

Human Immunodeficiency Virus Infection: acquired experience in an Internal Medicine Department of a Central Hospital

R. Matos*, E. Teófilo**, H. Costa*, J. Calado*, J. A. Poole da Costa

Abstract

The authors present their recently acquired experience in the management of patients with the Human Immunodeficiency Virus infection (HIV), admitted in an Internal Medicine Service of a Central Hospital.

A population of 107 patients with 157 admissions in 7 years (1987 – 1994), the epidemiological and clinical features, as well as some aspects of the diagnosis of the opportunistic infections and the antiviral therapy are described.

The authors try to assess several stages of the course which every patient goes through from the moment they are admitted in hospital until being discharged returning to the community.

The needs of each stage are pointed out and suggestions are made to improve the care of these patients, although it is the authors' belief that there is much more to do.

Keywords: HIV, AIDS, Internal Medicine, assistance, central hospital, diagnosis, therapeutics, solutions.

Introduction

HIV-infected patients healthcare has been in the last few years a task with significant weight on the activity of most medical services, all over the world and also in Portugal.¹ Such situation is particularly important in areas of higher incidence and prevalence of such true pandemics, namely in our country, in the districts of Lisbon, Setubal, and Porto.²

AIDS multiple system manifestations, its chronic character, are a frame not only to this disease but to a set of similar ones for which the internist must be vocated to. This was not the initial situation. The infectious diseases services quickly lost the capacity whether to hospitalize all such patients, whether to follow them up while outpatients.

In the southern region of the country and not only Lisbon, patients infected by the HIV were referred to the existing references centers: the infectious disease service of Curry Cabral Hospital (Pavilion G and F), the Nursing School of Egas Moniz Hospital and the Infectious Disease Service of Santa Maria Hospital.

In particular, Lisbon Civilian Hospitals and the

main Emergency Service at Sao Jose Hospital would have referred patients for the above mentioned two first institutions.

After the opening of the Emergency Service of the Hospital Subgroup of Capuchos-Desterro, at Capuchos Hospital, in July 1991, such situation has radically changed. This hospital subgroup, with 159 beds in 4 Internal Medicine Services, start having an Emergency Service serving a direct population (town of Lisbon) of around 400,000 inhabitants. A screening of around 180 patients a day was made resulting in an average of 18 daily admissions. The outcome was a high number of admissions in seropositive and AIDS patients. It was necessary to perform a whole learning process, as for the first time such patients were admitted in such medical services. Such training has involved doctors and nurses as well as auxiliary staff in all the services. It was necessary to acquire new knowledge and, above all, to acquire the skill of establishing an efficient and safe relationship with the seropositive and AIDS patient and often with the drug addict.

Our group of doctors in the Service 3 of Internal Medicine at Capuchos Hospital, seeks to be attentive to such issues, studying and pondering upon them in order to be able to deliver our role of medical care to such patients.

The aim of this work is to assess the activity we have been developing in the last few years approa-

*Internal Medicine Interim Assistant

**Resident to the Supplementary Internal Medicine Internship

***Head of the Internal Medicine Service

Internal Medicine Service 3, Hospital Santo Antonio Capuchos, Lisbon

ching a patient infected by HIV, in the scope of this hospital subgroup and of the Service 3 of Internal Medicine, in the admission aspect (with 40 beds) and the outpatient clinic. We seek to evaluate the different stages, patients go through from the moment they are admitted in the Emergency Service to the period after being discharged from hospital trying to point out any deficiencies and possible solutions.

Material and Methods

We made a retrospective analysis referring to the Service 3 seropositive inpatients for HIV-1 or HIV-2 and/or AIDS criteria (you use the scoring of CDC – 93).

We accounted 107 patients for a total of 157 admissions between 1987 and 1994; 105 had been infected by HIV1 and only 2 by HIV2. Seventy eight patients where of male gender and 27 female, being 95 Euro Caucasians, one Indo Caucasian and nine Black.

One hundred and one patients presented a positive ELISA test, confirmed by Western Blot in 84 patients.

