction in mortality from invasive neoplasia in the subsequent 20 years in a state capital of southern Brazil, in the context of an organized and qualified program for screening for cervical cancer.

## METHODS

A retrospective cohort study was carried out in patients who underwent surgical conization by LEEP and/or conization by the SWETZ technique, at the Cervical Pathology Service of Hospital Erasto Gaertner (HEG) in Curitiba, in the period from January 1999 to December 2007. This study was previously reviewed and approved by the Ethics Committee of the aforementioned service under Protocol No. 1742.

### Sample selection

Women attended at the HEG Cervical Pathology Service with a confirmed diagnosis of CIN 2 and 3, endocervical canal CIN 1 or persistent CIN 1 for more than one year, and who underwent LEEP conization in the aforementioned service, and had a minimum clinical follow-up of 3 years were selected for the study.

Exclusion criteria were the presence of invasive neoplasia, loss of clinical follow-up before 3 years of follow-up and insufficient data in the patient's medical records.

### Data collection

Physical and/or electronic medical records of the selected patients were investigated, including: age, initial anatomopathological diagnosis, intra- and postoperative surgical complications, anatomopathological result of the conization specimen, disease recurrence rate and follow-up time.

The data related to the general mortality rate for cervical cancer were obtained from the Health Department of the Municipality of Curitiba, Epidemiology Sector.

The data related to the incidence of cervical cancer by clinical stage were provided by the Epidemiology Sector of Hospital Erasto Gaertner.

### Conization technique

The LEEP conization technique was performed under local anesthesia, with demarcation of the area to be resected using Lugol's iodine, with removal of 1 or 2 samples, followed by hemostasis performed by cauterization of the margins and placement of a vaginal tampon for 24 hours.

The Swetz technique was performed with a procedure similar to that of the classic cone, using local anesthesia with blockade of the paracervical points, combined with sedation. The demarcation of the colposcopic margin of the lesion was made with Lugol's

iodine, and instead of the cold scalpel, the straight electrode of the electrocautery probe was used without ligation of the paracervical arteries for removal of a single specimen of conical lesion, followed by cauterization of the margins and placement of a vaginal tampon for 24 hours.

In both techniques, the conization specimen was marked with China ink on the true ectocervical and endocervical margins, before sending samples in formaldehyde to the pathological anatomy service.

After surgery, the patients' follow-up was carried out through cytology, colposcopy and, when necessary, cervical biopsy, every 4 months in the first year. After the first year, follow-up was every six months for two more years.

After the third year of follow-up, the patients were discharged by the HEG Cervical Pathology Service, with a medical report for subsequent follow-up by the primary health care service.

### Anatomopathological study of biopsy specimens

The study of the biopsy specimens and conization sample was carried out by the pathological anatomy team at the hospital, by conventional hematoxylin-eosin (HE) staining. Serial sections of the entire length of the tissue piece was examined at up to 400x magnification, with determination of the presence of residual disease in the true margins (marked with China ink).

### Data statistical analysis

Statistical evaluation was done using Excel and database software SPSS version 12.0, using univariate analysis and proportions test ( $\chi^2$ ), having as reference value a significance level of 5% ( $p \leq 0.05$ ) and 95% confidence interval.

## RESULTS

We evaluated 1,550 women, aged between 14 and 93 years ( $35 \pm 11.42$ ), with diagnosis of CIN 2 and 3, CIN 1 of endocervical canal and/or persistent CIN 1, who underwent treatment, and subdivided by evolutionary potential into 2 groups: clinical cure and recurrence of the disease. Of these women, 1,410 (91%) were subjected to LEEP for CIN treatment, 77 (5%) to the Swetz technique and 62 (4%) to other procedure (reconization). Of the 1,550 patients treated, 1,254 did not show prior history of CIN treated at another moment in life (first diagnosis of CIN at the time of this study) and the others had persistent or recurrent disease.

Among the 1,254 submitted to first CIN treatment in this service, 139 were CIN 1 cases, and 1,115 CIN 2 and 3 cases; 1,197 underwent conization and 57 the Swetz technique.

Of the 1,550 patients treated, 105 had recurrence of the disease after treatment in this service, with a recurrence rate of 6.8%. The epidemiological data of the study population is shown in **Table 1**.

In the intraoperative period, there were only 1.2% cases of complications ( $n=18$ ) as follows: 1.1% bleeding ( $n=17$ ) and 0.1% bladder lesion ( $n=1$ ). The postoperative period showed the following complications: 5.8% bleeding ( $n=90$ ), 2.1% infection ( $n=32$ ) and 2.1% cervical orifice stenosis ( $n=32$ ).

Analysis of the conization sample showed that margins were disease-free in 77% (n=1,197) of cases, involved in 16% (n=243), exiguous in 4% (n=63) and not evaluable in 3% (n=45).

There was no statistical difference in recurrence with regard to either the technique used for conization (p=0.75) or the surgeon who performed it, whether head surgeon or resident (p=0.629).

When both margins were disease-free, through the analysis of the conization specimen, there was 5% of recurrence, and when they were involved, recurrence was 16%, showing that involved appearance of the conization specimen margins was a statistically relevant factor for recurrence (p<0.001).

When the Swetz technique and LEEP were compared, there was a 10.5% recurrence rate in patients subjected to the Swetz technique and 6.4% in those who underwent LEEP, showing no statistical difference regarding the risk of recurrence and the surgical technique. Data related to the surgical treatment are shown in **Table 2**.

The anapathological results of the conization specimen did not show a statistical difference between CIN grade and the risk of disease recurrence or the presence of glandular extension and recurrence (**Table 2**).

From these data, the evolution of the incidence of cervical cancer screening protocol program was introduced in Curitiba, as shown in **Figure 1**.

Simultaneous to the evolutionary curve of the clinical stages of cervical cancer over the years, the mortality rate of uterine cervix cancer was plotted, as shown in **Figure 1**.

**Figure 1** shows a clear decrease in the incidence of invasive carcinoma, conversely to the increased incidence of carcinoma *in situ*, during the years in which the organized protocol was in operation, and it displays the progressive decrease in the mortality rate of cervical cancer in the city of Curitiba since 1998, even with the population increase in the city over the years.

**Table 1** – Epidemiological data of the population studied.

Classification	N	Group		p CI95%
		Clinical cure	Recurrence	
AGE*	1,550	1,445 35±10.9	105 35±14	p=0.927
SMOKING**	NO	666 (93.5%)	46 (6.5%)	p=0.126 (CI95% 18–163)
	YES	522 41 (91%)	46 (9%) 4 (9%)	
ALCOHOLISM**	YES	45 1020 (93%)	4 (9%) 73 (7%)	p=0.503 (CI95% 10–18)
	NO	1093 828 (92%)	71 (8%) 13 (8%)	
METHOD ACO**	YES	899 159 (92%)	71 (8%) 13 (8%)	p=1.0 (CI95% 21–24)
	NO	172 20 (71%)	8 (29%) 90 (8%)	
DM**	YES	28 1048 (92%)	8 (29%) 90 (8%)	p=0.01 (CI95% 3–9)
	NO	1138 29 (83%)	6 (17%) 83 (8%)	
HIV	YES	35 891 (92%)	6 (17%) 83 (8%)	p=0.07 (CI95% 5–107)
	NO	974		

Source: Cervical Pathology Service, HEG/BRAZIL.

\*Student t-test; \*\*Fisher exact test; ACO: contraceptive method; DM: diabetes mellitus; HIV: human immunodeficiency virus; CI95%: confidence interval of 95.

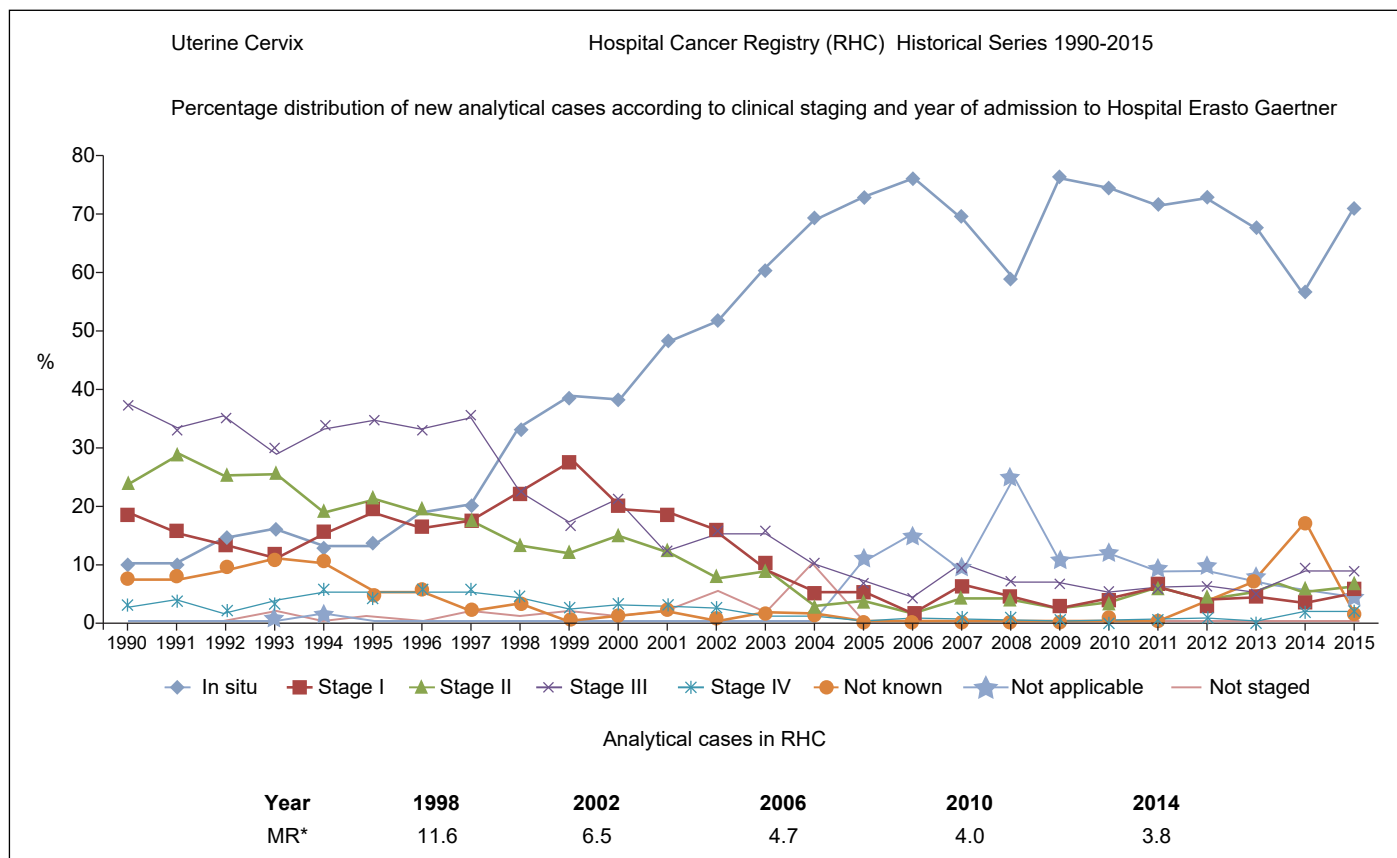
**Table 2** – Data related to the surgical procedure and cervical intraepithelial neoplasia recurrence risk.

