

Managing HIV Disease in A Health Department

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Abstract

Objective: To know assistance functions performed in primary and hospital care for patients with HIV disease.

Design: Retrospective

Participants: 167 cases with HIV disease assigned to three health centers, with a mean age of 44.7 years, and 39.8% of women.

Measurements: We reviewed their primary and hospital records for 4 years, and collected chronic diseases, administered vaccines, consultation with the primary care doctor (PCD) and content, Infectious Diseases Unit (IDU) and hospital pharmacy service, and analytics tracking.

Results: Prevalence was 3.7/1000. 47.3% had chronic psychiatric disorders, 31.1% used drugs or/and methadone, 35.9% had chronic viral hepatitis, and 35.3% other chronic diseases.

In the four years a mean dose of influenza vaccine of 1.42 was administered (SD 1.85). Pneumococcal vaccine was administered to 10.8% patients. PCD consultations conducted at PCD were 25.8 (SD 20.5), 14.8 clinics (SD 15.0), mainly due to infectious processes and other acute illnesses. The IDU made 14.4 (SD 6.8) and 8.9 analytical queries (SD 4.0), and pharmacy, 33 (SD 16.6).

Two groups of patients:

- More attendance on IDU and less on pharmacy, fewer

CD4, less undetectable viral load determinations and more hospital admissions.

- More pharmacy attendance and less on IDU, more undetectable viral load determinations, older, better vaccinated and less attendance of emergency department, less psychiatric diseases, less use of drugs/metadone and more chronic diseases.

Conclusions: There are many visits to the PCD, but not related to HIV. There is low vaccination coverage. Could be worth monitoring in primary care patients with stable and good adherence to treatment.

Keywords: HIV/AIDS disease, Assistance, Primary care, Adherence, Monitoring

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Introduction

Since the Human Immunodeficiency Virus (HIV) infection appeared in the early 80's, it has widely spread to every continent. There has been substantial progress in the treatments and understanding of the virus, leading to an improvement in the education available to the population, ensuring what causes transmission is known, which in turn allows for a decrease in transmitted cases and a higher prevention rate. However, despite this progress, it is a complex disease, both in terms of

clinical management and treatment, differentiating case by case dependant on the patient's individual characteristics.

For primary care level it has the same complexity, though treatments are performed in hospitals. The characteristics of the disease (chronic, preventable, multisystem, with impaired personal and family life, etc.) lead to primary care adopting different functions [1], and these have been embraced by several clinical practice guidelines both primary care [2-4] and societies and organizations [5,6]. Also it requires a constant collaboration between primary care and specialists in the field [7].

Although the functions assigned to the first level of care are clear, the attention given to HIV patients during primary care is a subject which little has been written about.

Therefore, the objective of this study is to know how care is being implemented at each health care level, primary and specialized.

Materials and Methods

To evaluate the objectives we followed this workflow:

1. Obtaining lists of HIV patients three health centers (HC) of a health department that serves around 300,000 inhabitants over 14 years.
 - One of the HC is placed in the urban outskirts, serving 11,779 people over 14 years, with important marginal population groups. It has 8 primary care doctors (PCDs).
 - The second one serves a neighborhood, partly placed in the urban outskirts, and partly in a town. It serves mainly those in a mid to high socioeconomic status - 7008 persons over 14 years, and has 4 PCDs.
 - The last serves an entire municipality with 26,020 people over 14 years with highly varied socioeconomic statuses, 16 PCDs.
2. Electronic chart review of patients with data extraction variables stated below. To do this, we consulted computer applications "Abucasis" for primary care, and "Pangea", for the hospital of our health department.

3. We set a study period of four years, from June 2007 to June 2011.

We included patients with active HIV disease (codes 042, 079.53 and V08 ICD-9CM) before June 2007, aged over 14 years, who were attended and registered in all three HC.

We established the following exclusion criteria:

- Displaced persons.
- Deceased patients or those with last visited before June 1, 2007.
- Those with a change of address and transferred to a different center: will include only the periods assigned at the HC.

The variables studied were:

1. Demographic characteristics, age and gender.
2. Chronic health problems, classified as:
 - Chronic psychiatric problems, including anxiety disorders and depression if they have had it for long period of time.
 - Drug use or methadone treatment (leading to cessation)
 - HBV or HCV chronic hepatitis
 - Other chronic diseases.
3. Variables of primary care:
 - Number of PCD consultations with clinical content, classified as:
 - Relating to HIV infection
 - Acute infectious processes
 - Monitoring of chronic diseases
 - Other causes.
 - Number of visits to PCD, with contents exclusively administrative.
 - Immunizations administered:
 - Influenza: number of doses in the 4 years (including A influenza)
 - Pneumococcal
4. Variables of hospital care:
 - Follow up at our department hospital or another one.
 - Number of hospital consultations in the infectious diseases unit (IDU).

