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Profile of users of post-exposure prophylaxis for HIV risk at a reference center in Fortaleza-CE

Perfil dos usuários de profilaxia pós-exposição de risco ao HIV em um centro de referência em Fortaleza-CE

Perfil de los usuarios de profilaxis post-exposición para el riesgo de VIH en un centro de referencia de Fortaleza-CE

ABSTRACT

Objective: To describe the sociodemographic profile of individuals who initiated PEP after risk exposure at a referral center. **Method:** A descriptive, cross-sectional, and retrospective study using data from patients who sought care for evaluation of PEP indication in 2023. **Results:** A total of 805 consultations were analyzed, involving 645 patients. Consensual sexual exposure was the most prevalent risk category (59.2%), followed by occupational exposure (25.9%) and sexual violence (14.1%). Most patients were residents of Fortaleza. Among them, 185 had records of previous PEP-related visits. In 57 consultations (7.1%), PEP was not indicated. Four patients were diagnosed with HIV during the initial laboratory evaluation for PEP. An additional five patients initiated antiretroviral therapy in periods subsequent to their consultations. A low percentage of outpatient follow-up and subsequent referrals for PrEP was also observed (18%). **Final considerations:** The findings highlight the need to strengthen outpatient follow-up, enhance counseling on combination prevention strategies, and establish effective transition pathways to PrEP.

Keywords: HIV; Post-exposure prophylaxis; Prevention.

RESUMO

Objetivo: Descrever o perfil sociodemográfico dos indivíduos que iniciaram PEP após exposição de risco em um serviço de referência. **Método:** Estudo descritivo, transversal e retrospectivo, que utilizou dados de pacientes que realizaram atendimento para avaliação de indicação de PEP em 2023.

Resultados: Foram analisados 805 atendimentos, em 645 pacientes. Exposição sexual consensual foi a categoria de risco mais prevalente (59,2%), seguido de acidente ocupacional (25,9%) e violência sexual (14,1%). A maioria dos pacientes eram provenientes de Fortaleza. Em 185 pacientes, havia registros de atendimentos prévios por PEP. Em 57 atendimentos, a PEP não foi indicada (7,1%). Quatro pacientes foram diagnosticados com HIV nos exames iniciais para avaliação da PEP. Outros 5 iniciaram terapia antirretroviral em períodos posteriores aos atendimentos. Observou-se ainda um baixo percentual de retorno ambulatorial e de encaminhamentos posteriores para a PrEP (18%).

Considerações finais: Os resultados apontam para a necessidade de fortalecer o seguimento ambulatorial, qualificar o aconselhamento em prevenção combinada e estruturar fluxos efetivos de transição para PrEP.

Palavras-chave: HIV; Profilaxia pós-exposição; Prevenção.

RESUMEN

Objetivo: Describir el perfil sociodemográfico de los individuos que iniciaron PEP tras una exposición de riesgo en un servicio de referencia en 2023. **Método:** Estudio descriptivo, transversal y retrospectivo, que utilizó datos de pacientes que acudieron para evaluación de indicación de PEP. **Resultados:** Se analizaron 805 atenciones correspondientes a 645 pacientes. Exposición sexual consentida fue la categoría de riesgo más prevalente (59,2%), seguida de accidente ocupacional (25,9%) y violencia sexual (14,1%). La mayoría de los pacientes provenían de Fortaleza. En 185 pacientes se registraron atenciones previas relacionadas con PEP. En 57 atenciones (7,1%) la PEP no fue indicada. Cuatro pacientes fueron diagnosticados con VIH en los exámenes iniciales realizados para la evaluación de PEP. Otros cinco iniciaron terapia antirretroviral en períodos posteriores a las atenciones. También se observó un bajo porcentaje de seguimiento ambulatorio y de derivaciones posteriores para PrEP (18%). **Consideraciones finales:** Los resultados señalan la necesidad de fortalecer el seguimiento ambulatorio, mejorar el asesoramiento en prevención combinada y estructurar flujos efectivos de transición hacia la PrEP.

Descriptores: VIH; Profilaxis Post-Exposición; Prevención.