Variable	Classification	N	Group		p (95%CI)
			Clinical cure	Recurrence	
Type of Surgery	LEEP	1,197	1,106 (92%)	91 (8%)	p=0.07 (CI95% 7–138)
	SWETZ	57	49 (86%)	8 (14%)	
Cone AP	CIN 1	83	73 (88%)	10 (12%)	p=0.20 (CI95% 10–44)
	CIN 2	466	427 (92%)	39 (8%)	
	CIN 3	548	505 (92%)	43 (8%)	
	BOTH+	37	31 (84%)	6 (16%)	
Cone Margins	ECTOCERVICAL+	92	72 (78%)	20 (22%)	p<0.001 (CI95% 6–12)
	ENDOCERVICAL+	137	118 (86%)	19 (14%)	
	FREE	1197	1133 (95%)	64 (5%)	
Glandular Extension	ABSENT	545	501 (92%)	44 (8%)	p=0.47 (CI95% 30–35)
	PRESENT	690	636 (92%)	54 (8%)	
Surgeon	HEAD	622	568 (91%)	54 (9%)	p=0.408 (CI95% 7–17)
	RESIDENT	639	592 (92%)	47 (8%)	

Source: Cervical Pathology Service, HEG/BRAZIL.

\*Fisher exact test; \*\* $\chi^2$  test; LEEP: loop electrosurgical excision procedure; CIN: cervical intraepithelial neoplasia.

Note: Control Group = clinical cure/Study Group = with CIN recurrence.



**Figure 1** – Data correlate the clinical staging of cervical cancer and mortality rate for cervical cancer in the city of Curitiba (data provided by the Municipal Health Department). Source: Cervical Pathology Service, Hospital Erasto Gaertner and Municipal Health Department. \*MR: mortality rate from cervical cancer for every 100,000 women.

## DISCUSSION

Every year more than 2 million women around the world are diagnosed with breast cancer or cervical cancer, and the quality of life and the socioeconomic condition of each woman will determine the type of cancer she will develop<sup>(7)</sup>.

In less economically favored regions, where health conditions are precarious, cancer contributes to the "cycle of poverty". These inequalities show the urgent need, especially in underdeveloped or developing countries, for sustainable investments for the control of cancer<sup>(7)</sup>.

Cervical cancer develops from a neoplasia with the greatest preventive potential among human cancers of greatest incidence. The genesis of this tumor depends essentially on an infection of the uterine cervix by HPV, which needs to persist for many years to cause cellular transformation<sup>(8)</sup>.

These peculiarities make it easier for both primary prevention through vaccination, and secondary prevention through diagnosis and treatment of precursor lesions<sup>(8)</sup>.

The treatment of women with CIN reduces the risk of invasive carcinoma up to 95%. LEEP has been the preferred method in both the USA and the United Kingdom, due to being associated with low morbidity and high effectiveness in the short term<sup>(9)</sup>.

LEEP shows advantages over cold conization: it is an ambulatory procedure, done under local anesthesia, with low risk of complications, and it is easy to learn and perform. The technique initially only consisted of the use of a strap to remove the transformation area, but over time the use of a second strap was introduced to cover the deeper lesions, although with increased risks to the reproductive future of treated women<sup>(5-12)</sup>.

The findings of this study are comparable to those of the vast majority of studies over the years<sup>(10-15)</sup>, since they indicated a low rate of residual disease and/or recurrence and very low morbidity, and demonstrated low rates of surgical complications, both in the early and later postoperative period, like in most studies of good quality<sup>(10-15)</sup>.

Duggan et al.<sup>(10)</sup>, in their study comparing cold conization and LEEP, obtained 8 to 9% compromise of the margins of the conization specimen, 1% postoperative infection and 9 to 10% intraoperative bleeding. Also, these authors found no difference between the efficacy of the two techniques in the prevention of disease recurrence and in the rates of postoperative complications, which is comparable to the findings with our sample, both in the efficacy of the conization technique and in the rate of complications.

Several authors<sup>(9-15)</sup> have evaluated the persistence and/or recurrence of the disease, and found recurrence rates between 8 and 40% of the cases, using cold laser and LEEP techniques.

A recent meta-analysis<sup>(11)</sup> on CIN treatment demonstrated that LEEP treatment had a recurrence rate of around 5.3% after 12 months and a low rate of complications, one of them being premature birth.

Similarly, another recent meta-analysis<sup>(12)</sup> concluded that LEEP is as effective as the "gold standard" in the treatment of CIN, with regard to the risk of residual disease, risk of recurrence, compromised margins, secondary bleeding and cervix stenosis after surgical treatment. However, women who had undergone LEEP had a significantly lower percentage of deeper conizations and, consequently, lower preterm birth risk.

Since the 1970s, the incidence and mortality of cervical cancer have been decreasing in Northern Europe and North America countries. This decline is related to the introduction of screening programs in asymptomatic women. While in many parts of the third world, this type of cancer still leads prevalence and incidence statistics, determining a severe loss of years of life and quality of life<sup>(8)</sup>.

Mortality analysis studies in the last decade<sup>(16-18)</sup> identified that the decline in the mortality rate of cervical cancer is directly proportional to the investment in and the extent of screening and prevention programs for each place.

The epidemiological and evolutionary data collected here show that the application of the prevention program over 20 years resulted in a clear inversion in the clinical stages of cervical neoplasia, with gradual increase in the incidence of carcinoma *in situ*, and a decrease in the more advanced stages, with a progressive reduction of mortality rates.

Analyzing the evolutionary chart by clinical stage of cervical cancer, we see almost no change in the incidence of stages III and IV, which probably reflects that group of women who, because of system precariousness, cannot access screening programs. However, a limitation of this study was that we analyzed data related to the implementation of a screening program, since this research was carried out only at the level of tertiary activities of the local health system.

## CONCLUSION

LEEP proved to be a highly useful tool in CIN treatment, contributing effectively to the reduction of mortality from cervical cancer, justifying its use in a systematic way in of cervical cancer prevention programs, even in places with few resources.

## Participation of each author

All authors participated actively in this work and gave final approval of the manuscript version submitted.

## Funding

This case report had no financial support or funding.

## Conflict of interests

There is no conflict of interests to be reported.

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Received on: 09.07.2018

Approved on: 12.11.2018

# PERCEPTION OF HEALTH PROFESSIONALS FROM A CITY IN THE INTERIOR OF BRAZIL ON THE VULNERABILITY OF OLDER ADULTS TO HIV INFECTION

## *PERCEPÇÃO DE PROFISSIONAIS DE SAÚDE DE UM MUNICÍPIO NO INTERIOR DO BRASIL SOBRE A VULNERABILIDADE DE IDOSOS A INFEÇÃO POR HIV*

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### ABSTRACT

**Introduction:** Discussing the AIDS/Older adult theme is a challenging task, as it contradicts the common association of old age with "asexuality", added to the difficulty in early diagnosis when considering other common comorbidities in this age group. **Objective:** To know the perception of health professionals regarding the possibility of HIV/AIDS infection in older patients. **Methods:** This cross-sectional observational study received a favorable opinion (19072313.9.0000.5152) from the Human Research Ethics Committee (Universidade Federal de Uberlândia – UFU). Dentists, nurses, and physicians from the Primary Care Network participated. We applied Questionnaire 1 to 15 professionals and analyzed the content to elaborate Questionnaire 2, applied to 220 professionals. **Results:** In the  $\chi^2$  test of independence, the professionals presented a response pattern similar to that expected for most items, indicating that the profession does not determine the Yes or No answer. The exploratory factor analysis identified dimensions and allowed us to eliminate items that did not contribute to the formation of these dimensions. After three attempts, we found five factors and kept only highly correlated items ( $r > 0.5$ ) in the anti-image matrix. Nine of the 25 items were excluded. We performed a multivariate mixed general linear model (professions x factors). An interaction effect between factors and profession was found for factors 2 (Lack of professional engagement), 3 (Lack of engagement of public management), and 5 (Stigma).

**Discussion:** The results suggest similarities and differences in the responses given by health professionals, showing the influence of both common and specific training base of these professionals. **Conclusion:** Older adults are vulnerable due to the non-use of condoms, a practice known to most health professionals. AIDS in old age is not the focus of care in public health services, given the low participation of some professions in the public system and their lack of knowledge, considering the old curricula in educational institutions, which do not offer disciplines to expand the training of this professional.

