Risk Factors for Increased Delay between HIV Diagnosis and First Specialised Consultation among HIV-infected Patients in Guadeloupe: A Retrospective Cohort Study

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ABSTRACT

The variables influencing the interval between diagnosis and effective access to specialised care were studied in a cohort of 1542 human immunodeficiency virus (HIV)-positive patients in Guadeloupe between 1988 and 2009. A retrospective cohort study was conducted to determine the risk factors for increased delay between HIV diagnosis and first specialised consultation. Patients with a subsequent follow-up interruption were significantly more likely to have a delayed first consultation after HIV diagnosis. Ordinal logistic regression showed that male sex (OR:1.40[1.20-1.74], p = 0.002), younger persons (OR: 1.50 [1.20-2.18], p = 0.001), patients in CDC category B (OR: 1.90 [1.30-2.70], p = 0.002), patients diagnosed before 1997 (OR: 2.70[2.10-3.50], p = 0.000), CD4 count 200-499 (OR: 2.80 [2.20-3.50], p = 0.000) and CD4 count>500(OR: 4.30 [3.20–6.10], p = 0.000) were independently associated with greater delays between HIV diagnosis and the first specialised consultation. Focusing on the link between the private sector and specialised health care may shorten delays and improve care and follow-up.

Keywords: Delayed access to specialized care, Guadeloupe, HIV-infected patients, predictive factors

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INTRODUCTION

To improve the benefits of highly active antiretroviral therapy (HAART), a good health system should diagnose human immunodeficiency virus (HIV)-infected patients as early as possible, refer them to an HIV care facility, and maintain patient regular follow-up and care. The risk factors for late diagnosis (1) and follow-up interruption (2) have been described by a number of studies. Fewer studies, however, have studied the variables influencing the interval between the diagnosis and effective access to specialised care (3-6).

Guadeloupe is part of the French overseas territories, and has a large number of persons living with HIV/AIDS. HIV-positive patients followed at the University Hospital of Pointe-à-Pitre and Basse Terre hospitals since 1 January 1988 and at St. Martin Hospital since 1 January 1992 until 31 December 2009 were enrolled in the Guadeloupe section of the French Hospital Database for HIV (GFHDH). In Guadeloupe, here are frequent delays in HIV testing, notably among migrants, and the incidence of patients with interrupted follow-up is high.

SUBJECTS AND METHODS

To identify factors associated with delayed access to care, a retrospective study was conducted in Guadeloupe. All HIV-positive adult patients followed between 1 January 1988 and 31 December 2009 were enrolled in the French Hospital Database for HIV (FHDH). The FHDH is a national project that received approval in 1991. A trained research assistant uses standardized procedures to prospectively collect clinical, laboratory, and treatment data from medical records by using specialized French Ministry of Health software (Dossier Medico-Economique Informatisé, version 2 [DMI2]). The cohort started in the late eighties and was

approved by the commission nationale informatique et libertés (CNIL), and has led to several publications (7–9).

Time-independent variables, such as sex, nationality, and mode of acquisition of HIV, and time-dependent variables, such as age, CD4 and CD8 cell counts, HIV-1 viral loads, treatments, and clinical events, reported by the clinicians are routinely entered by trained clinical studies technicians. The identities of patients are encrypted before the data are sent to the Ministry of Health and the Institut National de la Recherche Médicale (INSERM), which centralises data from COREVIH (Regional Coordination of the Fight against HIV) facilities throughout France. The data were analysed using STATA 10.0 (STATA Corp., College Station, TX). The delay between the date of a positive HIV test and the first consultation in the hospital was calculated and categorised into < 1 month, between 1 and 3 months, between 3 and 12 months, and > 12 months. An ordinal logistic model with the categorised delays as the dependent variable was used to determine the independent variables that were related to the outcome.

RESULTS

A total of 1.542 patients were in the database. Of these, 4 % were first seen in the hospital within 1 month, 23 % were first seen between 1 and 3 months, 36 % were first seen between 3 and 12 months, and 37 % were first seen > 1 year after diagnosis. Patients who later had at least one follow-up interruption (no consultation for > 1 year) were more likely to have a delayed first consultation after HIV diagnosis than patients with no subsequent history of follow-up interruption ($p = 0.019$). Table 1 shows male sex (OR:1.40[1.20–1.74], $p = 0.002$), younger persons (OR: 1.50 [1.20–2.18], $p = 0.001$), patients in CDC category B (OR: 1.90 [1.30–2.70], $p = 0.002$), patients diagnosed before 1997 (OR: 2.70[2.10–3.50], $p = 0.000$),

CD4 count 200-499 (OR: 2.80 [2.20-3.50], p = 0.000) and CD4 count>500(OR: 4.30 [3.20–6.10], p = 0.000) were independently associated with greater delays between HIV diagnosis and the first specialised consultation.