INTRODUÇÃO

Post-exposure prophylaxis (PEP) is a preventive measure that consists of the use of drugs after possible exposure to infections such as HIV, viral hepatitis (B and C), syphilis, and other sexually transmitted infections (STIs)^{1,2}. PEP for HIV has been available in the Unified Health System (SUS) since 1999. However, it was only in 2010 that PEP-HIV began to be recommended in cases of consensual sexual exposure with risk of STI transmission³.

The prevention of HIV transmission in Brazil is based on multiple strategies, such as regular testing, the use of condoms, prevention of vertical transmission, harm reduction programs, immunizations for STIs, and treatment as prevention (TcP), as well as the use of pharmacological measures, such as pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis^{4,5}. Recently, new technologies, such as long-acting injectable PrEP, have been approved by the FDA in 2025 as a way to expand preventive pharmacological options^{6,7}.

The antiretrovirals used in PEP-HIV should be started as soon as possible, and their use is recommended within 72 hours after exposure by HIV-seronegative individuals, who should then use them for 28 days as a way to avoid HIV infection^{8,9}.

HIV infection and AIDS illness remain significant challenges for public health in Brazil, with significant impacts on different population segments over the last decades. The most affected age groups include young people aged 15 to 24 years (23.2%) and adults aged 25 to 34 years (34.9%)¹⁰. In 2023, 46,495 cases of HIV infection were reported in Brazil. Of these cases, 63.2% were self-declared black people (49.7% brown and 13.5% black), and 53.6% men who have sex with men (MSM)¹¹.

This information reaffirms the importance of a case review study, in order to identify gaps in the process of offering PEP in a reference service in the city of Fortaleza-CE, aiming at its expansion, accessibility, permanent and effective strategy for the prevention of HIV infection. The justification for the study is based on the perspective of identifying and trying to implement effective actions aimed at the user's access to the health service, follow-up strategies and adherence to combined prevention measures among the key populations. The present study was conducted with the objective of describing the sociodemographic profile of individuals who started PEP after consensual sexual intercourse, sexual violence, and accident due to biological material in a reference service in the northeast region of Brazil in 2023, to seek to understand, from the description of this profile, which challenges related to access, follow-up and adherence may compromise the effectiveness of this HIV prevention strategy in a referral service in Fortaleza-CE.

METHODS

This is a descriptive, cross-sectional and retrospective study, which used data from patients who underwent care to evaluate the indication of PEP in the emergency room of the São José Infectious Disease Hospital (HSJ) in 2023.

Data collection was carried out through the record of patient records in the emergency department. The following variables were collected: gender, age, origin, marital status, education, sexual orientation, type of risk exposure (sexual violence, consensual sexual exposure, or accident with occupational biological material), data from post-exposure consultations, date of exposure, and history of previous use of PEP. Laboratory test results (hepatitis B, hepatitis C, HIV and syphilis) and the Ministry of Health report system of users using antiretroviral therapy and PrEP were analyzed.

The characterization of risk exposure followed the criteria established by the Ministry of Health⁴. All cases of risky sexual exposure that occurred without consent were classified as sexual violence. The categorization of care was performed by two researchers, both specialists in infectious diseases, based on the analysis and review of the emergency sector care records. It is also noteworthy that cases in which the exposure did not fit into any of the previous categories were classified as others.

805 consultations carried out for analysis of the beginning of PEP in 2023 were included. The cases were evaluated by two infectious disease physicians, and an analysis of agreement was performed on those considered doubtful or discordant.

Cases with incomplete information in the medical records, from which it was not possible to identify sufficient information to define indication for PEP and categorization of exposure (Total: 9 cases) were excluded.

Statistical analysis was performed using the EpInfo program. Measures of frequency (absolute and relative) and central tendency (mean and standard deviation) were calculated.

The study was approved by the Research Ethics Committee of the São José Hospital, with opinion number 3.952.862 and CAAE: 29848018.2.0000.5052. The confidentiality of the data obtained from the medical records was guaranteed, ensuring that no patient was identified in the database. Access to the information collected remained restricted only to the researchers responsible for the study.