**Keywords:** comprehensive health care; AIDS; aged; health personnel.

### RESUMO

**Introdução:** A temática AIDS/Idosos é uma tarefa desafiadora, pois contraria a associação comum da velhice à “assexualidade”, acrescentado da dificuldade no diagnóstico precoce com outras comorbidades comuns na velhice. **Objetivo:** Conhecer a visão de profissionais de saúde diante da possibilidade de infecção por HIV/AIDS no paciente idoso. **Métodos:** Este estudo é observacional transversal. Participaram dentistas, enfermeiros e médicos da Rede de Atenção Primária. Aplicou-se o Questionário 1 a 15 profissionais e realizou-se análise de conteúdo com o objetivo de elaboração do Questionário 2, aplicado a 220 profissionais. **Resultados:** No  $\chi^2$  de independência, os profissionais apresentaram padrão de resposta semelhante ao esperado para a maioria dos itens, indicando que não é a profissão que determina o Sim e o Não. A análise fatorial exploratória identificou dimensões e permitiu eliminar os itens que não contribuem para a formação dessas dimensões. Após três tentativas, foram encontrados cinco fatores, mantendo somente itens com correlação elevada ( $r > 0,5$ ) na matriz de anti-imagem. Entre esses itens, 9 dos 25 foram excluídos. Executamos o Modelo Linear Geral Multivariado Misto (profissões x fatores). Observou-se o efeito de interação entre fatores e profissão para os fatores 2 (Desconhecimento pelo profissional), 3 (Falta de engajamento da gestão pública) e 5 (Estigmas). **Discussão:** Os resultados sugerem que há semelhanças e diferenças nas respostas oferecidas pelos profissionais de saúde, mostrando tanto a influência da base comum da formação desses profissionais quanto da base específica da formação. **Conclusão:** Os idosos são vulneráveis em virtude do não uso do preservativo, sendo essa prática de conhecimento da maioria dos profissionais de saúde. A AIDS na Terceira Idade não é alvo de atenção pelos serviços públicos de saúde, resultado da pouca participação de algumas profissões no sistema público e falta de conhecimentos, considerando os currículos antigos nas instituições de ensino, que não oferecem disciplinas para a formação mais ampla desse profissional.

**Palavras-chave:** assistência integral à saúde; AIDS; idoso; pessoal de saúde.

## INTRODUCTION

The growth of the older adult population in Brazil and the world is a reality observed in the demographic statistics. According to projections by the World Health Organization (WHO), until 2025, Brazil will be the sixth country in the world in number of older adults, reaching about 30 million, which corresponds to 15% of the Brazilian population<sup>(1)</sup>. The National Policy for Older Adults (*Política Nacional do Idoso* – Law 8,842 of January 4, 1994) and the Statute of Older

Adults (*Estatuto do Idoso* – Law 10,741 of October 1, 2003) consider older adults people aged 60 years and over<sup>(2)</sup>.

Valentini and Ribas (2003) report that the increase in the older population comes with scientific developments that, to some extent, ensure longevity and better conditions for a healthy old age. On the other hand, health professionals do not connect common diseases in old age – for example, coronary heart diseases, dementias such as Alzheimer, cancers, and lung diseases – with multiple comorbidities and differential diagnosis, dismissing the possibility of another underlying disease, such as acquired immunodeficiency syndrome (AIDS)<sup>(3)</sup>.

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HIV/AIDS epidemic is currently a phenomenon of great magnitude in Brazil. The disease progresses to a part of the population physically fragile and with a more complex approach: older adults. The Department of Sexually Transmitted Diseases (STD), AIDS, and Viral Hepatitis of the Ministry of Health estimated approximately 734,000 people living with HIV/AIDS in Brazil in 2014, corresponding to a 0.4% prevalence. Men aged 60 years and older had a significant increase in detection rate in the last ten years. The detection rate among women according to age presents a significant increasing trend in those aged 60 years and older in the last ten years, raising 40.4% from 2004 to 2013<sup>(4)</sup>.

AIDS is not just an organic disease, it is a psychosocial event, whose theme is usually linked to stigma, prejudice, and derogatory feelings. Old age also carries its own labels hiding prejudices and stereotypes as a phase of human development marked by aging events<sup>(5)</sup>.

Connecting these two themes can be a challenging task, as they contradict the frequent association of old age with asexuality. The association of increased longevity, improved sexual quality of life due to scientific discoveries, and traditional resistance to condom use, makes this population susceptible to acquire HIV/AIDS<sup>(5)</sup>.

Therefore, AIDS is a threat to public health, and the epidemiological trend suggests that, in a short time, the number of older adults infected with HIV will be significantly higher. This situation is mostly due to the physical and psychological vulnerability of specific key groups, the lack of access to health services, and the negligence to their risk exposure, either regarding their sexually or use of illicit drugs<sup>(6)</sup>.

This increase in older adults infected represents a challenge for public health policies since the campaigns concentrate their attention mainly on the young population<sup>(6)</sup>.

Knowledge only, however, is not enough to change behaviors so that the individual can adopt safe practices to avoid infection. It is necessary to focus on sociocultural aspects to reduce risks and vulnerabilities, as society's deep-rooted concept that sex is a prerogative of youth helps to keep this part of the population unassisted. Monitoring and follow-up of these events must be considered on primary health care since it is the main gateway for populations to the public health system (*Sistema Único de Saúde – SUS*), particularly older adults<sup>(6)</sup>.

Most health professionals do not believe that STDs affect older adults, either by their own judgment or by misconceptions, according to beliefs about sexuality and vulnerability to HIV in this age group, delaying diagnosis and preventing immediate identification<sup>(7)</sup>.

Early AIDS diagnosis in people aged 60 years or older is difficult, as this infection is not yet part of the list of differential diagnosis of common diseases in older adults. When it occurs, the specific treatment is delayed and with the lack of organic reserve, a characteristic of this population, the progress of AIDS is generally faster, severe, and fatal<sup>(8)</sup>.

Considering the increasing older population in Brazil, the number of cases of AIDS at the age of 60 years or older, and the insufficient training of health care professionals in this issue, this work had as general objective to know the perception of health professionals facing the possibility of HIV/AIDS infection in older patients.

## OBJECTIVE

To evaluate the knowledge of health professionals regarding the vulnerability of older patients to STDs.

## METHODS

### Ethical aspects

This research complied with the ethical aspects concerning the research involving human beings (Resolution 196/96, National Health Council, 1996), after a favorable opinion from the Human Research Ethics Committee (19072313.9.0000.5152) of Universidade Federal de Uberlândia (UFU), Minas Gerais.

### Participants

The present work is a cross-sectional study, conducted in the city of Uberlândia, Minas Gerais, Brazil, from November 2013 to December 2015. Physicians, dental surgeons, and nurses from the Municipal Primary Health Care, including Basic Health Units (*Unidades Básicas de Saúde – UBSs*), Family Health Basic Units (*Unidades Básicas de Saúde da Família – UBSFs*), and Older Adult Care Units (*Unidades de Atenção ao Idoso – UAIs*) were invited to participate in the study.

We used the probabilistic method for sample composition. The estimated number of the population was 514 individuals, and the formula used to determine the sample size was the one by Fonseca and Martins<sup>(9)</sup>, indicated for calculations involving a finite population, reaching a minimum sample of 220 participants.

### Procedures

For data collection, we applied a self-administered questionnaire with 25 sentences, divided into five thematic areas related to the health of older adults and HIV/AIDS. First, the researcher asked the Municipal Secretariat of Health of Uberlândia (Personnel Management) to perform the survey in the Units aforementioned, in a meeting with the coordinators of the target Units (UBS, UBSF, and UAI), providing explanations about the research and on the approval or rejection of the invited health professionals. In this meeting, the coordinators received the self-administered questionnaires together with two copies of the Informed Consent Form (ICF), so they could invite the professionals under their supervision. The coordinators were informed that participants should sign the ICF and return it to them, and only after this process, they could deliver the questionnaires, thus protecting the total confidentiality of the information.

A total of 20% of the collection performed was repeated after the first two weeks to confirm the reliability of the procedure<sup>(10)</sup>.

### Statistical analysis

We used exploratory factor analysis with varimax rotation, considering all participants and each independent profession. A 0.5 correlation value was used as a cut-off point in the anti-image matrix to identify items that did not compose the generated model. We

adopted a self-value greater than 1 to determine the number of factors extracted in each model. To select the loads of each item in the extracted factors, we used only values higher than  $|0.3|$ . Finally, we used a multivariate general linear model (GLM) between professions and factors extracted from the exploratory factor analysis. All analyses adopted a 5% significance level.

## RESULTS

The exploratory factor analysis aimed at identifying possible dimensions and eliminating items that did not fit into the model of factors generated. In the anti-image matrix, we assessed the value of each item to measure sample adequacy. By using the 25 items, we found that items 3A, 3D, 3E, 4A, 4B, 4E, and 5E presented values below the cut-off point and eliminated them from the analysis. In the remaining 18 items, 1E and 2A showed values below the cut-off point and were eliminated from the analysis.

While performing the factor analysis, we removed items 1E, 2A, 3A, 3D, 3E, 4A, 4B, 4E, and 5E after three analyses, using the criteria  $r < 0.5$ . Item 1E was removed from the analysis, as it opposed studies<sup>5</sup> that demonstrate that AIDS in older adults is a public health issue as this population is susceptible and vulnerable with a high incidence of the disease. Items 2A and 3A were excluded by a confusing response pattern of 49.1 and 50%, respectively. Items 3D and 3E were eliminated for being obvious answers, declaring the test unnecessary and inappropriate, and contradicting the data from the Ministry of Health<sup>(11)</sup>, which affirm that the incidence of the disease in older adults exceeds that of other age groups. Items 4A, 4B, and 4E were removed as they contradicted the confidentiality of patients. Item 5E was cut because people who marked this item claimed to have no care difficulties, but also marked other items claiming to have difficulties.

The third exploratory factor analysis was performed with the remaining 16 items, which all presented values above the cut-off point and were kept in the analysis, resulting in the factors described below, explaining 53.9% of variance (**Table 1**).

**Table 1** – Component matrix after varimax rotation with factor loadings of each item.

Items	Factors				
	1	2	3	4	5
Item 2B	0.776				
Item 1D	0.606				
Item 3B	0.591				
Item 4D	0.488				
Item 5D	0.462				
Item 2D		0.779			
Item 5B		0.744			
Item 1C		0.705			
Item 3C		0.417			
Item 5A			0.405		
Item 1B			0.747		
Item 2C			0.608		
Item 4C			0.333		
Item 2E				0.625	
Item 5C					0.754
Item 1A					0.613

Source: elaborated by the author.