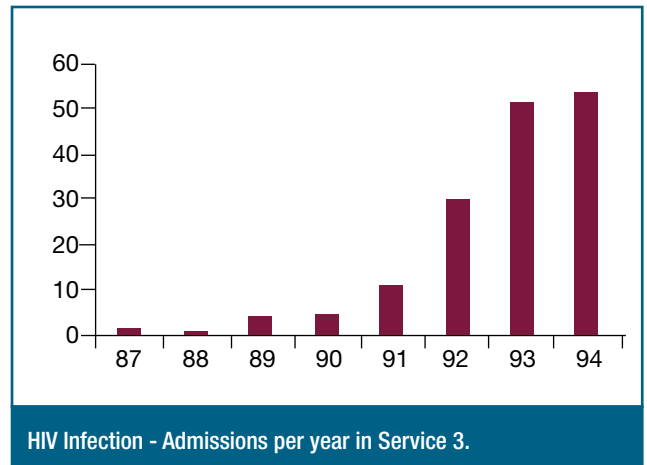
Some patients were discharged at their own request but it was not possible to confirm laboratorially what was clinically evident, in spite of that were included in this study.

Results

Regarding where the patients came from is to be highlighted that most patients (80%) were admitted by the emergency service, with a low percentage of admissions through the clinic (7%), or being transferred from the Intensive Care Unit (8%) or being transferred from other services in the hospital (5%).

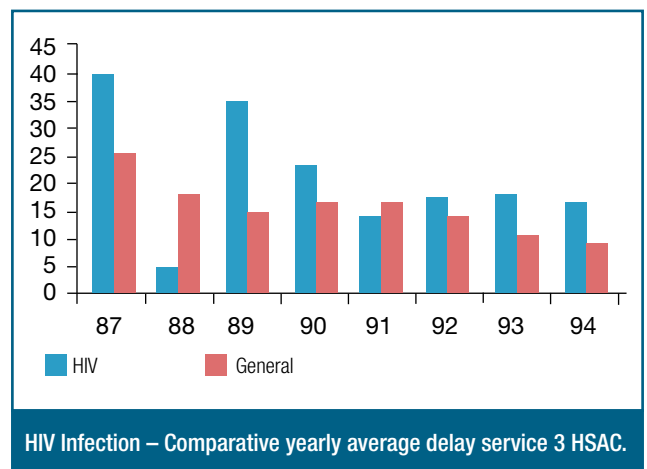
Fig. 1 and 2 enabled to verify the high increase on admissions seen in the last few years particularly from 1992 onwards (after the opening of the emergency service of HSAC), and then numbers in 1994 are underestimated as they refer to the admissions until the month of October. The service average general delay has been dropping, a circumstance which is also related with the opening of the emergency, while the duration of infected patients by HIV admissions although being reduced has been stable in the last three years. It should be highlighted the average delay in this case is around the double of other patients in the service.

This population is allocated mainly in the age group between 20 to 30 years of age (46.7%) and if we consider the range between 20 to 40 years old, this includes 72% of the total patients, being only



HIV Infection - Admissions per year in Service 3.

FIG. 1



HIV Infection – Comparative yearly average delay service 3 HSAC.

FIG. 2

9% and 10% ages below 20 and about 50 years old, respectively.

The behavior of predominant risk was drug addiction (63.5%) followed by heterosexuality (16.6%) and homosexuality (6.4%). In 13.5% of cases evaluation was not possible.

In Table I the most frequent reasons for admission of such patients are presented with the complaints taking them almost always to the emergency service. It is to emphasize as most prevalent the breathing and constitutional symptoms being a less frequent cause intoxication and overdose. Some patients were admitted being transferred from the surgery services, after a surgical drainage of skin abscesses or spontaneous pneumothorax.