RESULTS

A total of 805 consultations were evaluated, which were performed in 645 patients. Males were the most prevalent among the patients evaluated, with a high percentage among those with consensual sexual exposure. Among patients with high-risk occupational accidents and victims of sexual violence, females

prevailed. The mean age was 31 years, and most patients had attended at least high school (Table 1).

Consensual sexual exposure was the most prevalent risk category, being the reason for seeking care in 382 patients (59.2%), followed by occupational accidents (25.9%) and sexual violence (14.1%). In five patients, the risk exposure was classified as other (0.6%).

Most of the patients were from Fortaleza (Table 1). Among the 123 patients from other locations, 26% were from the municipality of Caucaia, 15.4% from Maracanaú, 7.3% from Maranguape, 4% from Pacatuba, 3.3% from Itaitinga, 3.3% from Aquiraz and 3.3% from São Gonçalo do Amarante. Among the other patients, one was from another state (Natal-RN) and the other, a foreigner.

Table 1 – Epidemiological profile and history of PEP use of patients who underwent care for evaluation of PEP indication in the emergency room of São, José Hospital, CE, in 2023.

Variables studied	Number of Patients			
	Total	Consensual sexual exposure	Occupational accident with biological material	Sexual violence
Gender				
Male	366 (56,6%)	305 (79,8%)	44 (26,3%)	15 (16,5%)
Women	279 (43,4%)	77 (20,2%)	123 (73,7%)	76 (83,5%)
Mean age in years – SD	31 (+/-10)	31 (+/-8)	33 (+/-10)	30 (+/-11)
Provenance				
Fortaleza	522 (80,9%)	326 (85,3%)	122 (70%)	69 (75,8%)
Other	123 (19,1%)	56 (14,7%)	45 (30%)	22 (24,2%)
Education				
Illiterate	1 (0,2%)	1 (0,3%)	-	-
10 degree*	42 (6,5%)	28 (7,3%)	3 (1,8%)	10 (11%)
20 degree*	236 (36,6%)	132 (34,5%)	77 (46,2%)	26 (28,5%)
Higher Level*	248 (38,4%)	151 (39,6%)	72 (43%)	22 (24,2%)
Ignored	118 (18,3%)	70 (18,3%)	15 (9%)	33 (36,3%)
Marital status				
Married	52 (8,1%)	13 (3,4%)	36 (21,6%)	3 (3,3%)
Civil partnership	21 (3,3%)	13 (3,4%)	8 (4,8%)	-
Single	453 (70,2%)	299 (78,4%)	102 (61,1%)	47 (51,6%)
Ignored	119 (18,4%)	57 (14,8%)	21 (12,5%)	41 (45,1%)
Sexual orientation				
Heterosexual	55 (8,5%)	31 (8,1%)	21 (12,5%)	3 (3,3%)
Homosexual	57 (8,8%)	52 (13,6%)	2 (1,2%)	3 (3,3%)
Bisexual	6 (1%)	6 (1,6%)	-	-
Ignored	527 (81,7%)	293 (76,7%)	144 (86,3%)	85 (93,4%)
History of >1 attendance by PEP				
	185 (28,7%)	152 (39,8%)	29 (17,3%)	4 (4,4%)
Total	645 (100%)	382 (100%)	167 (100%)	91 (100%)

* Complete or incomplete; **Source:** produced by the authors.

Of the 185 patients who had a record of previous visits by PEP, the average number of previous visits was 3 episodes. Most of these had a history of consensual sexual exposure (82.2%). In one of the consultations, a patient with a history of consensual sexual exposures was identified who had already used PEP 29 times (Table 2).

Tabela 2 – Analysis of patients who received care for evaluation of PEP indication in the emergency room of São José Hospital, CE, in 2023: distribution by previous record of PEP use.

Prior EMR usage record	Number of patients			
	Total	Consensual sexual exposure	Occupational accident with biological material	Sexual violence
1 vez	98 (53%)	73 (48%)	23 (79,1%)	2 (75%)
2 vezes	24 (13%)	19 (12,6%)	4 (13,9%)	1 (25%)
3 vezes	17 (9,2%)	15 (9,9%)	2 (7%)	-
4 vezes	8 (4,3%)	8 (5,3%)	-	-
5 vezes	11 (5,9%)	11 (7,2%)	-	-
6 vezes	6 (3,3%)	6 (3,9%)	-	-
7 vezes	4 (2,7%)	4 (2,6%)	-	-
8 vezes	4 (2,7%)	4 (2,6%)	-	-
9 ou mais vezes	12 (6,5%)	12 (7,9%)	-	-
Total	185 (100%)	152 (100%)	29 (100%)	3 (100%)

Source: produced by the authors.

