The natural history of HIV-1 and HIV-2 infections in adults in Africa: a literature review

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Abstract About 30 million people in Africa are estimated to be living with human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS), yet data about the natural history of infection on the continent are sparse. We reviewed the literature on the natural history of HIV-1 and HIV-2 infections among African adults. Only one study, conducted in rural Uganda, has reported on survival from the time of HIV-1 seroconversion: the median was 9.8 years, which is similar to that reported in developed countries in the early stages of the epidemic and consistent with the findings from the follow-up of individuals identified by serological testing during community-based prevalence studies from Africa. Progression to symptomatic disease was faster in Uganda than in developed countries, due largely to the high background level of morbidity. Various studies suggest that people infected with HIV-2 survive longer and the course of the disease is possibly more variable than in people infected with HIV-1. However no studies have investigated survival from time of seroconversion among people infected with HIV-2. The majority of patients in hospital in Africa with either HIV-1 or HIV-2 have the clinical features of AIDS just before they die, and many are severely immunosuppressed. This is similar to the situation in developed countries before the introduction of highly active antiretroviral therapy (HAART). Potentially preventable infections are the leading causes of death among individuals infected with HIV-1. Prophylactic regimens and better treatments could have some effect on survival, but major improvements in life expectancy will require HAART.

Keywords HIV-1/immunology; HIV-2/immunology; HIV infections/diagnosis/mortality; Acquired immunodeficiency syndrome/diagnosis/mortality; HIV seropositivity; Disease progression; Antiretroviral therapy, Highly active; AIDS-related opportunistic infections; Survival rate; HIV seroprevalence; Review literature; Africa; Uganda (*source: MeSH, NLM*).

Mots clés HIV-1/immunologie; HIV-2/immunologie: HIV, Infection/diagnostic/mortalité; SIDA/diagnostic/mortalité; Séropositivité HIV; Progression maladie; Thérapie antirétrovirale hautement active; Infections opportunistes liées SIDA; Taux survie; HIV séroprévalence; Revue de la littérature; Afrique; Ouganda (*source: MeSH, INSERM*).

Palabras clave VIH-1/inmunología; VIH-2/inmunología; Infecciones por VIH/diagnóstico/mortalidad; Síndrome de inmunodeficiencia adquirida/diagnóstico/mortalidad; Seropositividad para VIH; Progresión de enfermedad; Terapia antirretroviral altamente activa; Infecciones oportunistas relacionadas con el SIDA; Tasa de supervivencia; Seroprevalencia de VIH; Literatura de revisión; África; Uganda (*fuente: DeCS, BIREME*).

Arabic

Bulletin of the World Health Organization 2004;82:462-469.

Voir page 467 le résumé en français. En la página 467 figura un resumen en español.

Introduction

In 2002, 29.4 million people in Africa were estimated to be living with human immunodeficiency virus/acquired immune deficiency syndrome (HIV/AIDS); 3.5 million were newly infected; and about 2.5 million died from AIDS (*1*). There are few studies on the natural history of HIV infection among African populations. One reason for this is that such studies require large numbers of individuals to agree to provide blood samples repeatedly so that the date of seroconversion can be identified. They must also agree to be under surveillance for 10 years or longer. Nonetheless, data on the natural history of HIV are essential for counselling patients, estimating the likely social and economic impact of the disease, planning health services, and guiding treatment strategies. This review brings together information on the natural history of HIV-1 and HIV-2 infections among adults in sub-Saharan Africa.

Methods

MEDLINE, EMBASE and PubMed databases were searched using the keywords "HIV" or "AIDS" and "natural history" and "Africa" and "adults." We excluded studies that only recruited patients according to specific opportunistic disease criteria.

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Ref. No. **03-005850**

(*Submitted: 25 June 2003 – Final revised version received: 03 October 2003 – Accepted: 03 October 2003*)

Findings

Survival of individuals infected with HIV-1

The natural history of HIV-1 is well described in developed countries, where about 1.5 million people infected with HIV-1 are living with HIV/AIDS. Data from 38 cohort studies conducted in Europe on more than 13 000 people infected with HIV-1 with reliably estimated dates of seroconversion before the widespread use of highly active antiretroviral therapy (HAART) have been collated to estimate the median survival of individuals seroconverting at different ages (*2*). For those seroconverting between 15 and 24 years of age the median survival time (and 95% confidence interval (CI) was 12.5 years (95% CI = 12.1–12.9). For those aged 25–34, median survival was 10.9 (95% CI = 10.6–11.3). For those aged 35–44 it was 9.1 (95% CI = 8.7–9.5). And for those aged 45–54 years, the median survival was 7.9 (95% CI = 7.4–8.5).