Factor 1 presented an eigenvalue of 2.16, explaining 13.5% of variance. We named this factor *Older adult unawareness*. It comprised the items Resistance to condom use (2B), Older adults' perception of their own risk is little or almost none (1D), Request for examination must be preceded by an extensive clarification to the patient (3B), Communication must be made by the health team in charge (4D), and Difficulty with older adult adherence to treatment (5D).

Factor 2 showed an eigenvalue of 2.09, explaining 13.1% of variance. We called it *Professional unawareness*. It consisted of the items Comorbidities as important factors on disease progression (2D), Associated comorbidities hinder the service (5B), It is still little known by the subject population in general and professionals in the field (1C), and Important differential diagnosis factor for other morbidities (3C).

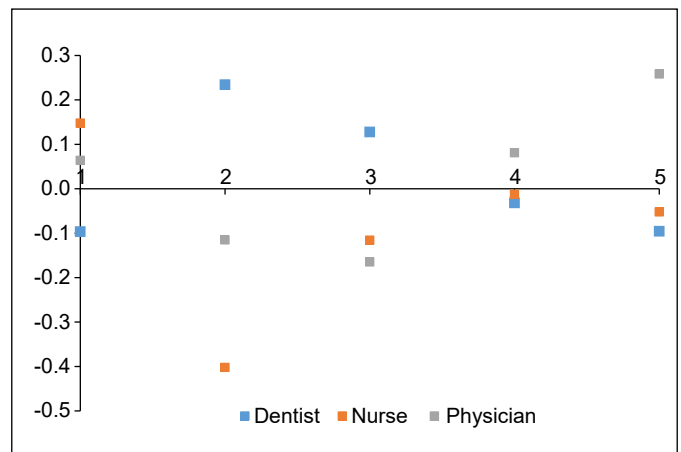
Factor 3 had an eigenvalue of 1.50, explaining 9.4% of variance. We named it *Lack of public administration engagement*. It was composed of the items Missing periodic training as well as further clarification on the appropriate use of PPE (5A), AIDS in old age is not the object of attention of public health services (1B), Difficulty in approaching the subject with society (2C), and In a clear way, as with any other illness (4C).

Factor 4 presented an eigenvalue of 1.46, explaining 9.1% of variance. We called it *Older adult's personal history*. It comprised the item Personal history of long marriage, in which the risk was unknown (2E).

Factor 5 showed an eigenvalue of 1.42, explaining 8.9% of variance. We denominated it *Stigmas*. It consisted of the items Social/psychological aspects can be a barrier to good care (5C) and Sexuality is a taboo in old age (1A).

GLM (**Figure 1**) shows an interaction effect between factors and profession ( $F=3.06$ ;  $gl=8,852$ ;  $p=0.002$ ). The main effects of factors ( $F=0.67$ ;  $gl=4,852$ ;  $p=0.617$ ) or professions ( $F=1.26$ ;  $gl=2.21$ ;  $p=0.285$ ) were not observed.

Factors 1 and 4 did not show differences between professions (Factor 1: 95%CI [-0.19, 0.15]; Factor 4: 95%CI [-0.15, 0.08]). Regarding Factor 2, the average number of dentists (95%CI [0.14, 0.23]) was greater than the number of physicians (95%CI [-0.25, -0.12]) and nurses (95%CI [-0.54, -0.40]). In addition, the average



**Figure 1** – Average and 95% confidence intervals for each factor and profession.



number of dentists and physicians was higher than that of nurses. Factor 3 presented a higher average number of dentists (95%CI [0.03, 0.13]) than that of nurses and physicians (95%CI [-0.30, -0.12]). Nurses and physicians did not differ. In Factor 5, the average number of physicians (95%CI [0.12, 0.26]) was greater than that of dentists and nurses (95%CI [-0.19, -0.05]). Nurses and dentists did not differ.

## DISCUSSION

When analyzing the perception of health professionals regarding the possibility of HIV/AIDS infection in older adults, it is essential to consider the difficulties found by these professionals in the care of this population, such as stigmas, social/psychological aspects, and the knowledge arising from the training of each professional. According to Figueiredo<sup>(7)</sup>, most health professionals rarely believe that STDs can affect older people.

The present study revealed similarities and differences in the answers of health professionals, showing the influence of the common and specific training base of these professionals.

The results obtained in the chi-square test of independence confirm this statement, as most professionals had a response pattern similar to the expected. However, items 1C, 2D, 4A, 4B, and 5C presented values different from the expected, showing that the profession – dentist, nurse, and physician – determines the Yes or No answer. The items mentioned are directly related to the specific knowledge of each professional. Other studies have also shown these differences.

Melo<sup>(8)</sup> found that health professionals have different responses regarding the use of marijuana. Lara<sup>(12)</sup> also noted that this difference existed in his study on the perception of family health professionals about the quality of life at work. This shows the present counterpoints between medical ethics and cultural factors. These facts explain the existing knowledge conflicts concerning care and address professional insecurity. Cutolo<sup>(13)</sup> reported on medical education and current medical practice, showing the need to transform the medical schools in the country, including all the curricular structure and the health-disease concept, providing training for physicians convinced of the importance of combining technical excellence with concepts closer to reality, and preparing them for the new labor market, which has been structured beyond the academic sphere.

Analyzing the GLM results between professions and factors, we verified that differences occurred only when there was interaction between factors and professions. Factors 1 (Older adult unawareness) and 4 (Older adult's personal history) showed no differences because these factors involve the knowledge of older adults, not professionals. These factors grouped items related to older adults' unawareness and personal history, which are not influenced by the training or experience of health professionals. The other factors differed due to their association with the experience of each professional, as well as their training. Future studies might be associated with the results of this investigation, adding the perception of older adults regarding the proposed theme.

In Factor 2 (Professional unawareness), the average number of dentists was higher than that of physicians and nurses, given that this profession traditionally brings the idea of high specialization, more focused on the oral cavity, which enabled great advances but

fragmented scientific relationships between ideas and their contexts, away from the many subjects that should be added to their training. New curricula are being included so that dentistry can be more assertive in people care. An example is the School of Dentistry at Universidade Federal de Uberlândia, which did not include a specific discipline of Geriatrics in its old curriculum. The new curriculum, approved through the pedagogic project<sup>(14)</sup>, has a theoretical discipline of Geriatrics.

Factor 3 (Lack of public administration engagement) had a higher average number of dentists, showing the low participation and knowledge of these professionals regarding the public system, unlike physicians and nurses, who have lived this reality for a longer period. The answers indicated an equal view of physicians and nurses. Again, as an example, the old curriculum of the School of Dentistry at Universidade Federal de Uberlândia did not include an internship in SUS, while the current one has a mandatory internship, in addition to the possibility of extension projects<sup>(14)</sup>.

Factor 5 (Stigmas) presented an average number of physicians higher than that of dentists and nurses. This result may indicate a lower humanization of physicians due to a greater distance to their patients. Nurses and dentists had equal averages, demonstrating that they are closer to their patients, with more humanized care<sup>(15)</sup>.

According to Siqueira<sup>(16)</sup>, some results indicate the responsibility of the university in this serious distortion of professional training in a North American study conducted in the 1950s and which remains current. The research shows that upon entering college, most young people showed a special interest in exercising the profession guided by a spirit of altruism and desire to help others. At the end of the course, however, little remained of this ideal in the newly graduated. The data collected allowed the author to conclude that, paradoxically, during medical school, cynicism conceived as a professional rule grew significantly, while humanism diminished.

Based on the results obtained, we found a limitation in the study, as the year of graduation of each professional was not determined, which could also be related to the changes that have been taking place in the new curricula of each course. Recent curricular changes are already being made with this objective, as previously reported in the School of Dentistry and Medical School at Universidade Federal de Uberlândia. Afterward, it would be possible to verify whether this alteration in the training base would actually change the perception of these professionals.

According to a literature review, no studies related to these professionals regarding older patients and the possibility of HIV/AIDS infection were found. However, the results of this study reveal that this perception follows or diverges from the professionals' answers, which shows the influence of training on some factors. Promoting health actions becomes important, taking into consideration that many patients are unaware of their clinical condition or do not mind informing the health care provider who treats them.

## CONCLUSION

AIDS in old age is not the object of attention of public health services due to the low participation and unawareness of some professions in the public system, given the old curricula in educational institutions, which do not offer disciplines to expand the education

of this professional. The study suggests through the items analyzed that dentists have a greater response pattern about unfamiliarity and engagement with the public administration, which results from a higher specialization and lack of these professionals in the public system. The study also shows the necessity of curricular changes so that professionals can be more assertive in people care. Regarding stigma, the greater response pattern of physicians indicates a lower humanization of these professionals as a result of their detachment from their patients.

### Participation of each author

Each author has participated actively and sufficiently in this work, and all had final approval of the manuscript version being submitted.

### Funding

This study was funded by the authors.

### Conflict of interests

There is no conflict of interest to declare.

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Received on: 11.17.2018

Approved on: 01.04.2019

# IA1 MICROINVASIVE CERVICAL ADENOCARCINOMA IN A YOUNG WOMAN: CONSERVATIVE PROCEDURE AND REPRODUCTIVE OUTCOME

*ADENOCARCINOMA MICROINVASOR IA1 DO COLO DO ÚTERO EM MULHER JOVEM:*

*CONDUTA CONSERVADORA E RESULTADO REPRODUTIVO*

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## ABSTRACT

**Introduction:** The expansion of cytological screening programs for cervical cancer leads to an increase in the proportion of both adenocarcinomas and diagnoses in young women with reproductive intention. Conservative treatment is not fully established. **Objective:** to report the conservative management and follow-up difficulties of a real case of microinvasive cervical adenocarcinoma in a young woman. **Case report:** This is a case report of a 23-year-old patient with stage IA1 microinvasive cervical adenocarcinoma related to HPV18. The patient was vaccinated against HPV 16/18 at 16 years of age and conservatively treated. She became pregnant during follow-up with a favorable outcome. **Conclusion:** We discuss the difficulties and uncertainties regarding follow-up and opportunity for hysterectomy, emphasizing the need for a multidisciplinary approach to make a balanced decision between conservative treatment and oncological safety, as well as mitigate follow-up difficulties in real life.