Consensual sexual exposure was the most prevalent form of risk exposure in the consultations (64.9%). Most patients had negative rapid tests for hepatitis B and C during the consultations for PEP evaluation. It was observed that, although there were records of a rapid reagent test for syphilis in 166 consultations, the analysis by patients showed that 77 of them had this reagent test (Table 3).

PEP was indicated in 91.8% of the consultations, and the average time to receive the medication was less than one day (0.98 days). The analysis of the use of PEP was mainly hampered by the low prevalence of attendance at follow-up outpatient return visits (present in 18% of the consultations) (Table 3).

There was also a low percentage of patient referrals for PrEP use (18% of the consultations), even in the case of patients with a history of previous use of PEP (Table 3).

Tabela 3 – Analysis of visits to evaluate the indication of PEP in the emergency room of São José Hospital, CE (2023).

Variables	Number of attendances
Considering the total number of consultations (805 – 100%)	
Exhibition Category	
Consensual sexual exposure	522 (64,9%)
Sexual violence	183 (22,7%)
Occupational accident with biological risk material	95 (11,8%)
Other	5 (0,6%)

Rapid Test Hepatitis C reagent	2 (0,2%)
Rapid Hepatitis B Reagent Test	1(0,1%)
Rapid Test Syphilis reagent	166 (20,6%)
PEP was indicated	739 (91,8%)
Carrying out anti-HIV control	354 (44%)
Referral for PrEP	145 (18%)

Considering the consultations with indication of PEP (739 – 100%)

Average time between exposure and start of PEP	0.98 dia (+/-0,9)
Proper use of PEP	
Yes	178 (24%)
Incomplete	2 (0,3%)
Ignored	559 (75,7%)
Attendance at return appointment	133 (18%)

Source: produced by the authors.

In 57 consultations, PEP was not indicated (7.1%). The most prevalent reason for contraindication of PEP was the testing of the source patient with a negative Anti-HIV result. In five patients, PEP was not initiated, as they were diagnosed as HIV carriers in the PEP evaluation tests (Graph 1).

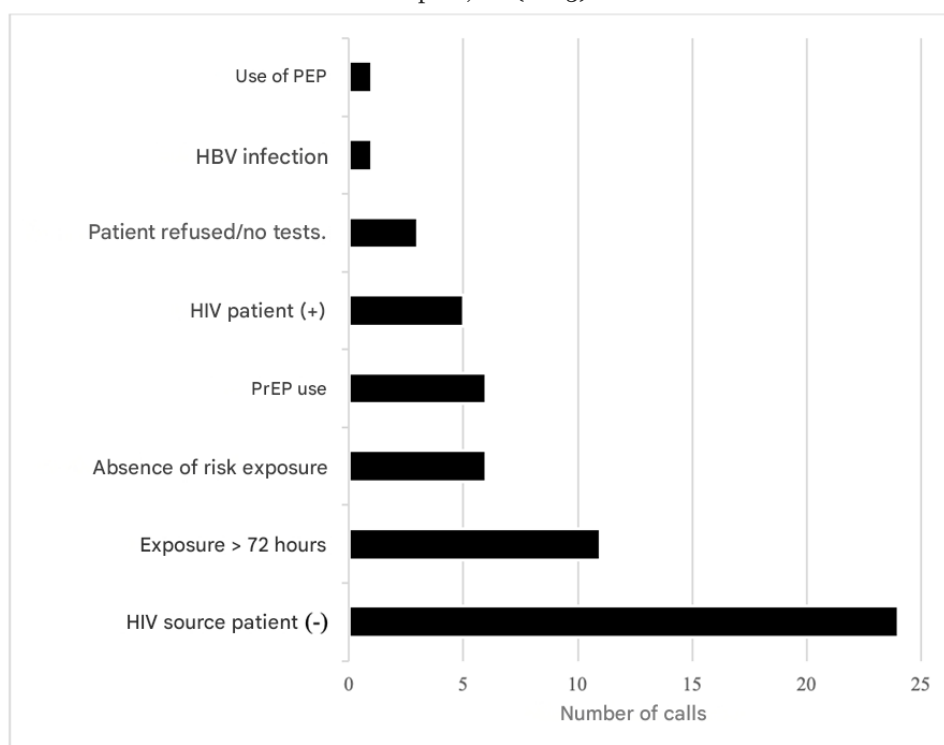
Among the patients evaluated, 10 had an indication to start antiretroviral treatment for HIV infection. In all of these, the risk exposure was consensual sexual.