The survival of people in Africa infected with HIV-1 from their date of seroconversion has been reported in only one study. This study was conducted by Morgan et al. in rural south-western Uganda (*2*). Among 168 incident cases, who were infected predominately through heterosexual contact and whose median age at seroconversion was 30 years, 44 individuals died. The median survival was estimated as 9.8 years (interquartile range 6.1— less than 10.3 years). This is about 1 year less than the median survival time of HIV-infected people in developed countries who seroconverted between the ages of 25 and 34 years before HAART was widely available (*3*). Although based on small numbers, there was some evidence in the Ugandan study that survival varied with age at infection: older patients tended to have shorter survival times. The age-standardized mortality rate of people infected with HIV-1 was 6.7 deaths per 100 person-years (which was 7.9 times higher than that for controls not infected with HIV). Participants had regular access to basic clinical care as part of the study including treatment with drugs that appear on WHO's list of essential drugs. However, in the rest of Africa the majority of people infected with HIV do not have regular access to care. It is unclear whether access to care had a major impact on survival. The authors report no difference in survival among 71 HIV-1 cases identified by serological testing during prevalence studies (seroprevalent cases) who were part of the research programme and 126 cases who were not invited to join the research study (*2*). It is also important to note that the size of the cohort in whom the date of seroconversion was known approximately (the sero-incident cohort) and the number of deaths were comparatively small and that no other sero-incidence survival studies among the general population have been conducted in Africa.

Data have also been reported from a number of community-based seroprevalence studies of HIV-1, all conducted in eastern and southern Africa (Table 1). The data are difficult to interpret and compare because the time since seroconversion and the age at seroconversion, the two strongest predictors of prognosis (*2*, *4*), were unknown. The study with the largest follow-up was that conducted by Crampin et al. in rural Malawi. This study followed 197 seroprevalent cases for more than 10 years. The mortality rate was 9.3 deaths per 100 person-years and median survival was 8 years (*5*). Other studies had shorter follow-up times and reported mortality rates between 9.3 and 15.7 deaths per 100 person-years (*6*–*9*). These rates are broadly consistent with a median survival of around 10 years in Africa.

Mortality rates among African adults infected with HIV-1 have also been reported from hospital-based studies and placebo arms of treatment trials (*10*). These studies are likely to suffer from selection bias in that they may include a higher proportion of individuals progressing rapidly to disease or, in some cases, exclude those who are sicker, for example, if they die before they reach hospital. Mortality rates reported in these studies range from about 10 to 35 deaths per 100 person-years.

Co-factors affecting survival of HIV-1 infected individuals

Increased frequencies of malaria parasitaemia, clinical malaria, and infection with herpes simplex virus (HSV) type 2 have been reported among HIV-1 infected individuals compared with uninfected controls (*11*–*13*), and these conditions together with helminthic infections and leishmaniasis have been associated with higher plasma viral load (*13*–*16*). It has been suggested that individuals infected with HIV-1 in Malawi have higher plasma viral load than do those in the western world (*17*). In one study, breastfeeding was associated with a threefold higher mortality among women infected with HIV-1 (*18*). Other studies have found that micronutrient deficiency is associated with faster progression to death (*19*). It has also been reported that disease progression and mortality are influenced to a small extent by viral subtype, with subtype D being associated with a faster progression to death (*20*, *21*).

The findings from these studies suggest that the overall rate of progression to death among HIV-1 infected individuals might be faster in Africa than it was in developed countries pre-HAART. However, these studies suffer from a number of methodological problems, and their findings are difficult to interpret and compare directly with studies done in the developed world. Several of the studies showing that co-infection with other pathogens increases viral replication were small and short-term, and none demonstrated an impact on the rate of progression to HIV disease or death. Micronutrient deficiency has been reported in individuals infected with HIV-1 in developed countries as well as in Africa, but it is not clear whether this leads to faster disease progression or whether progression in disease leads to micronutrient deficiency. There were only 24 deaths (among 425 women) in the study on breastfeeding. If breastfeeding had such a dramatic effect on survival, overall survival rates might be expected to be lower among women, but similar death rates for men and women have been reported in the larger community-based studies conducted in the region, including the study on survival from time of seroconversion (*3*, *6*, *9*). The studies of survival according to subtype comprised seroprevalent cases. The time since seroconversion may have confounded the association because subtypes will have evolved over the course of the epidemic. Overall, these studies do not provide convincing evidence of an appreciably faster progression to death in Africa.

