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Impact of a decade of successful antiretroviral therapy initiated at HIV-1 seroconversion on blood and rectal reservoirs



BEST PAPER

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Basic Science

Abstract Persistent reservoirs remain the major obstacles to achieve an HIV-1 cure. Prolonged early antiretroviral therapy (ART) may reduce the extent of reservoirs and allow for biological control of HIV-1. However, the extent of reservoirs remains unclear. We used polymerase chain reaction-based techniques in blood and tissue of early-treated seroconverters, late-treated seroconverters, and late-treated patients (LTNPs) who have achieved viral suppression. HIV-1 DNA levels in blood and rectal biopsies were measured. Integrated HIV-1 DNA levels compared with later treatment initiation, but not reaching the low levels found in LTNPs. Total HIV-1 DNA in rectal biopsies did not differ between cohorts. Importantly, lower viral transcription (HIV-1 unspliced RNA) and enhanced immune preservation (CD4/CD8), reminiscent of LTNPs, were found in early compared to late-treated patients. This suggests that early treatment is associated with some immunovirological features of LTNPs that may impact on the future success of HIV-1 cure.

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“IMPACT OF A DECADE OF SUCCESSFUL ANTIRETROVIRAL THERAPY INITIATED AT HIV-1 SEROCONVERSION ON BLOOD AND RECTAL RESERVOIRS”

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Introduction

A reservoir of long-lived latently HIV-1 infected cells is established early in the course of the infection. It persists despite suppressed viremia in patients undergoing effective antiretroviral therapy (ART) and fuels viral rebound upon treatment discontinuation (Wong et al., 1997; Finzi et al., 1997; Chun et al., 1997; De Spiegelaere et al., 2005; Alexaki et al., 2008). Not only is this reservoir present in blood, but also in lymphoid organs, the gut and potentially the central nervous system (Chun et al., 2008; Sturdevant et al., 2015; Bednar et al., 2015).

The mechanisms underlying HIV-1 persistence have not been fully elucidated. Although an initial decay of these cells is observed after ART initiation, it is assumed that replenishment may occur through clonal proliferation of infected CD4⁺ T cells during ART (Chomont et al., 2009; Josefsson et al., 2013; Maldarelli et al., 2014; Murray et al., 2014) or through residual virus production despite suppression (Chomont et al., 2009; Buzon et al., 2010; Hatano et al., 2013a).

5th BREACH SYMPOSIUM

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La Géode, Charleroi



High-risk human papillomavirus genotypes distribution in a cohort of HIV-positive women living in Europe: epidemiological implication for vaccination against human papillomavirus

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Background: Worldwide, human papillomavirus (HPV) represents 70% of high-risk (HR) HPV found in cervical cancer. However HIV-positive women are more frequently infected by HRHPV other than HPV 16 or 18 (OHR). We aimed to describe the HRHPV genotype distribution in a cohort of HIV-positive women and to estimate the potential protection offered by the different HPV vaccines.

Methods: HRHPV genotypes by PCR and cytology were assessed in cervical samples from 508 HIV-positive women prospectively followed in Brussels.

Results: Women characteristics were as follows: 74% foreign origin (44%), median age 42 years, median CD4⁺ 455/1000 cells/mm³, 49% on antiretroviral therapy and 73% with HIVRNA less than 20 copies/ml. HRHPV prevalence was 23% (116/508): 38% had abnormal cytology, 76% carried OHR without HPV 16 or 18 and 11% had concomitant infection by OHR and HPV 16 or 18. The most frequent HRHPV were HPV52 (19.8%), HPV18 (14.6%), HPV31/35/51/58 (12.1% each), HPV56 (9.9%) and HPV16 (9.5%).

Less than 30% of women were infected by HRHPV covered by the bivalent or quadrivalent vaccine. However, 87% of the OHR were covered by the ninevalent vaccine against HRHPV 16/18/31/33/45/52/58.

Conclusion: HRHPV distribution in HIV-positive women living in Europe was different from the general population. The high prevalence of OHR other than HPV16 or 18 retrieved in 87%. In this population, the bivalent or quadrivalent vaccine would not protect against the majority of HRHPV. The ninevalent vaccine would protect against 87% of the OHR.

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Introduction

Persistent infection with 13 human papillomavirus (HPV) genotypes called at high risk (HR) induces invasive

cervical cancer (ICC) [1]. Worldwide HPV genotype 16 and 18 represents 70% of the HRHPV found in cervical cancer in the general population; however, HRHPV distribution may vary according to cytology and

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Good continuum of HIV care in Belgium despite weaknesses in retention and linkage to care among migrants

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Abstract

Background: The Belgian HIV epidemic is largely concentrated among men who have sex with men and Sub-Saharan Africans. We studied the continuum of HIV care of those diagnosed with HIV living in Belgium and its associated factors.

Methods: Data on new HIV diagnoses 2007–2010 and HIV infected patients in care in 2010–2011 were analysed. Proportions were estimated for each sequential stage of the continuum of care and factors associated with attrition at each stage were studied.

Results: Of all HIV diagnosed patients living in Belgium in 2011, an estimated 98.2 % were linked to HIV care, 90.8 % were retained in care, 83.3 % received antiretroviral therapy and 69.5 % had an undetectable viral load (<50 copies/ml). After adjustment for sex, age at diagnosis, nationality and mode of transmission, we found lower entry into care in non-Belgians and after preoperative HIV diagnoses; lower retention in non-Belgians and injecting drug users; higher attrition in non-Belgians and injecting drug users. The undiagnosed HIV-infected population, although not precisely estimated, but probably close to 20 % based on available survey and surveillance results, could be the weakest stage of the continuum of HIV care. Its identification is a priority along with improving the HIV care continuum of migrants.

Conclusions: The continuum of HIV care in Belgium is good, but there are weaknesses in retention and linkage to care among migrants. The undiagnosed HIV-infected population, although not precisely estimated, but probably close to 20 % based on available survey and surveillance results, could be the weakest stage of the continuum of HIV care. Its identification is a priority along with improving the HIV care continuum of migrants.

Keywords: HIV, Cascade, Continuum of care, Migrants, Belgium

Background

The use of ART (antiretroviral therapy) in HIV infected patients has shown its efficacy not only in improving the individual outcomes of patients but also in reducing the transmission of HIV. As the epidemic of HIV is reaching the highest proportion of overall viral suppression among people living with HIV (PLHIV) in order to impact HIV transmission [3, 4].

In Belgium the epidemic is largely concentrated among men who have sex with men (MSM) - mainly among

European nationality - and Sub-Saharan African (SSA) men and women. The number of new HIV diagnoses increased by half between 1997 and 2008 and has since remained stable at 1000 to 1200 new cases per year [5]. The epidemic of HIV has increased since introduction of ART. Recent surveys conducted in two large Belgian cities have shown an HIV prevalence among MSM ranging from 6 [6] to 12 % (C. Noestlinger, personal communication, March 2015). In a survey among injecting drug users in Antwerp, HIV prevalences of 3 % in men and 6 % in women were found [7].

Data for HIV testing in Belgium are available either in primary or secondary care (specialized outpatient clinics), hospitals and decentralized projects. Three Aids

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