Our patients group presents very significant

TABLE I

HIV Infection – Admission Causes

Fever	96
Coughing/sputum	82
General poor health	55
Diarrhoea	20
Asthenia/anorexia	19
Dyspnoea	17
Thoracic pain	10

TABLE II

CDC 93 Score – Per admission

	A	B	C
0	19	19	26
1	6	6	5
2	1	7	14
3	1	6	46

Zero = Without a study of lymphocyte subpopulation

TABLE III

HIV Infection – Laboratorial stages (CD 4 average values by CDC 93 ratings)

	1	2	3
CD4	710	348	71
CD8	908	103	473
Index	0.68	0.39	0.14
Beta-2M	1.15	2.3	3.2
AGP24	2.3	34.2	34.1

severity criteria. Around 58.3% of admissions are patients with AIDS clinical criteria according to the CDC scoring – 93.³

The percentage of patients admitted with CD 4 equal or less than 200 (CDC – 3) is around 34% or 57.6 %, whether we consider the total admissions or just those when the evaluation of lymphocyte subpopulations was made. For CD4 below 400, such values are 40% and 81.5% respectively. The average value for CD4 for patients with less than 200 was just 71 with a score of 0.14.

Paradoxically, β 2-microglobulin and AgP24 are relatively low, a fact we think to be related with the scarce number of patients in whom such values were assessed.

The diagnoses made are in accordance with most of the national² and international main serial and it should be highlighted the high number of tuberculosis, more frequent in absolute value than pneumocystosis, due to the high incidence and prevalence of such entity in Portugal.

Atypical mycobacteria numbers have been rather low, as the laboratorial diagnoses was difficult and probably due to do already recognized lower incidence of such nosological entity in southern Europe countries.^{4,5}

We found some clinical situations less frequent but also interesting among which we highlight – visceral leishmaniasis with pleuropulmonary involvement,⁶ multivisceral Kaposi sarcoma,⁷ miliary tuberculosis and hemolytic anemia,⁸ dilated cardiomyopathy and radiculomyelopathy due to CMV with the flaccid tetraplegia.⁹

Almost in parallel with the HIV infection and particularly in drug addicts, B and C hepatitis emerge and most of these patients are serum positive for (B hepatitis 61.2% and C hepatitis 61.5%) or even an active viral hepatitis (B hepatitis 26.5%), being as it is known difficult to distinguish between the carrier condition and C virus patient.

Although in a small sample such numbers seem significant to us.

It is crucial for our work the support of the supplementary means of diagnosis. *Table VI* looks into some of the important procedures to make a diagnosis in order to treating correctly our patients.

Although it is worth highlighting a clear effort from some services improving the quality and speed of all the care delivered we still have some significant deficiencies. It seems of the utmost importance to have within easy reach bronchofibroscopy with bronchoalveolar wash, echocardiograms, a quick reply from the pathological anatomy and even better and quicker access channels to immunology exams and, for instance, sensitivity tests for tuberculostatics.

We prepared an computerized form¹⁰ (*Table VII and VIII*) both for in- as outpatients to follow up each one from admission to after being discharged and followed on the Outpatient Clinic. It should be recorded both the clinical and laboratory endpoints in

TABLE IV**HIV Infection – Most common diagnoses**

Opiate addiction	99
AIDS	98
Seropositive without AIDS	58
Oral Candidiasis	50
Tuberculosis	34
PCP	31
Kaposi Sarcoma	11

TABLE V**HIV Infection – Viral Hepatitis Serology**

	HPV	HCV	HDV
Unknown	46	68	103
Negative	19	15	2
Recent	13	–	1
Ancient	3	–	1
Carrier	14	24	–

TABLE VI**HIV Infection – Most Common Procedures**

Abdominal ultrasound	51
Myelogram/bone biopsy	46
Echocardiogram	43
Lumbar puncture	40
CE CT	36
Thorax CT	23
Upper gastroenterology endoscopy	23

a way enabling an objective evaluation of the patient clinical condition with prognosis and therapeutic usefulness. It also aims to better establish a link between the ward and the outpatient clinic. Computerization of such data enables a more precise evaluation of the medical procedures, of the therapy and the eventual prognosis value of some markers.