In 2000, it was estimated that about 225 000 of 1.8 million deaths worldwide from tuberculosis were attributable to infection with HIV (*22*). Co-infection with tuberculosis has been associated with increased viral replication (*23*), but there is no convincing epidemiological evidence that tuberculosis speeds the progression of HIV disease (*24*). A study in Kenya, conducted among sex workers infected with HIV-1, has reported the rate of first episodes of pneumococcal disease. These occurred at a median CD4 count of 300 cells per µl. The rate was as high as that for tuberculosis and much higher than rates reported in developed countries among individuals infected with HIV-1

Table 1. **Survival of individuals in Africa infected with HIV-1 identified by serological testing during community-based prevalence studies**

Study (place of study)	Ratio of no. infected with HIV-1: no. uninfected	Study duration	Mortality rate per 100 person-years[a]	Mortality rate ratio[a, b]	Comments
Crampin et al. 2002 (rural northern Malawi) (*5*)	197:396	1981–2000	9.3 (7.8–11.2)	10.8 (7.4–15.6)	Median survival among people infected with HIV-1 was 8 years, and 36% were alive after 10 years. Overall loss to follow-up was 2%
Morgan et al. 1997 (rural south-western Uganda) (*9*, *69*)	93:177	1990–95	15.7 (11.6–21.1)	14.3 (6.5–31.8)	Overall attendance at scheduled 3-monthly follow-up visits was 74.2%. Median survival among those infected with HIV-1 was 4.5 years. Study also reported survival of 86 Incident cases who later formed part of the subsequent larger sero-incidence study. These data are not included in these rates
Nunn et al. 1997 (rural south-western Uganda) (*6*)	1351:19 492	1989–95	12.4 (10.6–14.3)	12.8 (10.0–15.6)	Includes individuals in Morgan et al. 2002 (*2*) and Morgan et al. 1997 (*9*). 32% of participants were lost to follow-up. Five-year survival probabilities for those infected with HIV-1 were 53% among those aged 13–54 and 29% among those aged 55 and older
Sewankambo et al. 1994 (rural south-western Uganda) (*7*)	524:2103	1990–91	11.8 (8.9–14.8)	9.5 (9 6.0–14.9)	5% of participants were lost to follow-up
Todd et al. 1997 (rural north-eastern United Republic of Tanzania) (*8*)	781:20 556	1991–94	9.3 (7.2–11.5)	15.7 (11.2–21.0)	Part of large trial of syndromic management services for bacterial sexually transmitted diseases. 29% were lost to follow-up

[a] Values in parentheses are 95% confidence intervals.
[b] Rate ratio relative to control group.

(*25*). Hospital-based studies have also reported a high burden of pneumococcal disease among Africans infected with HIV-1 (*26*). One small study, comprising 13 patients, has suggested that median HIV-1 plasma viral load may be higher during an episode of bacterial pneumonia (*27*). However, these studies have been conducted in selected populations, and it is unclear whether the results would be widely generalizable. Overall, tuberculosis and severe bacterial infections have remarkably high disease burdens in areas of high HIV-1 prevalence in Africa. However there is no convincing evidence that they lead to an appreciably faster progression to death among individuals infected with HIV-1 in Africa than in developed countries before the widespread use of HAART.

Progression to symptomatic HIV-1 disease and to AIDS from seroconversion

In many African hospitals, more than half of the inpatients are likely to be infected with HIV-1 (*28*). There are few reliable descriptions of progression to clinical disease in representative groups of individuals infected with HIV-1, and much of the evidence on the spectrum of disease seen in African adults arises from hospital-based studies (*29*). Comparisons between such groups in Africa are difficult because most hospitals lack the facilities to diagnose HIV-related infections reliably; definitions of AIDS have changed over time; and presentation to hospital is dependent on a patient's health-seeking behaviour and on referral patterns which vary between settings. Nevertheless, tuberculosis and severe bacterial infections have been identified as the leading causes of morbidity (*22*, *25*, *29–33*) .