Four patients were diagnosed in the evaluation tests for indication of PEP: 4 men, aged between 25 and 30 years. Of these, two had a history of previous use of PEP: one patient with 1 episode and the other with 3 episodes. None of them had registered a referral for PrEP in the PEP service. In one of the cases with a previous history of PEP use, the patient had been prescribed PEP in previous care, even though he had an indeterminate rapid test for HIV. This same patient, in a new follow-up for evaluation of PEP, was diagnosed as HIV positive and referred for treatment. All of these patients had access to the start of antiretroviral treatment in less than one week.

A fifth patient, who presented a rapid reactive test for HIV in the PEP evaluation exams, was actually a patient living with the virus in abandonment of treatment and follow-up, whose antiretroviral therapy had been started in 2017.

The other five patients started antiretroviral therapy after PEP treatments. They were all men, aged between 25-54 years. All patients had a history of previous use of PEP: one patient with 1 episode, three with 2 episodes, and one with 4 episodes. In none of the consultations for PEP of these patients was a referral for PrEP identified.

Graph 1 – Justifications for contraindication of PEP in patients treated at the emergency room of São José Hospital, CE (2023).



Source: produced by the authors.

DISCUSSION

In the present study, a predominance of males was observed among patients with consensual sexual exposure and females in the other categories. The relationship between gender and the conditions that motivated the use of PEP has been described in several epidemiological studies: men, especially young men, tend to represent a high proportion of PEP users after consensual sexual exposure, while sexual violence affects mostly women and people in situations of gender vulnerability^{12, 13}.

A national study outlined the profile of users who started PEP after an accident with biological material. In the sample analyzed, more than 70% were female^{14, 15}. In addition, data from the literature show that knowledge about the possibility of using PEP may be greater in specific groups. In a study conducted in Bahia with 1,580 university students, it was evidenced that knowledge and use of PEP after consensual sexual intercourse are associated with demographic variables related to gender, such as greater knowledge about PEP among MSM¹⁶. These data corroborate the results of the present study and reinforce the existence of gender inequalities in the determination of risk.

In the present series, consensual sexual exposure was the reason for seeking care to evaluate the most prevalent indication for PEP. These findings corroborate the results described in a Swiss study in 2014, which reviewed 97 studies, with a total of 21,462 PEP prescriptions. Of these, sexual exposure was

the main reason for the initiation of PEP, followed by occupational exposure and sexual abuse¹⁷.

In the state of Ceará, PEP-HIV is integrated into the combined prevention strategies against HIV/AIDS offered by the SUS, with services available both in person and, more recently, through telemedicine. The São José Hospital for Infectious Diseases (HSJ), in Fortaleza-CE, is the central axis of service provision¹⁸. However, the result of the study shows that patients from other municipalities, mainly from the metropolitan region of Fortaleza, still seek PEP-HIV care at HSJ, making up about 15% of the care in the analyzed sample. In this context, the difficulty of access to PEP is evident in some municipalities, especially Caucaia and Maracanaú, which are municipalities bordering Fortaleza and with an estimated population of 355,679 and 234,509 inhabitants, respectively, which have specialized infectious disease services implemented in their territories, although the PEP service is still inaccessible^{19,20}. Thus, a strategy of decentralization of the service is necessary, in a faster and more effective way, as a way to reduce these geographical barriers, facilitating the access of the populations in these municipalities.