**Keywords:** adenocarcinoma; uterine cervical neoplasm; conization; conservative treatment; pregnancy outcome; treatment outcome.

## RESUMO

**Introdução:** A ampliação dos programas de rastreamento citológico de câncer do colo uterino resulta em aumento na proporção de adenocarcinomas e de diagnósticos em jovens ainda com desejo reprodutivo. O tratamento conservador não está totalmente estabelecido. **Objetivo:** descrever a condução conservadora e as dificuldades de seguimento em caso real de adenocarcinoma microinvasor do colo em uma jovem. **Relato de caso:** É relatado o caso de uma paciente de 23 anos com adenocarcinoma microinvasor IA1 do colo uterino relacionado ao HPV 18, mesmo vacinada contra HPV 16/18 aos 16 anos. Foi tratada conservadoramente, com gestação e desfecho favorável. **Conclusão:** São discutidas as dificuldades e incertezas em relação ao seguimento e à oportunidade para histerectomia, ressaltando a necessidade de abordagem multidisciplinar para decisões equilibradas entre tratamento conservador, segurança oncológica e, ainda, amenizar as dificuldades de seguimento na vida real.

**Palavras-chave:** adenocarcinoma; câncer do colo do útero; conização; tratamento conservador; resultado da gravidez; resultado do tratamento.

## INTRODUCTION

Cervical cancer results from an infection caused by Human Papillomavirus (HPV), usually sexually acquired<sup>(1)</sup>. The most prevalent viral types of this cancer are HPV-16 (55%) and HPV-18 (15%)<sup>(2,3)</sup>.

The currently recommended strategy to control this neoplasm is the regular screening test in women over 25 years of age associated with HPV vaccination before beginning sexual activity<sup>(4)</sup>. The coverage expansion of screening programs has resulted in the anticipation of diagnoses, with more cases of cancer in reproductive-age women. In addition, cytological screening has a lower impact on adenocarcinoma diagnosis<sup>(5-7)</sup>.

Diagnosis in young women is a particular situation that needs to find a balance between reproductive maintenance and oncological safety. The literature still debates conservative treatments.

The present report is an update on the case of a young woman, previously vaccinated against HPV at 16 years of age, who developed a microinvasive cervical adenocarcinoma treated conservatively. Follow-up difficulties before and after the reproductive outcome stood out.

## CASE INTRODUCTION

The preceding history was previously published as a case report<sup>(8)</sup> and briefly describes this 16-year-old patient participation (2005) in a multicenter, international, randomized, and double-blind phase III study that assessed the effectiveness of the HPV-16/18 vaccine (GlaxoSmithKline Biologicals) compared to the Hepatitis A vaccine as a control, regardless of cytological status and HPV-DNA test in the initial cervicovaginal sample and serological status for HPV.

The clinical trial "PATRICIA" provides details on the methodology of this study<sup>(9)</sup>. In 2012, the breaking of the blinding revealed that this patient had received three doses of the HPV vaccine in 2005 when she already had a positive HPV-DNA test for HPV-18 and negative cytology. This same pattern of exams was maintained (positive DNA-HPV-18, negative HPV-16 and other 23 types, negative cytology, and colposcopy without suspicious images) up to the end of the study in 2010. In the 2005–2010 period, the patient underwent five annual tests for *Chlamydia trachomatis* and two tests for *Neisseria gonorrhoeae* (HC2 CT/GC DNA Test, Hybrid Capture<sup>®</sup>2, Digene, Gaithersburg, USA), all negative. The patient remained with a single partner until 2012 and used oral hormonal contraceptive. After 2010, she continued with an annual follow-up, and, in 2012, at the age of 23 and with a positive HR-HPV test (HC2 High-Risk HPV DNA Test, Hybrid Capture<sup>®</sup>2, Digene, Gaithersburg, USA), she showed ASC-H cytology (atypical squamous cells of

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undetermined significance which could not exclude high degree)<sup>(6)</sup>. The colposcopy carried out at the time was adequate, with a type 1 transformation zone and a thin acetowhite area in the endocervical mucosa, whose biopsy revealed an "adenocarcinoma in situ" (AIS).

Afterward, an Excision of the Transformation Zone (ETZ) was performed, and the definitive diagnosis was IA1 microinvasive adenocarcinoma (FIGO, 2014)<sup>(10)</sup>, presenting microinvasion of less than 1 mL depth, endocervical margin, and channel reinforcement free of neoplasia. The immunohistochemical study identified the presence of HPV-18 DNA. The patient underwent a conservative procedure with periodic follow-up to preserve fertility.

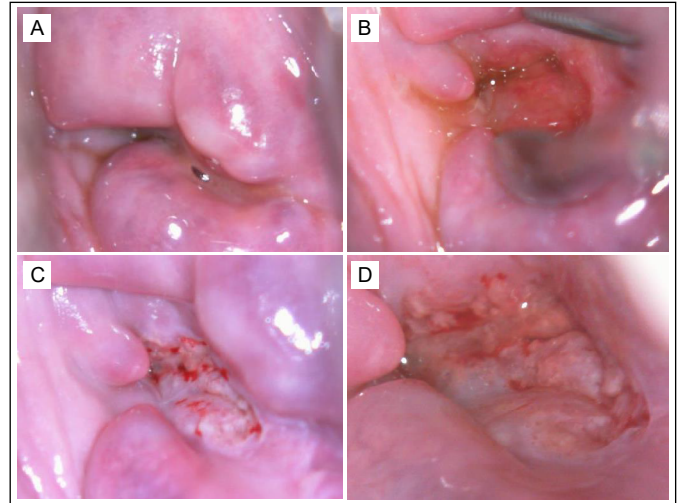
About three months after ETZ, she had a planned pregnancy. A cerclage was conducted at 16 weeks, indicated by her obstetric history of isthmus cervical incompetence in a previous pregnancy, at the age of 15, which required cerclage and resulted in premature vaginal delivery (1,700 g live-born).

Regular prenatal care continued and progressed with premature rupture of membranes at 33 weeks and 5 days. The cerclage point was removed, followed by the vaginal delivery of a preterm newborn, with 2,010 g, 41 cm, and Apgar 8/9. **Figure 1** describes the oncological follow-up during pregnancy and after delivery.

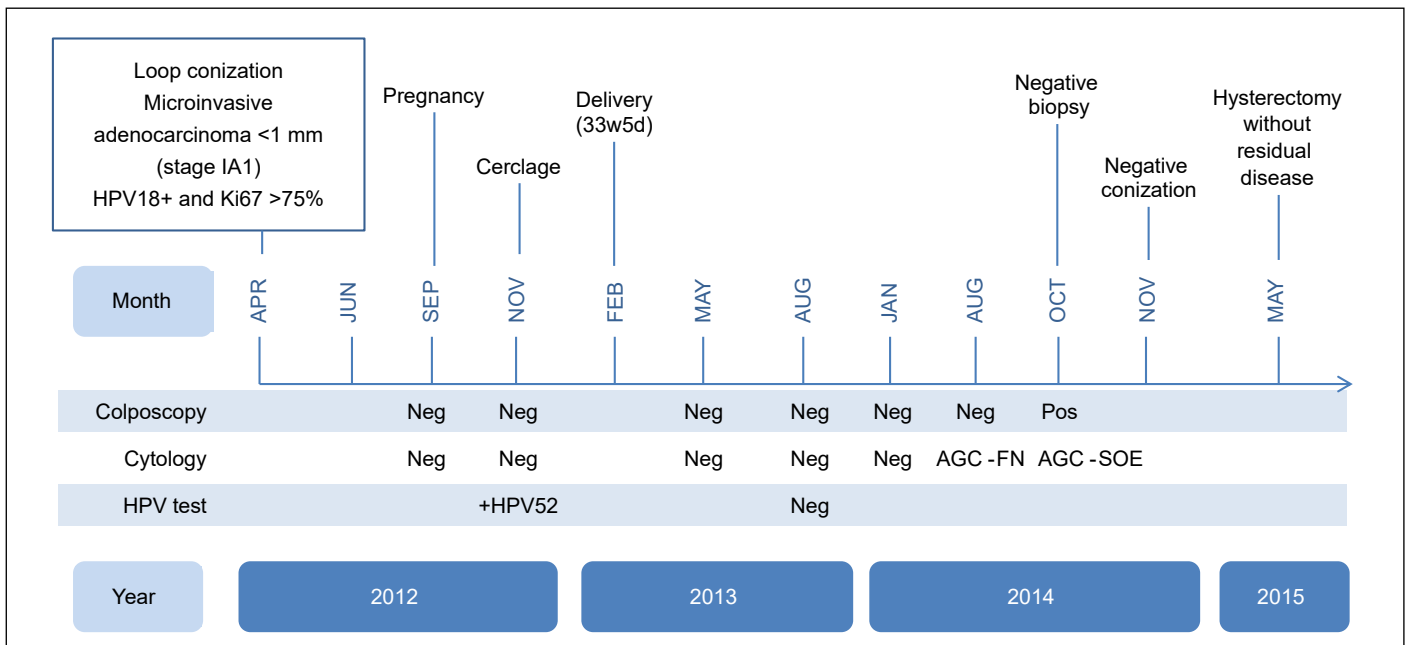
During pregnancy, an HPV test (PapilloCheck®, Greiner Bio-One, Frickenhausen, Germany) detected the viral types HPV-52 (high-risk), -42, -43, and -44 (low-risk). Six months after delivery (14 months after ETZ), the patient underwent the latest HPV test in the case, with a negative result for HPV-16 and -18, and positive for the group of 12 other HR-HPV (HPV test Cobas®, Roche Molecular Diagnostics, Pleasanton, USA).