Times from seroconversion to symptomatic disease and AIDS among individuals living in the community have been reported only by Morgan et al. in Uganda (*34*, *35*). This suggests rapid progression: the median times from seroconversion to WHO disease stages 2 and 3 were 25 months (95% CI = 34–30) and 46 months (95% CI = 36–51) months, respectively. Weight loss, minor mucocutaneous disease, severe bacterial infection, chronic diarrhoea, and chronic fever were the main manifestations. The rates of apparent progression were much faster than those reported from developed countries (*36*, *37*), probably because of the high background frequency of some of these conditions in the general population in Uganda. The median CD4 counts measured among those infected with HIV-1 were high: 516 cells per µl at stage 2 and 428 at stage 3 (*35*). There are few data on CD4 count at these disease stages against which these figures might be compared. However, studies in Africa and Italy have suggested that the pattern of CD4 count decline is linear (*38*, *39*). The fall in median CD4 count in Uganda between WHO disease stages 2 and 3 of about 50 cells per µl per year is consistent with the rate of fall reported from patients in Italy prior to the introduction of

HAART (*40*). These findings need to be confirmed in other African settings.

Studies in developed countries have shown that plasma viral load and CD4 cell count have high prognostic value for predicting the survival of individuals infected with HIV-1. These surrogate markers have been used for several years to aid decisions about when to initiate HAART and to monitor patients on therapy. There are few data relating these markers to disease progression in population-based cohorts of people infected with HIV-1 in Africa, and it is unclear whether the findings from developed countries are generalizable. Also, measuring CD4 count and plasma viral load is expensive, and few laboratories in Africa have the necessary facilities. One possibility for Africa is to use clinical staging alone, but the high rates of early disease described in the Uganda study (*34*, *35*) and the lack of sufficient diagnostic facilities in many settings suggests the need for caution when making decisions about when to initiate HAART or to change therapy. Research is required to help us understand better the prognostic value of symptomatic disease in Africa and to identify practical means of monitoring patients on HAART.

In the study in Uganda, the median time from seroconversion to AIDS among the 168 cases was 9.4 years (interquartile range 5.5–10.1) (*2*). This is similar to the median time to AIDS of 9.8 years reported among patients who seroconverted at age 25–34 years from 38 studies of sero-incidence conducted in Europe before the widespread introduction of HAART (*2*). Other work from Uganda has reported that the most common AIDS-defining conditions among 72 individuals with AIDS were HIV wasting syndrome (diagnosed in 38% of patients), oesophageal candidiasis (26%), chronic mucocutaneous HSV infection (18%), Kaposi's sarcoma (11%), and extrapulmonary tuberculosis (10%) (*41*).

Two studies conducted among sex workers have estimated times from seroconversion to AIDS. In Nairobi, Kenya, 160 women (mean age 31 years at seroconversion) identified between 1985 and 1989 and followed for a mean of 2.5 years, had an estimated median time to AIDS of 4.4 years (*42*). It was suggested that this rapid disease progression resulted from immune activation due to repeated co-infection with other sexually transmitted infections (*43*). In Dakar, Senegal, 32 women (mean age 37 years at seroconversion) were identified and followed for a mean of 2.6 years between 1985 and 1993 (*44*). Four women developed AIDS. The AIDS-free survival probability was 67% at 5 years. The findings from these two studies are difficult to generalize. Both looked at selected populations. The study in Kenya extrapolated the median time to AIDS from a mathematical model. The study in Senegal was small. Data from any further follow-up studies, if conducted, have not been reported, and the findings have not been confirmed in other studies from the continent.

Survival after AIDS among individuals infected with HIV-1

The time from the incident diagnosis of AIDS to death in a population-based cohort has been reported only from the study by Morgan et al. (*2*). A total of 90 individuals developed AIDS. The median time to AIDS was 9.2 months (interquartile range 2.2–23.6), with AIDS being diagnosed at a median CD4 count of 126 cells per µl (interquartile range 40–318). Survival was dependent on the AIDS-defining condition, the median being less than 3.5 months for wasting syndrome, oesophageal candidiasis and Kaposi's sarcoma, and more than 20 months for chronic HSV infections and extrapulmonary tuberculosis. However the numbers in these sub-analyses were small. The median CD4 count 6 months or less before death was 61 cells per µl; it was <10 cells for 22% of individuals. These findings suggest that most African patients have the clinical features of AIDS just prior to death and many do not die until they are severely immunosuppressed. Again, this is similar to the situation in developed countries before the advent of HAART (*45*). Profound immunosuppression has also been reported among individuals infected with HIV-1 in Côte d'Ivoire (*31*, *32*). The data argue against the notion that death from infections occurs early among African people before they reach the stage of advanced immunosuppression.