Of significant importance has been to support given to us by the polyvalent intensive care unit from our hospital, where performing some procedures or and mainly while admitting patients in severe condi-

TABLE VII

Hospital of Santo Antonio Capuchos
Service 3
HIV infection – In- and Outpatient Form

File number__ Year__ Previous information is__ Admission__
Age__ Gender__ Race__ Time in hospital_____
Risk behavior____ CDC rating_____
Admission reason_____

Laboratorial values:
HB____ MCV____ Platelets____
White cells__ N__ L____
CD4__ CD8__ I____
IgA__ IgG__ IgM____
β2µg__ AgP 24____
Mantoux Test__ Multitest____

Serology:
HIV-1__ HIV2__ Toxo__ EBV__ CMV__ HSV__
CN__ HBV__ HDV__ VDRL/TPHA__

Nutritional evaluation:
Albumin__ Ferritin__ Body surface____

Functional evaluation:
Karnofsky score__ Minimental test____
Anti-viral therapy__ Prophylaxis____

Action and procedures _____
Discharge diagnosis: _____
Destiny _____
Assistant physicians _____

tions, requiring an intensive care medicine.

A study¹¹ carried out in this unit, in 33 admitted patients for a period of two years has enabled us to conclude that such patients requiring higher workloads have a less hospital mortality when compared with the remainder of patients in the ICU, even when under mechanically ventilated.

The assessment of the antiretroviral therapeutic has revealed in the first place a high number of patients to whom, during admission, was not administered any therapy of such kind (48.5%), due to several aspects as a high number of discharges by request, often with a short stay in the service; short admissions due to drug intoxication or acute viral hepatitis and that after being discharged was verified those patients

TABLE VIII

In and Outpatient e-Form - HIV infection

• Admission causes, diagnoses and procedures → WHO Codes		
• HIV: • Assistant physicians → Service Codes		
Admission and destiny	Risk behavior	HIV
U – Emergency	0 – Unknown	0 – Unknown
P – Clinic	1 – Homosexual	1 – Negative
T – Transferred	2 – Heterosexual	2 – ELISA +
I – ICU	3 – Bisexual	3 – WB
F – Deceased	4 – Drug addict	
P – Discharge at request	5 – Transferred	
	6 – Several	
Serology		
0 - Unknown		HBV
1 - Negative		0 - Unknown
IgM IgG		1 - Negative
2. + -		2 - Chronic Carrier
3. + -		3 - Acute infection
4. + +		4 – Old infection
		5 – Low title carrier
Other serology	Prophylaxis	Anti-viral therapy
1 - Candidiasis	0 - none	1 - Unknown
2 - Salmonella	1 - BK	2 - None
3 - Brucella	2 - PC	3 - ZDV
4 - Rickettsias	3 - Toxoplasma	4 - ddl
5 - Leishmania	4 - Candida	5 - ZDV + ddl
6 - Other	5 – BK + Candida	6 - Others
	6 – BK + PC + Candida	
	7. Other	

were seropositive for HIV; an initial attitude of only introducing antivirals after discharge, as an outpatient, or referring patients for the Infectious Diseases clinic and in many cases waiting for the results of lymphocyte subpopulations.

Subsequently, such attitude was dropped. In a first stage it was used predominantly zidovudine – ZDV^{12,15} – (45.7%) and in much less number didanosine – ddI – (1.9%) in 1994 it became more frequent and lately predominates the association ZDV + ddI16 – 18 (3.9%) with much lower doses of zidovudine.

For the same reasons above mentioned,¹⁹ in many patients a prophylactic therapy was not performed either (50.6%). The most frequent prophylaxis performed were pneumocystosis (37.3%), tuberculosis (25.4%), candidiasis (24.6%) and toxoplasmosis (10.4%). In many cases were performed together.

Most patients are referred after discharge to the Outpatient Clinical of Internal Medicine (62.8%). The reminder destinies are: discharged at own request (17.9%), deceased (10.3%), transferred from other services (6.4%) and for the PICU (2.6%).