At that time, the cancer cytology test and colposcopy showed no changes. Follow-up continued, and after an additional 12 months, the patient presented AGC-FN cytology (atypical glandular cell;

favor neoplasia)<sup>(6)</sup>. The patient was reviewed with colposcopy – which revealed suspicious endocervical images (**Figure 2**) – and biopsy, and a cytology review was requested. The biopsy was negative, and the diagnosis of the cytology review was AGC-NOS (not otherwise specified)<sup>(6)</sup>.



**Figure 2** – Irregular cervix observed after two cerclages and prior loop conization (A). Columnar squamous junction located at the level of the external orifice (type 1 transformation zone) (B), presenting several discrete yellowish focal areas in the endocervical mucosa, with discrete relief and becoming acetowhite (C, D). Impression of suspected high-grade abnormalities (colposcopic images obtained in Full-HD through the ICONOS® video colposcopy prototype).



**Figure 1** – Chronology of events and test results since the initial treatment in 2012.

Cervical conization with cavity and remaining channel curettage was performed – with negative histopathological results – to obtain a more accurate diagnosis of the situation at that moment and due to the case progress characteristics and the pattern of glandular lesions of the cervix. In a multidisciplinary meeting with the patient, and at her request, a hysterectomy was chosen. The surgery (total hysterectomy and bilateral salpingectomy) had no complications, and the anatomopathological result did not show residual disease. The follow-up continued until 2018 without further changes. The patient authorized the publication.

## DISCUSSION

The follow-up after conservative treatment for microinvasive cervical adenocarcinoma can cause insecurity, anxiety, and disagreement among assistant team members since few similar cases are described and there is no consensus in the literature.

The issues found in the procedures for glandular lesions of the cervix are related to their characteristics and may be multifocal, endocervical, and less accessible to colposcopy, added by difficulty in defining glandular atypia in the cytological test, which presents low agreement between cytopathologists<sup>(11,12)</sup>.

In carcinoma follow-up, biomolecular tests related to HPV do not have a defined value as screening has. The present case identified the persistent presence of HPV-18 DNA throughout screenings from 2005 to 2012, which disappeared after microinvasive treatment. There was only a transitory detection of other types of HPV during pregnancy, mostly of low risk, which subsequently disappeared, a situation considered common during pregnancy.

The detection of cervical adenocarcinoma is generally late, occurring in advanced stages and with worse prognosis compared to squamous cell carcinomas<sup>(5)</sup>. The tendency, when faced with a diagnosis of glandular lesion of the cervix, is to adopt a more aggressive treatment<sup>(13)</sup>. These difficulties related to the initial diagnosis can increase in case of follow-up after treatment.

The case reported had no fully defined and specific guideline for microinvasive adenocarcinoma treatment<sup>(14,15)</sup>, and the cytology and colposcopic follow-up difficulties inherent in glandular lesions persisted. In addition, as this case involved a patient with an obstetric history of prematurity, her obstetric future could point to a less conservative procedure.

Hysterectomy is the most accepted and indicated procedure for cases of IA1 microinvasive adenocarcinoma<sup>(14)</sup>. In general, hysterectomy should be reconsidered when there is the option for a conservative procedure, after a reproductive success. During follow-up of the present case, a second excision procedure was indicated and carried out despite the biopsy being negative, due to the AGC-FN cytology and suspicious colposcopy, and the cytology review changed the diagnosis to AGC-NOS (not otherwise specified).

These inconsistencies and disagreements are inherent in the current knowledge, with subjective criteria, less agreement about the definition of glandular atypias, and difficulty in obtaining a colposcopic image related to AIS or microinvasive adenocarcinoma<sup>(11-16)</sup>. The possibility of multifocal or hidden lesions in the channel has strengthened the choice of adopting hysterectomy for this case.

The indication of hysterectomy aiming at a "definitive treatment" was influenced by the patient's request; the possibility of a false

negative in the second excision procedure; potential difficulties in continuing with follow-up due to the two ETZs and two previous cerclages; the immunohistochemical study of the initial neoplasia, which revealed high Ki67 expression related to a high rate of cell proliferation; and the exceptionality of the case, since the patient was not in the age group screened, had control frequency above the usual (clinical research protocol), and developed a neoplasia despite previous vaccination against HPV.

The reported case highlights the need to find a balance between oncological safety and reproductive maintenance. Conservative approaches to microinvasive cervical cancer are currently indicated, and the literature shows a tendency for such conduction regardless of the histological type of microinvasion, whether squamous or glandular, as there is no consistent information about a greater risk of recurrence after a conservative procedure in microinvasive adenocarcinoma<sup>(14-17)</sup>.

Conservative management with cervical conization, provided that the resection margins are free and there are no signs of lymphovascular space invasion, can be considered oncologically safe<sup>(14,15)</sup>, evidently aiming at some gestational success<sup>(18,19)</sup> as the case presented.

There are several studies about reproductive maintenance after cervical excision procedures, and among the most recent, the meta-analysis by Kyrgiou et al., and Papoutsis et al. indicate no changes in fertility after conization but a possible greater risk of preterm birth, as happened in the present case<sup>(18,20)</sup>. The cerclage performed in the studied patient probably contributed to the favorable outcome and was already indicated due to the previous diagnosis of isthmus cervical incompetence, which could have been aggravated by the loop conization done before the second pregnancy. It is noteworthy that despite the higher obstetric risk in patients with previous excision procedures, cerclage is not indicated routinely. In this case, the only suggestion is a more intensive follow-up with a serial evaluation of the cervix through physical and ultrasonographic examination during prenatal care<sup>(18,20)</sup>.

Finally, the present case emphasizes the need to update diagnostic and therapeutic procedure teams frequently due to constant difficulties and changes concerning adenocarcinoma in young women. Particular cases, such as the one presented, should be discussed in multidisciplinary meetings to define strategies to reduce follow-up uncertainties and the anxiety associated with conservative treatment, thus avoiding approaches that may be considered excessive nowadays.

## Participation of each author

Each author has participated actively and sufficiently in this work, and all had final approval of the manuscript version being submitted. The patient authorized the publication.

## Funding

This case report had no financial support or funding.

## Conflict of interests

There is no conflict of interests to report.

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Received on: 12.12.2018

Approved on: 01.14.2019

# RECENT SYPHILIS WITH ORAL MANIFESTATIONS: THREE CASE REPORTS TREATED AT A STD CLINIC

## SÍFILIS RECENTE COM MANIFESTAÇÃO ORAL: RELATO DE TRÊS CASOS ATENDIDOS EM UMA CLÍNICA DE DST

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### ABSTRACT

**Introduction:** The occurrence of sexually transmitted infections with oral manifestations, such as syphilis, remains a challenge in the era of rapid tests associated with an adequate clinical evaluation in the patients' approach. **Objective:** To describe the clinical and laboratory aspects involved, from the diagnosis to prognosis, of three case reports of recent syphilis with oral manifestations attended at a university clinic in the city of Niterói, Rio de Janeiro, Brazil. **Case report:** Three cases of recent syphilis with oral manifestations in the tongue region. The first one, a 38-year-old female patient who presented syphilis in regions of the body other than the oral cavity (case I); the second one, a 31-year-old male patient with oral ulcerative lesions with associated genital lesion (case II); and, finally, a 49-year-old female patient suspected of oral human papillomavirus (HPV) lesions, in which syphilis was confirmed after a long path to obtain her diagnosis (case III). All cases were laboratory tested at the time of diagnosis and received appropriate treatment and guidance. **Conclusion:** It was possible to observe through the present study that some situations need attention: evaluation of the oral cavity should occur concomitantly with the investigation of genital lesions; diagnosis hypothesis of occurrence of syphilis with oral manifestation should be considered in the clinical evaluation; oral lesions may present similar clinical manifestations, suggesting investigation of their possible infectious etiology.

**Keywords:** oral manifestations; dentists; syphilis.

### RESUMO

**Introdução:** A abordagem das infecções sexualmente transmissíveis com manifestações orais, tais como a sífilis, ainda permanece um desafio na era dos testes rápidos associados à adequada avaliação clínica na assistência de pacientes. **Objetivo:** Descrever os aspectos clínicos e laboratoriais envolvidos, do diagnóstico ao prognóstico, de três casos clínicos de sífilis recente com manifestações orais atendidos em uma clínica universitária do município de Niterói, estado do Rio de Janeiro. **Relato de caso:** Trata-se de três casos de sífilis recente com manifestações orais na região de língua, que ocorreram em: uma paciente do sexo feminino, 38 anos, em que as manifestações da sífilis foram observadas em outras regiões do corpo e na cavidade oral (caso I); um paciente do sexo masculino, 31 anos, que apresentava lesões ulceradas orais com lesão genital associada (caso II); e, por fim, uma paciente do sexo feminino, 49 anos, sob suspeita de infecção pelo vírus do papiloma humano (HPV) oral, em que foi confirmada sífilis após percorrer um longo trajeto até o estabelecimento do seu diagnóstico (caso III). Todos os casos realizaram testes laboratoriais por ocasião do diagnóstico e receberam tratamento e orientação adequados. **Conclusão:** Foi possível observar pelo presente estudo algumas situações que necessitam de atenção: a avaliação da cavidade oral deve ocorrer de forma concomitante e sistemática com a investigação de lesões genitais; a hipótese diagnóstica de ocorrência de sífilis com manifestação oral deve ser considerada na avaliação clínica; lesões bucais podem apresentar manifestações clínicas similares a outras doenças, sugerindo investigação de sua possível etiologia infecciosa ou não.

**Palavras-chave:** manifestações orais; cirurgião-dentista; sífilis.

## INTRODUCTION

Aspects involved in the diagnosis of oral lesions pass by a series of ethical, subjective and professional factors in which odontology has a prominent role, as the oral cavity can signal or highlight disease systemic manifestations<sup>(1)</sup>. In this context, we find syphilis, a sexually transmitted infection known since the end of the 15<sup>th</sup> century whose etiologic agent is the *Treponema pallidum*<sup>(2,3)</sup>.