- Number of consultations in hospital pharmacy for dispensation of treatment.
- Number of analysis with lymphocyte populations / viral load.
- Number of times that patient is attended at hospital emergency department.
- Number of hospital admissions.
- CD4 + lymphocyte count (cells / μ L).
- Proportion of undetectable viral load determinations in relation to total made.

Statistical Analysis

We processed the data in a database in Office Access, and analyzed using SPSS 15.0, calculating ratios and confidence intervals for qualitative variables and mean and standard deviation for quantitative variables. For a comparison of qualitative variables we applied the Chi-square test, and to compare quantitative variables, we used the Student t-test.

Results

We analyzed all 167 cases found, which means a prevalence of 3.7/1000 inhabitants over 14 years. The mean age was 44.7 years (SD 9.2), with a range between 18 and 80 years. 35.9% of patients were women. In Table 1 we can see some clinical features of patients.

In Table 2 we find consultations with PCD, hospital care data and CD4 count and viral load. These latter data refers only to patients being tracked at the hospital of our department.

The mean dose of influenza vaccine administered in the four years studied was 1.42 (SD 1.74). Only 16.8% (95% confidence interval: 11.1-22.5%) of patients received four or more doses, keeping in mind that one of the recommended vaccination campaigns manage two influenza vaccines (seasonal and pandemic influenza). 47.9% of patients (95% confidence interval: 40.3-55.5%) had not received any doses. Pneumococcal vaccine was administered to 10.8% of patients within the 4 years studied (95% confidence interval: 6.1-15.5%).

Table 1: Description of patients included

	HC A	HC B	HC C	Total
Number of cases	93	17	57	167
Prevalence /1000 people >14 years	7.9	2.4	2,2	3.7
% of women	39.8%	41.2%	28.1%	35.9%
Psychiatric diagnoses	52.7%	29.4%	43.9%	47,30%
Drugs/methadone	34.4	5.9%	33.3%	31.1%
Chronic hepatitis B or C virus	40.9%	17.6%	33.3%	35.9%
Other chronic diseases	38.7%	47.1%	26.3%	35.3%
Follow-up in hospital of another department	22.6%	29.4	10.5%	19.2%

Table 2: Primary care and hospital consultations, CD4 count and viral load

	Mean (SD)
Total PCD consultations	25,8 (20,5)
Clinical consultations	14,8 (15,0)
Administrative consultations	10,9 (9,6)
Clinical consultations on VIH	1,6 (2,0)
Clinical consultations on infectious diseases	5,5 (6,4)
Clinical consultations on chronic diseases	3,0 (6,2)
Consultations on other clinical causes	6,1 (7,2)
Consultations at Infectious diseases unit*	14,4 (6.8)
Consultations at Hospital pharmacy *	33,0 (16.6)
Analysis with viral load or CD4 *	8,9 (4.0)
Attendances at Hospital emergency	3,5 (4.6)
Hospital admissions	0,7 (1.9)
Count of CD4 *	607,4 (301.5)
% negative viral load *	61,1 (31.0)

*: Only patients followed in the hospital's Department

PCD: Primary care doctor

SD: Standard deviation

We considered that adherence is appropriate if a patient comes in at least twice a year for an IDU consultation (according to the recommendations of semiannual monitoring in stable patients

with antiretroviral treatment [7]) and at least 9 times to hospital pharmacy (usually the patient is referred to deliver antiretroviral treatment monthly). In Table 3, we can see the relationship of these two adherence variables with age, primary care utilization (total visits), influenza vaccine doses administered, utilization of the emergency department and the CD4 count and viral load. Also Table 3 shows their relation with pathology.