In the present study, the mean age of the patients was 31 years, with the highest mean (33 years) for occupational accidents and the lowest (30 years) for sexual violence. Studies based on monitoring information in Brazil have shown that the 25 to 39 year age group concentrated the highest proportion of PEP-HIV users, regardless of the type of exposure (occupational/sharps accident, sexual violence, or consensual sexual exposure)^{11, 21}. This pattern remains when analyzing the different types of exposure, such as consensual sexual exposure, work accidents with biological material and sexual violence. In practice, it is perceived that the demand for PEP-HIV is mostly concentrated in the working and sexually active population^{9, 11, 22}. This finding is consistent in the literature, which points to a higher frequency of sexual risk exposure and a greater search for combined prevention strategies among young individuals, between 20 and 39 years old, especially in urban contexts and in key populations^{4, 12}. It is observed that accidents with piercing and cutting material occur more frequently in health workers aged between 20 and 29 years. This is justified by the fact that there are younger professionals in the job market and at the beginning of their careers in care teams^{12, 15}. PEP-HIV care in situations of sexual violence, however, has a varied age profile, including mainly adolescents and young adults. This highlights the vulnerability of younger people¹¹.

It is worth noting that there is a bias in the study sample in the consultations related to sexual violence, because, compared to data in the literature, the predominant age group was a more adult population (average of 30 years). This is justified by the fact that the HSJ does not offer pediatric care (<18 years old). Thus, age stratification by type of exposure shows different and relevant patterns for the organization of the care network and planning of prevention and health education actions for priority groups^{8, 23}.

Regarding education, studies show that most PEP dispensations after consensual sexual exposure and accidents with biological material occur among people with 12 years or more of schooling¹¹, that is, who have at least completed high school or higher education, suggesting that the higher the educational level, the greater the access to the prevention strategy²¹, corroborating the data found in the study.

Recurrent use of PEP, characterized by multiple exposures over time, has been described as an important marker of continued vulnerability to HIV infection, particularly in the context of consensual sexual exposure^{8, 11}. In this context, the data of the present study are in line with the national literature, which associates the young adult population, especially MSM, with recurrent users of PEP, as well as a higher probability of repeated risk exposures^{4, 13}. In this scenario, repeated use of PEP may show not only behavioral patterns but also inequality in access to long-term prevention strategies. Therefore, it is essential to evaluate these individuals systematically so that they can have access to pre-exposure prophylaxis (PrEP), which is the most appropriate strategy for individuals at continuous risk of HIV infection^{3,4}. Thus, the clinical protocol and therapeutic guidelines (PCDT) recommends that people with recurrent use of PEP should be considered priority key populations to receive broader counseling and be directed to PrEP use, with the aim of improving the effectiveness of combined prevention actions²⁴. However, our study identified a low percentage of PrEP referral, even in individuals who had recurrent use of PEP.

Our results showed a high prevalence of syphilis in the population evaluated. Testing for syphilis is part of the initial laboratory evaluation of PEP and aims to diagnose and treat cases of the disease early in order to interrupt the cycle of its transmission¹⁰. Epidemiological studies in Brazil show that the prevalence of syphilis in clinical surveillance settings can range from 6.4% in cohorts of people living with HIV to higher levels in subgroups such as MSM, highlighting the importance of integrating syphilis testing and management with PEP care and STI surveillance in vulnerable populations^{25, 26}.

Regarding other STIs tested in the initial approach to PEP, our study found two patients with a positive test for hepatitis C and one case with a positive case for hepatitis B, the latter being contraindicated for the initiation of PEP due to the risk of acute liver failure after interruption, as well as the risk of hepatotoxicity due to antiretroviral therapy²⁷.

The study demonstrated relevant data regarding the correct indication of PEP, as well as the early receipt of medications to start therapy. In cases in which it was not indicated, the PCDT criteria for its contraindication were followed, such as HIV-negative source patient, missed window of opportunity, i.e., time elapsed greater than 72 hours after a risk situation for HIV infection, and patients whose initial test results were positive for HIV³.