DISCUSSION

Initial primary care presentation of patients with HIV infection generally occurs within days, months or years after acquisition of the virus. The portion of the delay in medical care attributable to the period between positive HIV test results and initiating primary care has not been well-defined. A reduction in this delay could help individuals to benefit from therapeutic advances. These benefits include antiretroviral therapy, prophylaxis of opportunistic infections, immunisations, and behavioural interventions. In our study, although a not negligible proportion of patients (n =413 [27%]) made the initial linkage with medical care within three months, a substantial proportion (580 [37%]) delayed for more than 1 year.

We found that the risk of delay was high between 1988 and 1996. This risk decreased from 1997 and 2005, but has not continued to show improvement since 2005. Samet et al. (10) reported a delay of 1 year or more before treatment for 40% of patients treated at two urban hospitals in New England. Nacher et al. (11) reported that 15% of a sample of HIV-infected individuals in French Guiana delayed care for more than 1 year. Numerous forces influence the interval between the results of the HIV test and the first contact with an HIV specialist. These results suggest that some patients that do not have opportunistic infections are more likely to delay their access to care.

Drug users, because of the behavioural problems associated with addiction, may not be a suitable clientele for private practice and only are tested in the hospital, and thereby are immediate contact with HIV specialists. Patients may also have been more likely to have health insurance when consulting private practitioners. Finally, there was a link between the

delay in accessing specialised care and the subsequent likelihood of follow-up interruption, thereby constituting an early warning sign that allows for interventions to improve follow-up. Improved coordination between hospitals and private practioners should lead to improved access to HIV care.

Since 1997, the management and prognosis of HIV infection have been transformed by powerful new classes of antiretroviral agents that reduce virus replication and allow the immune system to recover (12, 13). It remains to be seen whether these powerful therapies will encourage individuals to accept HIV testing and to receive care more promptly after a diagnosis of HIV infection. In our previous study, individuals on ART were seen to have a decreased risk of for follow-up interruption (2).

This study has limitations due to the limited number of explanatory variables, which need to be considered when interpreting the data. Some potential risk factors, such as education, HIV knowledge and awareness, religion affiliations, and employment status were not recorded.

CONCLUSION

Despite these limitations resulting from the retrospective nature of our study, this analysis offers the first Guadeloupean data on the problem of delayed medical care after diagnosis. However, most of our results are consistent with previous studies (11).

List of abbreviations

HAART: highly active antiretroviral therapy

HIV: human immunodeficiency virus

GFHDH: Guadeloupe section of the French Hospital Database for HIV

FHDH: French Hospital Database for HIV

INSERM: Institut National de la Recherche Médicale

COREVIH: comité de coordination de la lutte contre l'infection par le VIH

ART: Antiretroviral therapy

DMI2 : Dossier Médico-Economique Informatisé, version 2

CNIL : commission nationale informatique et libertés

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AUTHORS' NOTE

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EN has made substantial contributions to conception and design, analysis and interpretation of data. MT, LI, FI and BG have made substantial contributions to acquisition of data. G-S M-T have made substantial contributions to acquisition of data and have been involved in drafting the manuscript and revising it critically for important intellectual content. NM has been involved in drafting the manuscript and revising it critically for important intellectual content and has given final approval of the version to be published.

The authors declare that they have no competing interests

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Table: Risk factors for increased delay between HIV diagnosis and first specialised consultation

Variables	Crude OR (95% CI)	p	Adjusted OR* (95% CI)
Age			
≤ 30	1.45 (1.23–1.71)	0.000	1.10 (0.54–1.40)
30–40	1.36 (1.17–1.59)	0.000	1.50 (1.20–2.18)
> 40	1		1
Gender			
Female	1		1
Male	1.14 (0.55–1.4)	0.16	1.40 (1.20–1.74)
HIV diagnosis period			
2006–2009	1		1
1997–2005	1.59 (1.06–2.38)	0.026	1.20 (0.94-1.60)
1988–1996	2.87 (1.92–4.29)	0.000	2.7 (2.10–3.50)
Initial CD4 cell count			
< 200	1		1
200–499	2.5 (2.03–3.13)	0.000	2.8 (2.20–3.50)
	3.75 (2.8–5.10)	0.000	
≥ 500	.000		4.30 (3.20–6.10)
Nationality			
French	1		1
Haiti	3.10 (0.92–10.2)	0.068	1.40 (0.40–5.30)
Others	2.30 (1.10–4.7)	0.03	0.98 (0.45–2.10)
CDC category			
A	0.98 (0.82–1.20)	0.8	1.20 (0.90–1.60)
B	1.54 (1.20–2.00)	0.001	1.90 (1.30–2.7)
C	1		1
Known drug use/addiction			
no	1		1
yes	0.26 (0.12–0.56)	0.001	0.42 (0.20–1.02)

* Obtained using an ordinal logistic regression model including the above covariates. CI confidence interval