Table 3: Infectious diseases unit and hospital pharmacy attendance

	Attendance	N	Mean	SD	t Student	p
Age	IDU <2/year	18	44,9	7,8	-0.49	0.62
	IDU ≥2/year	101	46,0	8,6		
	HF <9/year	51	44,0	7,9	-1.9	0.04 a
	HF ≥9/year	67	47,1	8,7		
PC Consultations	IDU <2/year	17	17,7	15,1	-1.5	0.13
	IDU ≥2/year	97	24,8	18,2		
	HF <9/year	49	22,8	20,5	-0.45	0.65
	HF ≥9/year	64	24,3	15,9		
Doses of influenza vaccine	IDU <2/year	18	1,0	1,4	-1.1	0.23
	IDU ≥2/year	101	1,5	1,7		
	HF <9/year	51	0,8	1,3	-3.6	<0.0001 a
	HF ≥9/year	67	1,9	1,8		
Hospital emergency	IDU <2/year	18	2,7	3,2	-0.76	0.44
	IDU ≥2/year	100	3,5	4,6		
	HF <9/year	51	4,5	4,9	2.4	0.02 a
	HF ≥9/year	67	2,6	3,8		
Hospital admissions	IDU <2/year	51	4,5	4,9	-1.2	0.02 a
	IDU ≥2/year	67	2,6	3,8		
	HF <9/year	51	4,5	4,9	0.19	0.84
	HF ≥9/year	67	2,6	3,8		

CD4+ *	IDU <2/year	5	1115,1	200,7	4.2	<0.0001 a
	IDU ≥2/year	89	578,9	280,7		
	HF <9/year	27	519,4	303,1	-1.8	0.07 a
	HF ≥9/year	67	642,9	295,8		
Negative viral load *	IDU <2/year	3	94,4	9,6	1.9	0.05 a
	IDU ≥2/year	56	59,3	30,7		
	HF <9/year	12	33,6	31,8	-3.8	<0.0001 a
	HF ≥9/year	47	68,1	26,8		
		n	%		X2	p
Psychiatric diseases	IDU <2/year	64	85.9		0.12	0.72
	IDU ≥2/year	55	83.6			
	HF <9/year	63	65.1		3.79	0.05 a
	HF ≥9/year	55	47.3			
Drugs/methadone	IDU <2/year	82	89.0		3.53	0.06
	IDU ≥2/year	37	75.7			
	HF <9/year	82	69.5		17.75	<0.0001 a
	HF ≥9/year	36	27.8			
Chronic viral hepatitis	IDU <2/year	72	83.3		0.33	0.56
	IDU ≥2/year	47	87.2			
	HF <9/year	72	62.5		2.46	0.11
	HF ≥9/year	46	47.8			
Other chronic diseases	IDU <2/year	78	80.8		2.97	0.08
	IDU ≥2/year	41	92.7			
	HF <9/year	77	49.4		4.98	0.02 a
	HF ≥9/year	41	70.7			

*Only patients followed in the hospital's Department.

IDU: Infectious diseases unit

HF: Hospital pharmacy

PC: Primary care

SD: Standard deviation

^a Significant differences.

In Table 4 we analyze the use of primary care (total visits) with emergency services and hospital admissions. gender, pathology, hospital follow up, utilization of hospital

Table 4: Primary care doctor and hospital emergency utilization, and hospital admissions

		Variable	N	Mean	SD	t Student	p
Psychiatric diseases	Yes	PCD	66	34,5	24,0	-5.03	<0.0001 a
	No		74	17,9	12,4		
	Yes	HE	66	4,4	5,2	-2.14	0.03 a
	No		72	2,7	4,0		
	Yes	HA	64	1,0	2,5	-1.22	0.22
	No		72	0,60	1,0		
Drugs/methadone	Yes	PCD	41	33,2	25,0	-2.44	0.01 a
	No		99	22,7	17,5		
	Yes	HE	41	5,5	5,1	-3.03	0.03 a
	No		97	2,7	4,2		
	Yes	HA	40	1,4	3,0	-2.43	0.01 a
	No		96	0,54	1,01		
Chronic viral hepatitis	Yes	PCD	53	32,1	23,1	-2.76	0.007 a
	No		87	21,9	17,8		
	Yes	HE	54	4,5	4,5	-2.04	0.04 a
	No		84	2,9	4,6		
	Yes	HA	53	1,3	2,7	-2.11	0.03 a
	No		83	0,47	0,90		
Other chronic diseases	Yes	PCD	54	31,8	22,8	-2.83	0.005 a
	No		54	31,8	22,8		
	Yes	HE	48	4,0	5,6	-0.86	0.38
	No		90	3,3	4,1		
	Yes	HA	49	1,5	2,8	-2.83	0.006 a
	No		87	0,37	,79		
Follow-up hospital	Dept.	PCD	114	23,7	17,9	-2.52	0.01 a
	Other		26	34,8	28,0		
	Dept.	HE	120	3,4	4,41	-0.77	0.43
	Other		18	4,3	6,38		
	Dept.	HA	120	0,72	1,70	-1.30	0.19
	Other		16	1,38	3,05		

PCD: Primary care doctor

HA: Hospital admissions

^a Diferencias significativas.

