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VIEWPOINT

How to promote and facilitate the early diagnosis of HIV-1: role of emergency services

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The first cases of infection by human immunodeficiency virus type 1 (HIV-1) were described in 1981[1,2]. These were affected patients consulting for opportunistic infections by agents such as *Pneumocystis jiroveci* (formerly *P. carinii*) or Kaposi's sarcoma. Within a few years it became a pandemic and the most common cause of death in the 20-40 year-old age group[3]. Fundamentally, this is a sexually transmitted infection (heterosexual or homosexual), although in some countries such as Spain during the early years of the epidemic, the predominant mode of transmission was through direct blood contact (needle-sharing in intravenous drug users)[4-6]. Acute or primary infection may be asymptomatic (30% of cases) or symptomatic (flu-like syndrome with self-limiting rash in the remaining 70%)[7], all followed by a silent period, generally 5-10 years of evolution, to final development of opportunistic infections or some types of malignancies such as Kaposi's sarcoma or non-Hodgkin lymphomas, when the immune system had deteriorated considerably (less than 200 CD4+ T cells per mm^3 of plasma)[8].

When patients reached this stage they were said to be carriers of acquired immunodeficiency syndrome (AIDS), and from this moment life expectancy was less than one year in 50% of cases, and practically 0% after 2-4 years[9,10]. As from 1997, with the introduction of highly active antiretroviral treatment (HAART), favourable interference with the natural course of HIV-1 became possible[11]. Currently, the rate of response to treatment is very high and leads to sufficient immune system recovery to be able to control opportunistic infections. The final scenario is a drastic reduction in mortality and ultimately a hope of life expectancy that is comparable to that of the general population of the same age and sex[12]. And, in 2009, this became achievable with simple, well tolerated treatment (as little as one tablet a day)[13].

The other side of the coin is that the annual number of new infections has remained virtually constant (although the qualitative composition of new infections has changed). There is more heterosexual transmission through male homosexual relationships and less transmission through sharing of contaminated needles. At least 30% of patients with new infections were born outside Spain but often acquired the infection after their arrival in this country. HIV-1 infection is diagnosed late (when the number of CD4 + T lymphocytes is below 200 cells/mm^3 in plasma and the risk of opportunistic infection is high) in at least 40% of cases[14,15]. At the individual level, this implies a poorer response to treatment, greater mortality and economic costs than is the case with earlier diagnosis. For the public health system, this implies a reserve of infected patients who are unaware of their situation and contribute to new transmissions. In absolute numbers this means that in Spain there are an estimated 140,000 people infected with HIV-1, of whom approximately 40,000 (30%) are unaware of their situation. It is estimated that this 30% of unaware people with HIV infection contribute to 60-70% of new transmissions[16].

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Table 1. This includes the 26 situations (opportunistic infections or neoplasms) accepted as indicators of AIDS. When diagnosed with any of them, it is always recommended that a diagnostic test for HIV-1 infection be offered. In most of these situations the prevalence of infection by HIV-1 is high and the test is often positive

1. Candidiasis tracheal, bronchial or pulmonary
2. Esophageal Candidiasis
3. Invasive cervical carcinoma
4. Coccidioidomycosis, disseminated (at a different location or in addition to the lungs and cervical lymph nodes or hilar nodes)
5. Extrapulmonary cryptococcosis
6. Cryptosporidiosis with diarrhea for more than a month
7. Cytomegalovirus infection of any organ other than the liver, spleen or lymph nodes, in a patient over 1 month of age
8. Cytomegalovirus retinitis
9. HIV-induced encephalopathy
10. Infection with herpes simplex virus that causes mucocutaneous ulcers with more than one month of evolution, or bronchitis, pneumonitis or esophagitis for any duration, affecting a patient over 1 month of age
11. Disseminated histoplasmosis (in a different location or in addition to the lungs and cervical or hilar lymph nodes)
12. Chronic isosporidiasis (more than one month)
13. Kaposi's Sarcoma
14. Burkitt lymphoma or equivalent
15. Immunoblastic lymphoma or equivalent
16. Primary brain lymphoma
17. Infection with *M.* or *M. avium-intracellulare kansasii,* disseminated or extrapulmonary
18. Pulmonary Tuberculosis
19. Extrapulmonary or disseminated TB
20. Infection with other mycobacteria, disseminated or extrapulmonary
21. Pneumonia due to *Pneumocystis jiroveci*
22. Recurrent pneumonia
23. Progressive multifocal leukoencephalopathy
24. Recurrent sepsis due to *Salmonella* species other than *S. tiphy*
25. Cerebral toxoplasmosis in a patient over 1 month of age
26. *Wasting syndrome*