Also known as the “great imitator”, due to the diversity of differential diagnosis that it presents, syphilis is a public health world problem<sup>(4)</sup>. In Brazil the diagnoses are notifiable, and according to the Ministry of Health, in the epidemiological bulletin published in 2016, more than 84 thousand syphilis cases were notified, more than 37 thousand acquired by pregnant women and, finally, a number around 20 thousand cases of congenital syphilis, totaling 185 deaths<sup>(5)</sup>.

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Oral manifestations may occur in any of the three stages of the disease evolution, found less frequently in the primary one. The fact of the primary lesion of syphilis (chancre) also evolves spontaneously tends to confuse health professionals about the diagnosis and the interruption of the investigation<sup>(6,7)</sup>.

When syphilis is in the secondary stage, diagnosis through oral lesions may become more evident, since there are other systemic signs and symptoms that can be associated with the disease<sup>(3,7,8)</sup>.

For the effective eradication of syphilis, it is necessary to interrupt the transmission, and so prevent new cases. For this to occur, early diagnosis and appropriate treatment become necessary, and the patient submitted to quantitative serological assessments (Venereal Disease Research Laboratory—VDRL or rapid plasma reagin—RPR) during the first year, evaluated in the third, sixth and 12<sup>th</sup> month after treatment<sup>(9)</sup>. The partners should also be investigated in case of quantitative serology through reagent treponemal test and prophylaxis held whenever possible.

The present study was previously approved by the Ethics and Research Committee (Comitê de Ética e Pesquisa—CEP) of Universidade Veiga de Almeida, no. 2424828, and aimed at describing the clinical and laboratory aspects involved in the diagnosis, treatment and prognosis of three recent clinical syphilis cases with oral manifestations.

## CASE REPORTS

### Case I

Female patient, 38 years old, student, married, black, from the city of Niterói, RJ, Brazil, attended a consultation with the main complaint of “bruises in the genital region and around the anus”. According to the patient’s own report, a small painless sore in the genital region appeared about six months before, followed by an adenopathy at the same side of the lesion. Patient also described an improvement compared to the initial lesion, followed by the appearance of reddish spots on the body that, according to her information, seemed allergic reactions, and lumps in various parts of the body, especially on the genitalia, that took a whitish aspect and associated pain.

Described herself heterosexual, with a history of the first intercourse at the age of 17, practicing vaginal, oral and anal sex, without condom, twice a month at this stage of the disease. According to the patient, the frequency of relations was three or four times a week. She told she had a single partner in a five-year relationship. Reported not having supplementary health plan, with family income between one to two Brazilian minimum wages, high school degree, studying to get into a university. Patient didn’t know whether her partner had any kind of complaint about any disease.

Throughout the whole period of the disease evolution, the patient reported to be often in medical consultations. However, she presented no diagnosis for pathology. After approximately 30 days, VDRL was indicated, and when received the result the patient sought the Programa Médico da Família (Family Doctor Program), in which she was seen by a doctor who referred her to the gynecology service of a municipal hospital, being diagnosed with condylomatous HPV, and the treatment proposed was the cauterization of the lesions.

With this diagnostic hypothesis, patient was referred to the Sexually Transmitted Diseases Department of the Universidade Federal Fluminense University (Niterói, RJ, Brazil) recommending that patient was submitted to surgical excision of the lesions.

On physical examination, patient was collaborative and with good general appearance. Patient presented visible erythematous lesions in chest, mainly in the dorsal region, and disseminated papillomatosis; presence of mucous membrane plaques in the tongue; papillocrusted injuries that occurred in the mentonian area, corners of the mouth and nose wing. It was still possible to observe the presence of palpable lymph nodes in cervical posterior chain and in the inguinal region, which were movable and painless. In the inguinal, perineal and perianal regions, the syphilis lesions were verified with painful, whitish, humid compatible with the flat condyloma. The genitalia showed the presence of the same injuries in the regions mentioned, compromising mainly small and big lips and perineal region (**Figure 1**).

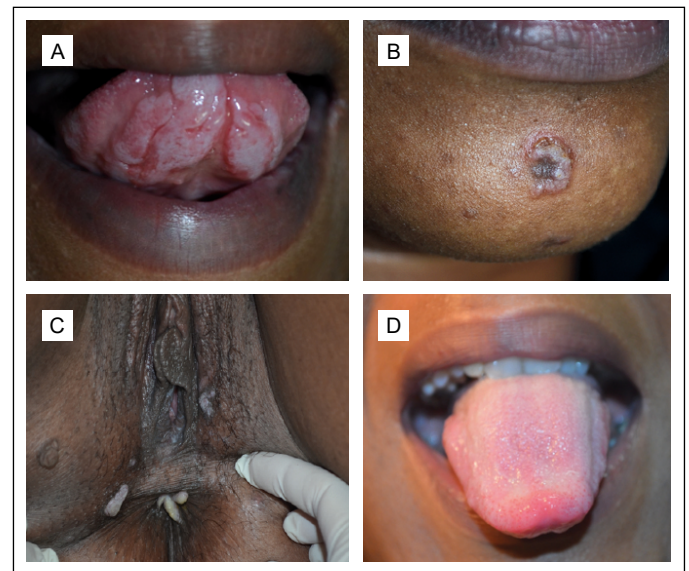
The VDRL was 1:256, and the treatment done with benzathine penicillin G was adequate for the stage. Patient was requested to return to the clinic for reevaluation in 30 days. She returned three months after treatment and was uninjured.

The VDRL was 1:32. The patient reported that her partner, although asked, didn’t attend to our service, but she reported that he was treated in a clinic close to his residence.

### Case II

Male patient, 31 years of age, bank clerk, resident in Niterói, college degree, heterosexual, white, was referred to a public university clinic in the city of Rio de Janeiro, RJ, Brazil, complaining of “aphthae”.

Patient reported that oral lesions, which he thought to be aphthae, had emerged about 30 days, approximately. Oriented by a



**Figure 1** – (A) The mucous in the tongue back; (B) papillocrusted injury in mentonian region; (C) papillomatosis lesions in the genital region; (D) plaque on back of tongue.



pharmacy clerk, he made use of hydrogen peroxide, sodium bicarbonate, among other products, according to the patient. Not showing improvement, sought medical attention, being diagnosed with candidiasis, and it was recommended mouthwash with Nystatin and routine tests. Due to the persistence of symptoms, patient returned to the health unit, where he was prescribed fluconazole, and new tests were requested.

Aggravated the clinical symptoms, the patient searched for another medical center, where he was prescribed a medication for his stomach. Still not improving his physical condition, he sought the university clinic mentioned before and reported “bruise on penis for about five months and spots on the body that appeared and disappeared”. In anamnesis, patient informed previous HPV and electrocauterization.

Patient described himself heterosexual, informed he had sexual activity with frequency of four times a week. According to the patient himself, he was insertive and receptive to oral intercourse and insertive in anal intercourse, without using condoms during intercourse. Patient reported first intercourse at 13 years of age.

In the oral cavity, he presented white plaques in the back of the tongue and in the lower lip mucosa (**Figure 2**), as well as atypical thorax and genitalia with framed injury to the penis, which according to his report disappeared after the use of medication.

The treponema rapid test was reagent. Patient was treated with benzathine penicillin G. The VDRL (1:64) took place two weeks after the treatment. In the following month, the VDRL was 1:32. On that occasion, it was observed in his clinical reevaluation that lesions disappeared and he was in the stage of healing control (**Figure 2**).

### Case III

Female patient, 49 years of age, married for five years (was separated from her husband for a year and reconciled one year before



**Figure 2** – (A), (B) and (C) Irregular white plaques in back of tongue and lower lip mucosa; (D) total regression of the lesion.

the assistance), attended a Basic Health Unit in the city of Niterói, referred to a dentist, worried about the presence of white lesions in both edges of the tongue, causing burning sensation and pain of medium intensity. Patient reported she was already seen by several professionals in the period of two months prior to this consultation without a diagnosis definition.

The patient reported spots on the body, for about five months, thinking they were caused by some allergy.

Patient's path until resolution of her case:

- First professional: doctor 1 was a dermatologist that tried to understand the spots on the body, prescribed prednisone 20 mg, without remission of symptoms after use;
- Second professional: surgeon-dentist 1, who was looked for after a month of the previous consultation, due to white lesions on the edges of the patient's tongue, right and left, with burning and pain. The professional referred the patient to an oral/maxillofacial surgeon;
- Third professional: doctor 2 was an otorhinolaryngologist. A week after the dentist 1 evaluation, the patient experienced intense discomfort in the throat and sought the professional, who was surprised at the changes that seemed to have been caused by corrosive agent. As the patient reported the use of sodium bicarbonate (on her own trying to heal the lesion on the tongue), the doctor prescribed pantoprazole sodium sesquihydrated 40 mg. Without clinical improvement, the patient returned to the doctor after a week and was oriented to perform mouthwash with Nystatin solution. There was no improvement with the use of the antifungal;
- Fourth professional: the surgeon-dentist 2 suggested an oral/maxillofacial surgeon for the removal of white lesions in hospital environment and requested some pre-surgery tests. Worried about the surgical indication, patient returned to surgeon-dentist 1, that referred her for further evaluation with a dentist-surgeon 3 at a public unit of basic health attention in the city of Niterói;
- Fifth professional: surgeon-dentist 3 conducted evaluation of the oral cavity and anamnesis. During the anamnesis, the patient reported the spots on her body, her path in search for diagnosis and the medications used, with no success. During oral examination, the patient presented not detachable and not bleeding white lesions at the right and left edges of the tongue (**Figures 3A, 3B and 3C**). The physical examination observed that patient had numerous pink coloring and papular lesions with discrete pruritus in abdomen, dorsal and lumbar regions and lower extremities for about four months. Before the oral lesions with concomitant skin changes, the professional suspected of a sexually transmitted infection. The rapid tests (human immunodeficiency virus — HIV, syphilis, hepatitis B and hepatitis C) and exfoliative cytology (tongue border fragments, right side) were carried out in the health unit. The rapid test for syphilis was reagent, and the others were non-reagents. The cytology had nonspecific outcome. Due to the positive result of the treponemal quick test, VDRL was requested and showed reagent with 1/512 dilution, and syphilis was the diagnosis.