Many patients however are no longer followed up as outpatients as they seldom attend or drop it all together. Most of them are young drug addicts of endovenous drugs, and they are a population with many needs and “undisciplined”.

It is difficult gathering and organizing all the data collected by all doctors of the service attending the clinic. We think that it can be useful to have a common e-form both for admission and consultation (*Tables VII and VIII*). This is about an Internal Medicine Clinic and not only for HIV seropositive patients.

Seldom patients are referred to us by colleagues from Health Centers. Reasons why this does occur are mainly two – we are not a reference center in the follow-up of HIV-seropositive patients and in our population of patients the most frequent risk behavior are drug addictions with all the consequences deriving from that.

Discussion

The organization of medical care to seropositive and AIDS patients is variable. Even within each country there is a great variability in the way supporting structures are set up.

Among us, after the first stage involving almost exclusively Infectious Diseases Consultants and Services, a new platform emerged where we still are and this is made up by Internal Medicine Services as the basis of hospital support to these patients. It is therefore necessary that Internists have a better background and training in this area so they can master it.

We hope that in the next stage would be both the District Hospitals and the Health Centers to follow up

seropositive and AIDS patients within the scope of a structure which will not have necessarily the support of consultants of several specialties among which are the Internists and Infectious Diseases Specialists.

We think about a circuit starting and ending in the community, going through the health centers, vocated clinics, emergency service and hospital admissions, with support from several specialties including Intensive Care.

Under the light of our experience we tried to analyze the hospital aspects of such circuit. We found in our search a patient pattern: male gender Euro Caucasian 20 to 30 years of age, drug addict, positive for HIV1 already with AIDS criteria, admitted by the emergency service with breathing and constitutional complaints. Seldom is referred by the family doctor and often does not belong to our hospital area having previous admissions and requiring often to be discharged. This is a population reflecting the current situation of AIDS epidemics in our country, as well all as the existing needs in the health sector.

A more useful and productive relationship among hospitals and health centers must be built. We must have referral appointments integrating this liaison.

Should an Internal Medicine service have a clinic directed to seropositive HIV and AIDS patients?

Theoretically we think not. For the same reasons we think there is no justification to have a clinic directed to hypertension or diabetes mellitus. The internists must have the ability, even due to the prevalence of such situations, to be able and knowing how to follow up such patients in the clinic.

However reality is often diverse. The amount of scientific information and the need for a constant updating along with the effort gathering and saving resources in order to form multidisciplinary groups, may justify such opening.

The balancing of the scale must be the patient alone. Does he/she benefit clearly or not with the existence of such clinic?

Aspects to consider are still those emerging from the structure of each institution. In our Hospital Subgroup, the existence of several services of average size can be a factor of interruption on the individual and general assessment of such patients.

On admission, we need more and better support to get the diagnosing supplementary means and we also need to develop additional and closer relationships with reference laboratories. For our workgroup it will

be crucial to have better availability for some tests as echocardiograms and bronchofibroscopy.

One of the hospital sectors which gave us a huge support has been in the Intensive Care Units.

The organization of our activity both in the ward as in the Outpatient Clinic is very important. For such purpose, we have developed a computerized form both for in- as outpatients, (*Tables VII and VIII*) aiming to establish a better liaison from our caring action and which enabled us namely to collect data from this work.

The moment of discharge is often the most difficult. It is necessary to ensure that the patient will have the possibility of keeping on the therapy. Not always they have financial conditions or the support of family and friends. Almost always the most frequent and worrying situation is that of the drug addict, isolated of his family and the society. We are far away from the moment when the support given to such patients can be delivered in his home.