Thus, theree are many individual and public health reasons to promote and facilitate the early diagnosis of infection by HIV-1 and this is a responsibility of all healthcare staff, regardless of their specialty, and of society in general. To address this problem, the U.S. Centers for Disease Control (CDC) have recommended adoption of the so-called "opt out" strategy[17-22] that involves universal testing for HIV-1 in any patient, adolescent or adult, every time they come into contact with the health system for any reason, unless they explicitly object. This strategy is not easy to implement and its cost-effectiveness is unknown. In Europe it seems more desirable to adopt a more viable strategy based on the following principle: While everyone is susceptible and should be considered a potential target of HIV-1 infection, new cases are not randomly distributed; they occur more frequently in certain subpopulations. These subpopulations may be identified and it is they who should preferably undergo HIV-1 screening tests, unless there is explicit patient opposition.

Table 2. This includes some situations in which the prevalence of HIV-1 infection is estimated at over 1% and where it is advisable to recommend and provide a diagnostic test for HIV-1 infection unless there are evident reasons for the diagnosis. The result will be negative in most cases but cost-effectiveness is well demonstrated

1. Any sexually transmitted infection
2. Risky sexual contacts with at risk or with HIV-1
3. Influenza-like illness with rash and / or adenopathy
4. Long-standing fever or fever of unknown origin
5. Onychomycosis
6. Recurrent Herpes Simplex
7. Shingles/chickenpox in adults
8. Seborrheic Eczema
9. Psoriasis
10. Oral candidiasis (muget)
11. Oral leukoplasia vellosa
12. Hepatitis C
13. Hepatitis B (HBsAg +)
14. Leukopenia, lymphopenia, thrombocytopenia, anemia
15. Elevated erythrocyte sedimentation rate (ESR)
16. Chronic diarrhea
17. Hodgkin's lymphoma, Castleman's disease
18. Leishmaniasis
19. All pregnant women*

*The prevalence in Spain is less than 1% but the potential benefit for the newborn justifies systematic screening test for infection by HIV-1.

This allows the elaboration of a list of situations and indicator diseases in which any health professional, regardless of specialty, should recommend a screening test to rule out HIV-1. It has been estimated that this recommendation is justified in terms of cost-effective when the prevalence of HIV-1 infection exceeds 1% in the situation or indicator disease in question[23].

The HIV-1 screening test should be recommended and made available to anyone requesting it, all pregnant women, all people with risky sexual practices and all patients with any of the diseases listed in Tables 1 and 2. For all the diseases included in these tables, the prevalence of HIV-1 is estimated to exceed 1%, although this rate is pending confirmation by studies currently under way. For such diseases, HIV-1 screening test may be justified in terms of cost effectiveness.

In Europe (HIV in Europe) and Spain (VIH en España 2009) specific medical groups or platforms have been created to promote these initiatives with the support of health authorities, social and political leaders. And, particularly in Spain, with the support of the Secretariat of the National Plan on AIDS. The hope is to contribute to the prevention of new infections and to promote early diagnosis in people who are already infected but unaware of their situation.

Adendum

The following professionals also form part of the organizing committee of "Platforma HIV in Spain 2009": Ferran Pujol, Hispanic,

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