The treatment was made with penicillin G benzathine, and after the first administration, the mouth and skin lesions completely regressed

in two weeks. Then, the patient underwent counseling consultation and guided about the need for investigation of infection of her partner, who carried out the VDRL with dilution of 1:1, and fluorescent treponemal antibody absorption test (FTA-ABS) was reactive, as he had been properly treated and oriented. Currently, the patient is under healing control.

## DISCUSSION

As syphilis is a sexually transmitted infection, it is possible that the oral cavity is also one of the first manifestation sites — like chancre, although genitals are the most involved sites. The occurrence of chancre can indicate the location of inoculation of the microorganism (*T. pallidum*) in regions such as anal, genital, oral, amongst others<sup>(10)</sup>.

Among the differential diagnoses of chancre, there are: infectious lesions whose etiologic agent is the herpes simplex virus (HSV), squamous cell carcinoma, some fungal lesions or even caused by trauma, and other types of ulcerative injuries<sup>(11)</sup>. In secondary syphilis, other injuries can also be considered as differential diagnosis, such as erosion, *Pemphigus vulgaris*, papular and nodular lesions, leukoplakia, among others<sup>(12)</sup>. The cases presented in this study showed that patients were at the stage of recent syphilis.

The VDRL result is able to be reagent from five or six weeks after infection and two or three weeks after the emergence of the initial injury, *i.e.*, chancre. However, this injury is not usually found in the mouth, but it can be observed in some cases. The sensitivity of the VDRL is quite high, especially in secondary syphilis. However, in late stages this sensitivity is considerably reduced from 100% to approximately 70%<sup>(13)</sup>.

Non-treponemal tests become of extreme value with regard to the control of healing. The persistence of low titles present in patients undergoing proper treatment can be considered a serological scar, which can remain for many years<sup>(14)</sup>.

Another important point is that, during the patient's monitoring and follow-up concerning the response to the proposed treatment, patient is submitted to the same diagnosis test. Whenever possible, preferably the same professional who made the diagnosis should interpret the results during monitoring and healing control<sup>(15,16)</sup>.

Although in this study not all patients had the FTA-ABS (at least two made the quick test and one the FTA-ABS), it is possible to make use of other types of tests for syphilis detection, and the choice will normally be linked to the evolutionary stage of the disease. Both in primary and secondary syphilis, in the latter, only in some lesions, the diagnosis can be made through the direct test, *i.e.*, through the demonstration of the presence of *T. pallidum*, which is usually recommended in situations in which the lesion is in its initial stage, when the number of microorganisms is very high<sup>(17,18)</sup>.

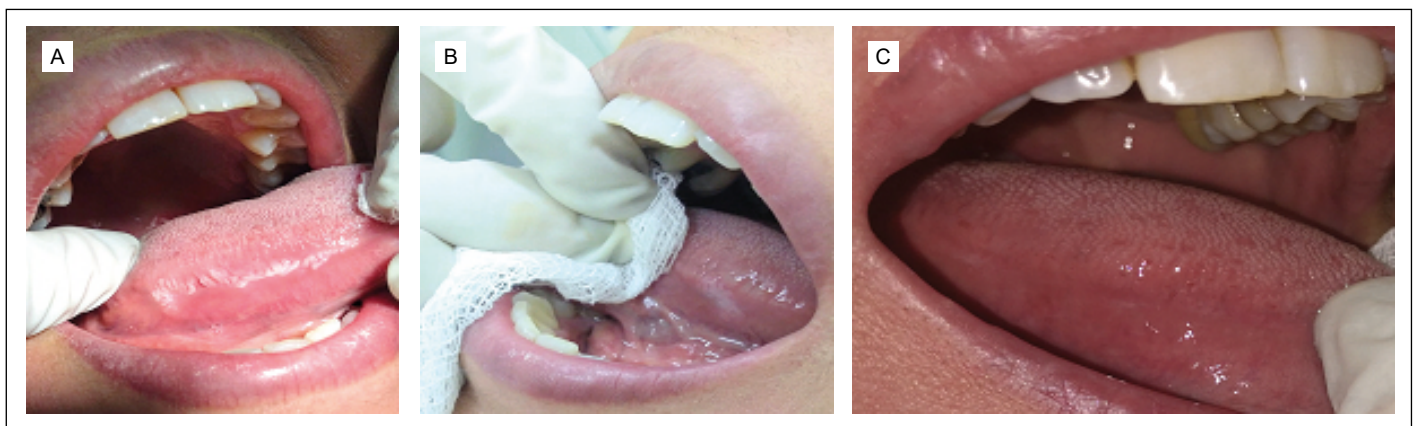
Another modality are the rapid tests, important in the diagnosis nowadays, since their reading occurs immediately<sup>(19)</sup>, and should be used for screening<sup>(20)</sup>, as observed in the reports of patients 1 and 3.

Differently from presented by the Ministry of Health in 2016, the most reported age group with diagnosis of acquired syphilis was from 20 to 29 years, corresponding to 34.1% of cases<sup>(5)</sup>, while in the present study two of the three patients described in the reports were in the age group from 30 to 39 years. One of them was female (38 years old) and the other one male (31 years old). Another study from the Ministry of Health in 2016<sup>(15)</sup> showed that 42.02% belonged also to the age group between 20 and 29 years old<sup>(21)</sup>.

Giacomozzi<sup>(22)</sup> reported that the use of drugs, whether legal or illegal, increases the probability of not making use of condoms or even engage in sexual activities with multiple partners. In the reports of the present study, the patients denied the use of drugs and declared they chose not to use condoms, even knowing about their risks. It is important to emphasize that the use of condoms not only reduce the risk of transmission of sexually transmitted infections, but also minimize unwanted pregnancy<sup>(23)</sup>.

It is important that the individual is aware that s/he should worry not only about his/her health, but also with his/her partner, whether fixed or not, as in case III. A study conducted in Brazil, in the state of Ceará, syphilis appeared as the second infection with the highest number of diagnoses. In this study, all patients were women, and 80% of them reported having acquired the disease from their current partner<sup>(24)</sup>.

A study from 2007 showed that 63.6% of the patients included and diagnosed with syphilis had acquired the disease previously, which may be a warning for the adoption of new measures related to safe sexual practices<sup>(25)</sup>.



**Figure 3** – (A) White plaque with linear filiform formation in the lateral edge of tongue; (B) white plaque only; (C) Lesion regression.

## CONCLUSION

- Patients seeking care with complaints of genital lesions should also be examined regarding possible oral manifestations (including the evaluation of the oral cavity should be part of the routine of the clinical examination) (case I);
- Syphilis should be considered as a possible diagnostic hypothesis to be investigated in patients with oral lesions, especially ulcerative processes (case II);
- The search for care for a possible oral infection may, when clinically evaluated, present another pathology also of infectious origin, that is, may signal infections with similar clinical manifestations, which need to be better elucidated as to their etiology (case III);
- Regardless of the type of sexual practice (oral sex) and socio-economic cultural level of the patients, cases of syphilis have occurred and still perpetuate in the sexually active population (cases I, II and III).
- In the current era of rapid tests, they are indicated as an effective tool in the initial diagnosis, allowing the appropriate approach of patients (cases II and III). It is emphasized that they are carried out in order to promote early screening of this sexually transmitted infection (STI), which still remains a challenge. Therefore, serological healing control should be performed with a qualitative and quantitative VDRL test.

## Funding

The study was funded by the authors.

## Conflict of interests

There is no conflict of interest to be declared.

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Received on: 05.17.2018

Approved on: 06.21.2018

# NEED FOR UPDATING AND INDIVIDUALIZATION IN THE FIGHT AGAINST SEXUALLY TRANSMITTED INFECTIONS

*NECESSIDADE DE ATUALIZAÇÃO E INDIVIDUALIZAÇÃO NA LUTA CONTRA INFECÇÕES SEXUALMENTE TRANSMISSÍVEIS*

*Ivo Castelo Branco Coelho<sup>1</sup>*

The means of interpersonal relationships are not static and are constantly adapting to habits and changes in life.

I have recently assisted a 92-year-old patient, who tested positive for VDRL upon neurological investigation, with 1/256 titration. He reported being a widower for 15 years and was accompanied by his worried daughter, who reported he had neurosyphilis.

The patient walked in with the help of a stick and his daughter. He was well oriented, cooperative, and when I asked if he had had any recent sexual intercourse, I got the answer: "I had four girlfriends in the last few months."

His daughter immediately said there was a couple of girls who visited him just for a chat. The patient soon replied that they would kiss, using the expression "I suck their tongues." Then, I interrupted that spontaneous report, because I realized he met the requirements for risk of syphilis, and asked them if it was possible to bring these "partners" for a consultation.

Their response was negative, as the patient stated that two of them had been murdered. In view of his multiple relationships' history, I prescribed treatment for late latent syphilis, since the encounters had been happening for more than two years.

That patient, who was born in the first half of the last century, with habits and ethical values very different of those of current days, has now a way of relationship that would horrify the most progressive of individuals. Sexual intercourse occurs without emotional

involvement, being nowadays practiced as a kind of "test", to check if it is worth investing in a more serious relationship. Therefore, sex comes first, and starting a relationship comes after.

It is imperative that the ways to prevent, fight and treat diseases evolve. We must invest in resources to discover new ways to fight sexually transmitted infections (STI).

We cannot continue to focus only on one way, which was conceived back in the Roman Empire Era. Acknowledging that condoms are an effective protection method and accepting modern changes in sexual behavior, as observed with this 92-year-old patient, leads to the need of adapting and modernizing the methods of combating STIs.

Actually, I am not quite sure how. We have to think and use the arsenal we know. Perhaps the development of rapid and inexpensive tests on saliva, oral mucosa or urine for STI diagnosis that could be conducted by partners while having a beer, or a coffee before sex.

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Received on: 12/19/2018

Approved on: 01/24/2019

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