More resources are needed namely within the scope of the social system. A significant effort has been made by the so-called nonofficial supporting organizations and in some case official, but in this one as in other aspects of this universal question that is AIDS, most of the work is still to be done. ■

References

1. Volderberding PA. Clinical care of patients with AIDS – Developing a System. In: Sande MA and Volderberding Ped. The medical management of AIDS. Philadelphia: WB Saunders Company: 1992, 495 – 503.
2. Comissão Nacional de Luta Contra a SIDA. SIDA – a Situação em Portugal a 30 de Setembro de 1994. 1994; doc. 81:1 – 14.
3. Centers for Disease Control and Prevention. 1993 Revised classification system for HIV infection and expanded surveillance case definition for AIDS among adolescents and adults. MMWR 1992;41 (No. RR – 17).
4. Nightingale SD, Byrd LT, Southern PM., Jockush JD, Cal SX, Wynne BA. Incidence of Mycobacterium avium-intracellulare complex bacteraemia in human immunodeficiency virus-positive patients. J. Infect Dis 1992; 165: 1082 – 1085.
5. Honsburgh CR. Mycobacterium avium complex infection in the acquired immunodeficiency syndrome. New England Journal of Medicine 1991; 324: 1332 – 1338.
6. Xavier L, Godinho R, Santos H, Poole da Costa JA. Leishmaníase visceral e infecção por HIV – apresentação atípica com envolvimento pleuropulmonar. Livro de resumos das “III Jornadas de Medicina Interna da Zona Sul” Lisbon. 1993:49.
7. Teófilo E, Miranda S, Ribeirinho C, Ferreira de Almeida A. Sarcoma de Kaposi em doente com SIDA, Livro de resumos das “IV Jornadas de Medicina Interna da Zona Sul”, Lisbon 1994:34.
8. Marujo A, Viegas F, Carvalho AL, Poole da Costa JA. SIDA com tuberculose miliar e anemia hemolítica. Livro de resumos das “III Jornadas de Medicina Interna da Zona Sul”, Lisbon 1993:20
9. Costa H, Matos R, Teófilo E, Aguiar C, Poole da Costa, JA. Flaccid quadriplegia in AIDS patients. Summary book of the 22nd Congress of the International

Society of Internal Medicine”, Budapest.1994.

10. Teófilo E, Matos R, Poole da Costa JA. Infecção HIV – Ficha de Internamento e Consulta. Livro de Resumos de posters das “III Jornadas de Medicina Interna da Zona Sul” Lisbon, 1993:23

11. Moreno R, Estrada H, Miranda I, Teixeira H, Matos R, Calado J. HIV infection in an ICU. Summary book of “VII European Congress on Intensive Care”, Innsbruck 1994:116.

12. Lundgren J, Phillips A, Pedersen C, and the AIDS in Europe Study Group. Comparison of the long-term prognosis of AIDS patients treated and not-treated with Zidovudine. Summary 35 – 4th European Conference on clinical aspects in treatment of the HIV infection” Milan, 1994.

13. Graham NMH, Zeger SL, Park LP et al. The effects on survival of early treatment of human immunodeficiency syndrome. New England Journal of Medicine 1992; 326, 1037 – 1042.

14. Cooper DA, Gatell JM, Kroon S et al. Zidovudine in persons with asymptomatic HIV infection and CD 4+ cell counts greater than 400 per cubic millimeter. New England Journal of Medicine 1993:329:297 – 303.

15. Lenderling WR, Gelber RD, Cotton DJ et al., Evaluation of the quality of life associated with Zidovudine treatment in asymptomatic human immunodeficiency virus infection. New England Journal of Medicine 1994; 330 (11), 738 – 743.

16. Teófilo E. Terapêutica anti-retroviral na infecção a VIH. Medicina Interna 1994; 1(3): 169-182.

17. Collier AC et al. Combination Therapy with Zidovudine alone in HIV-1 infection. Ann Int Med 1993; 119:786 – 793.

18. Shooley R and the Wellcome Resistance Study Collaborative Group. Trial of ZDV/ddI vs. ZDV/ddC vs. ZDV in HIV infected patients with CD4 cell counts less than 300: Preliminary results; Summary 052 – 4th European Conference on Clinical Aspects and treatment of HIV infection”, Milan 1994.

19. Havlir D, Richardson D. Antiretroviral therapy. Current Opinion in Infectious Diseases 1995; 8: 66 – 73.