HE: Hospital emergency

Dept.: Department hospital

Discussion

The prevalence we obtained, 3.7/1000 people over 14 years, is slightly higher than that obtained in prevalence studies from the national AIDS registry in which for Spain was recorded at 1.6/1000 people [8, 9]. Of course, when studying specific groups the rates are higher, for example in prisons, with a 10.8% [10], or men that have sex with men, with 19.8% [11]. We think one of the main influences of this high prevalence found is due to the high marginal population served within the neighborhoods of one of our studied HCs. Moreover, the average age of 44.7 years is higher than in prevalence studies [8, 9] and the proportion of women, 35.9%, higher. However, age and gender are similar to studies on patients attending health services [12]. Keep in mind that as more recent studies are done, the age of those infected with HIV becomes higher, since the incidence of HIV infection decreases. However, heterosexual transmission has increased in recent years.

Half the HIV patients are diagnosed with psychiatric disorders and a third of them are drug or methadone users, although with significant differences among health centers included. The high correlation of psychiatric disorders in HIV patients is clear [7, 12, 13], and in our case the ratio is among the highest. The prevalence in some cases, 75% of patients with anxiety disorders, refers to the method used, by implementation of scales and not diagnoses carried out [14], and therefore not comparable. With regards to drug use, considering that we have included in this group those taking methadone, we may think it is consistent with other studies [14]. The diagnosis of anxiety disorders and depression has been associated with drug use [13].

The immunization coverage obtained deserves special consideration in a high risk group like this one. Even considering that the groups of patients with HIV have special characteristics, as shown for example the high proportion of drug consumption, it is necessary to make an effort by primary care and seek strategies to improve vaccination coverage, an issue that is unquestionably the responsibility of those at the primary care level [2, 3, 13].

A patient with HIV disease is treated in primary care 15 times in the four years of study and 11 more for administrative issues. We had communicated before a high proportion of primary care over users on this group of patients [15]. The reasons for attending are generally beyond their HIV disease. This suggests that there is little involvement of PCD in monitoring HIV disease. This is in line with functions attributed to primary care, exclusively for early diagnosis and prevention [16, 17]. While other recommendations [1] include follow up functions and greater coordination with the specialized level to improve adherence, we are not actually working in this way. In a U.S. study that incorporated monitoring HIV disease in primary care, it was observed that an increase in follow-up visits for HIV could improve control of patients who are difficult to reach from the health system [18], something to ponder.

The IDU made 15 visits over 4 years, with 9 analyses to monitor HIV disease. This number of consultations may seem high, considering those GESIDA recommends [7] two consultations and two analyses every year on stable patients, but one study reported a rate of 3.4 visits per person-years, although 71% of patients had less than 4 annual consultations [19], that is, a few patients with many visits deviate average. In our study we found that patients with many consultations at IDU are those with lower CD4 counts and a lower proportion of undetectable viral loads. They also produce significantly more hospitalizations.

However, patients who come to the hospital pharmacy service more assiduously constitute a different group of patients, with fewer consultations on IDU and higher proportion of undetectable viral load determinations. These patients are older, with a greater number of influenza vaccine doses, less assistances at the emergency department, fewer psychiatric disorders, lower drug / methadone use and less chronic diseases. Arguably, they are more stable patients (but not with fewer visits to PCD). The visits on pharmacy are intended to deliver antiretroviral treatment to the patient, so these visits can be considered as a measure of treatment adherence. In our case they attended an average of 33 times, which is more than 8

times a year. The question is whether monitoring of this group of well-controlled patients, adherent to treatment, could be done in primary care, as they do not require close medical supervision at IDU.

Keeping in mind that 20% of HIV patients are monitored on a hospital different from our department to monitor their HIV disease, and we do not have hospital information about them, this could lead to biased results. We have found that these patients are more frequent users of PCD.

In conclusion, if the results of this study are confirmed in other areas, it would be worth reflecting on the distribution of functions relating to follow up stable and adhering to treatment patients. Ultimately, it is necessary to implement strategies in primary care to improve the low vaccination rates found in this group.

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