A systematic review and meta-analysis carried out in 2014 on PEP adherence indicated that 30.4% of patients who completed PEP use did not attend outpatient follow-up appointments¹⁷. This percentage is still higher than

the values found in the study series, considering that only 18% of our patients returned for follow-up. In any case, these data demonstrate the great challenge of achieving adherence to outpatient follow-up of these patients after they have already received drug treatment. Outpatient consultations after the use of PEP are essential to measure the effectiveness of the strategy, as it allows for the evaluation of adherence to the antiretroviral regimen, monitoring and managing adverse effects related to the use of antiretrovirals, identifying other STIs with periodic testing, in addition to reinforcing combined prevention guidelines for specific populations at continuous risk of HIV infection. who may benefit from transitioning to PrEP^{14, 22, 28}.

A key point identified in the study was the low percentage of patients referred to PrEP, demonstrating difficulty in access, absence of an effective flow and low resolution. However, this scenario changed as of December 2024, after the implementation of the Telepep/Teleprep service in Ceará territory. Data from the Ceará State Health Department (Sesa) indicate that, after the implementation of the service, 1,085 consultations were recorded in just over two months, with 874 requests related only to PrEP, evidencing high demand and potential impact on the expansion of access to this prophylaxis¹⁸.

In the present study, it was observed that five patients who used PEP had HIV seroconversion after use at a certain time. According to the Brazilian monitoring report, this finding may be related to failures associated with the time of EMP initiation, low adherence to the 28-day regimen, exposure to a high viral load from the source, or even re-exposure during the use of prophylaxis^{3, 29}. It is noteworthy that all patients in the series who acquired HIV infection had a previous history of PEP use, and no registered PrEP referral was identified, and of the five patients who presented seroconversion, four had previously sought PEP due to consensual sexual exposure and one after sexual violence. These results corroborate the data available in a 2014 Swiss meta-analysis study, which found 37 seroconversions among the 8,007 participants who completed PEP, of which 32 occurred after consensual sexual intercourse and 5 after sexual violence¹⁷.

Therefore, the cases of HIV seroconversion identified in the study are in line with evidence indicating that PEP significantly reduces the risk of HIV infection, but does not completely eliminate the possibility of HIV infection, particularly in contexts of persistent vulnerability in specific populations^{29, 30}. In addition, these results show that the risk of seroconversion after sexual exposure, both consensual and in the context of violence/abuse, is more expressive than that evidenced in occupational accidents with risk biological material.

The present study has limitations, including its retrospective design, which made it difficult to complete the collection of some variables, specifically sexual orientation (81.7% of cases ignored), which limited the characterization of the populations analyzed. In addition, the occurrence of cases that were excluded due to incomplete information, which made it impossible to classify exposure, which,

despite having been in a small number, may have contributed to some selection bias, compromising the results of the analysis.

FINAL CONSIDERATIONS

The profile of PEP users follows the patterns already described in the literature, with marked differences according to sex, age group and type of exposure. Males were predominant in consensual sexual exposures, while women are the majority in attendances for sexual violence and occupational accidents with biological material. The concentration of users in the age group of 25 to 39 years reinforces that the demand for PEP is associated with the economically and sexually active population. The association between higher education and greater access to PEP suggests that informational and structural inequalities still influence access to prevention services.

In Ceará, although PEP is formally integrated into the combined prevention network of the SUS, the data demonstrate the persistence of geographic and organizational barriers, with a concentration of care at São José Hospital and a significant search for users from municipalities in the metropolitan region. The low rates of referral to PrEP, even among individuals with recurrent use of PEP, show weaknesses in the flow of care and in the articulation between short- and long-term prevention strategies.

The identification of cases of seroconversion after the use of PEP, especially in individuals with a history of repeated exposures and lack of referral for PrEP, reinforces that PEP is an effective but fallible strategy, especially in contexts of persistent vulnerability. The high prevalence of syphilis and the detection of other STIs at the time of the initial approach also highlight the importance of this strategy.

Therefore, the results point to the need to strengthen outpatient follow-up, qualify counseling in combined prevention, and structure effective flows of transition to PrEP, consolidating a comprehensive and continuous approach to coping with HIV infection. From these results, the importance of PrEP is evident, especially the TelePrEP service, which has been consolidating itself as one of the most solid strategies in the fight against the HIV epidemic amid the expansion of the means of communication and social networks in contemporary times.

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