Median survival following the diagnosis of AIDS was reported from a number of large studies from developed countries in the early stages of the epidemic. It varied from about 12 months to 20 months (*46*, *47*). The estimate from Uganda has wide confidence limits and is consistent with these reports from developed countries, although it seems unlikely that survival times would be exactly the same during the latter stages of the disease when in Africa the incidence of infections is high and access to diagnostic facilities, treatments and prophylaxis is so much worse (*48*). AIDS survival rates in developed countries increased to about two years before the advent of HAART (*49–51*), suggesting that access to better prophylactic regimens and better treatments for opportunistic infections may have had a modest impact on AIDS survival at the population level.

Short survival times of around 2–6 months from presentation with AIDS have been reported from hospital-based studies in Africa (*52–55*). However, these studies were small and are difficult to interpret. The duration of AIDS prior to presentation was unknown, and the studies comprised selected individuals with severe disease.

Survival of people infected with HIV-2 and with both HIV-1 and HIV-2

Infection with HIV-2 is concentrated in western Africa where prevalences of about 10% have been reported from some settings (*56*). In two community-based studies conducted in Guinea-Bissau, mortality rates among people infected with HIV-2 (average age at recruitment was over 40 years) were about twice those of the general population (*57*, *58*) and considerably lower than mortality rates among people infected with HIV-1, as described above (Table 2). However, studies of HIV-2 infection were comparatively small, and so it is not clear whether the results are generalizable or whether the participants were a selected group of survivors in whom infection was progressing particularly slowly. That the participants were older than is typical for those with HIV-1 infection could suggest that many with fast progression to disease had died earlier, although this is just speculation. Equally, HIV-2 may be acquired later in life, although it seems implausible that if HIV-2 is as virulent as HIV-1 that their survival would be similar to that of HIV-uninfected controls after such a long follow-up.

A study conducted in Senegal (*44*) recruited 33 sex workers infected with HIV-2 (mean age 37 years) following seroconversion between 1985 and 1993. It followed them for a mean of 3.4 years. None was diagnosed with AIDS. However, these data are difficult to generalize because of the selected population and the small study size. No further studies of survival following seroconversion with HIV-2 have been reported.

In the Gambia, a hospital-based study identified cases either through routine screening of patients with sexually trans-

Table 2. **Survival in Africa of individuals infected with HIV-2 identified by serological testing during community-based seroprevalence studies**

Study (place of study)	Ratio of no. infected with HIV-2: no. uninfected	Study duration	Mortality rate per 100 person-years[a]	Mortality rate ratio[a, b]	Comments
Poulsen et al. 1997 (urban Bissau, Guinea-Bissau) (*58*)	58:594	1987–95	2.6 (1.1–4.1)	2.2 (1.2–4.6)	Followed for a median 8.6 years. The median age of those infected with HIV-2 was about 42 years. Authors say that the survival status of all the individuals was ascertained
Ricard et al. 1994 (Caio Village, north-western Guinea-Bissau) (*70*)	220:2474	1989–91	2.7 (1.2–4.2)	3.5 (1.8–6.7)	Followed for a mean 24.2 months. Authors say most deaths were identified
Berry et al. 2002 (Caio Village, north-western Guinea-Bissau) (*57*)	133:160	1991–98	3.9 (2.5–5.3)	1.7 (1.0–2.9)	Followed for 8 years. 7 (5%) were lost to follow-up. The median age of those infected was 43 years The cohort is a subset reported by Ricard et al. (1999) (*70*)

[a] Values in parentheses are 95% confidence intervals.
[b] Rate ratio relative to control group.

mitted infections or by clinical presentation (*55*). It reported 22 deaths (95% CI = 20–24) per 100 person-years overall. This rose to 84 (95% CI = 68–99) deaths per 100 person-years among those whose CD4 counts at recruitment were below 200 cells per µl. In the same study, the mortality rate of patients infected with HIV-2 was significantly lower than that of patients infected with HIV-1 among those with CD4 counts above 500 cells per µl. However, mortality rates did not differ among those with lower CD4 counts. There is the possibility that the studies comprised selected groups of individuals, and survival in HIV-2 may be no more variable than in HIV-1, but just more prolonged. Equally, survival among those infected with HIV-2 may be more variable, with some individuals having a near-normal lifespan and not needing treatment but others needing to be treated as aggressively as those with HIV-1. Studies in Guinea-Bissau among participants infected with HIV-2 suggest that a combination of CD4 count and plasma viral load could guide the initiation of antiretroviral therapy in such patients (*57*, *59*).

Only one study, conducted among hospital patients in the Gambia, has reported on the survival of those who are infected with both HIV-1 and HIV-2 (55). The death rate based on 107 individuals followed for a median of 8 months was 42 deaths per 100-person-years (95% CI = 31–52), which is similar to that among those infected only with HIV-1 and significantly higher than that among those infected only with HIV-2. However, comparisons of hospital studies where the time of seroconversion and the age at seroconversion are unknown are difficult to make.

The clinical manifestations of HIV-2 among hospital patients appear broadly similar to those of HIV-1 in Africa although the studies that have made these comparisons have been generally small (*33*, *56*, *60–62*). In an autopsy study conducted in Côte d'Ivoire comprising 154 people infected with HIV-1 and 40 infected with HIV-2, severe cytomegalovirus infection, HIV encephalitis, and cholangitis were more common among those infected with HIV-2 (*63*). These conditions are associated with extreme immunosuppression and prolonged survival, suggesting that people infected with HIV-2 may experience prolonged survival in the terminal stages of disease, although the studies in the Gambia do not support this (*53*, *55*).

Conclusion

This review highlights the scarcity of information on the natural history of HIV-1 infection in Africa. The most relevant data derive from one sero-incidence study conducted in Uganda (*2*), which has reported its findings recently, and from two seroprevalence studies conducted in Malawi (*5*) and Uganda (*6*). These suggest that the overall median survival time of Africans infected with HIV-1 is about 10 years. This is broadly similar to that reported in developed countries prior to the widespread use of HAART. The notion that HIV infection has a faster progression in Africa (*64*) is not supported by the data and may have arisen from small-scale studies conducted among selected groups of individuals infected with HIV-1.

The highest risk of HIV-1 infection is among young adults. The resulting burden for Africa has been immense (*1*). Access to treatments is poor, and many people die from infections for which treatments or prophylaxis should be available readily (*29*, *30*, *32*, *65*). In developed countries, survival following the diagnosis of AIDS increased to a median of about 2 years before the widespread use of HAART (*49*, *50*). Greater access to prophylaxis, such as isoniazid and cotrimoxazole, could have a modest impact in Africa at the population level (*29*, *65*, *66*). To bring about major improvements in life expectancy in Africa will require introducing HAART, which has had a remarkable impact on the survival of people in developed countries infected with HIV-1 (*67*). The cost of HAART for the developing world has fallen dramatically in the past few years, and access to these drugs is likely to become easier over time. Studying cohorts, such as those in Uganda and Malawi (*3*, *5*), will be important to monitor the efficacy and impact of HAART in Africa and to answer some of the important research questions, including how to deliver HAART, how much monitoring is needed, how adherence can be maximized and when treatment should be initiated.

Our review shows that HIV-2 infection appears to be of low virulence in many individuals, but survival is similar to HIV-1 infection among the few who present to hospital with AIDS (*55*, *57*, *58*). The typical course of infection from time of HIV-2 seroconversion in individuals is unclear, and while studies with known dates of seroconversion could be informative, these would be a major undertaking because the incidence of HIV-2 is low (*56*, *68*). The limited data available suggest that in patients infected with both HIV-1 and HIV-2 the disease may have a natural history similar to that of HIV-1.

In summary, the limited evidence from Africa suggests that the natural history of HIV-1 is probably similar to that reported in developed countries prior to the widespread use of HAART, at least with respect to overall survival times. People infected with HIV-2 appear to have a prolonged, and possibly more variable, survival than people infected with HIV-1. Many people infected with HIV-2 do not require treatment. Determining how to use HAART to treat individuals in Africa who are infected with HIV-1 is a priority. Longitudinal studies in well-defined cohorts of participants infected with HIV-1, such as some of those discussed here, are essential to allow evaluation of therapies and to address research questions pertinent to patients in Africa. Further studies of the natural history in the absence of antiretroviral treatment are now probably unethical, and so our knowledge in this area is unlikely to increase. ■

Acknowledgements

We thank Professors Brian Greenwood and Jacques Pepin, Dr Maarten Schim and Sian Floyd for helpful discussions and review of the manuscript.

Funding: Shabbar Jaffar and Jimmy Whitworth are supported by research grants from the United Kingdom Medical Research Council.

Conflicts of interest: none declared.

Résumé

Histoire naturelle des infections à VIH-1 et VIH-2 chez l'adulte en Afrique : examen des données publiées

En Afrique, on estime à 30 millions environ le nombre de personnes touchées par le virus de l'immunodéficience humaine/syndrome d'immunodéficience acquise (VIH/SIDA), mais rares sont les données sur l'histoire naturelle de l'infection sur ce continent. Nous avons passé en revue les publications portant sur l'histoire naturelle des infections à VIH-1 et VIH-2 dans la population africaine adulte. Une seule étude, réalisée dans les zones rurales de l'Ouganda, s'intéressait à la survie après séroconversion vis-à-vis du VIH-1 : la survie médiane était de 9,8 ans, soit une durée analogue à ce qui était rapporté dans les pays développés dans les débuts de l'épidémie, et en accord avec les résultats du suivi des sujets identifiés par des tests sérologiques lors d'études de prévalence menées dans le cadre d'études communautaires en Afrique. L'évolution en maladie symptomatique était plus rapide en Ouganda que dans les pays développés, du fait surtout de la morbidité générale élevée dans le pays. Divers travaux laissent à penser que les personnes infectées par le VIH-2 ont une meilleure survie que celles infectées par le VIH-1, avec une évolution plus variable de la maladie. Aucune étude n'a cependant été consacrée à la survie après séroconversion chez les sujets infectés par le VIH-2. La plupart des patients hospitalisés en Afrique pour une infection par le VIH-1 ou le VIH-2 présentent les signes cliniques du SIDA juste avant leur mort, et nombre d'entre eux sont sévèrement immunodéprimés. On se trouve ici dans une situation analogue à celle des pays développés avant l'introduction des traitements antirétroviraux hautement actifs (HAART). Les infections potentiellement évitables sont les causes principales de décès chez les sujets infectés par le VIH-1. L'amélioration du traitement et l'adoption de schémas prophylactiques pourraient avoir un effet sur la survie, mais les progrès décisifs en matière d'espérance de vie passeront obligatoirement par les HAART.

Resumen

Historia natural de las infecciones por VIH-1 y VIH-2 en los adultos en África: revisión de la literatura

Se estima que hay en África unos 30 millones de personas afectadas por el virus de la inmunodeficiencia humana/síndrome de inmunodeficiencia adquirida (VIH/SIDA), pese a lo cual se dispone de escasos datos acerca de la historia natural de la infección en el continente. Hicimos una revisión de la literatura sobre la historia natural de las infecciones por VIH-1 y VIH-2 en la población adulta africana. Sólo en un estudio, realizado en la Uganda rural, se informa sobre la supervivencia desde el momento de la seroconversión para el VIH-1: la mediana fue de 9,8 años, cifra similar a la notificada en los países desarrollados en las primeras fases de la epidemia, y compatible con los resultados del seguimiento de los individuos identificados mediante análisis serológicos durante los estudios de prevalencia (casos seroprevalentes) en estudios comunitarios realizados en África. La progresión a enfermedad sintomática fue más rápida en Uganda que en los países desarrollados, debido en gran parte a la elevada morbilidad de fondo. Diversos estudios indican que las personas infectadas por el VIH-2 sobreviven más tiempo, y que la evolución de la enfermedad es en ellas más variable que en las infectadas por el VIH-1. Sin embargo, ningún estudio ha investigado la supervivencia desde el momento de la seroconversión entre los infectados por el VIH-2. La mayoría de los pacientes hospitalizados en África con VIH-1 o VIH-2 no presentan las manifestaciones clínicas del SIDA hasta poco antes de morir, fase en la que muchos se encuentran ya gravemente inmunodeprimidos. La situación es análoga a la que existía en los países desarrollados antes de que se introdujera la terapia antirretroviral de gran actividad (TARGA). Las infecciones potencialmente prevenibles son la principal causa de defunción entre los individuos infectados por el VIH-1. Los regímenes profilácticos y las mejoras del tratamiento podrían tener cierto efecto en la supervivencia, pero la TARGA será fundamental para conseguir prolongar sustancialmente la esperanza de vida.

Arabic

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