

INTERDISCIPLINARY IN MANAGING HIV/AIDS INFECTED PATIENTS – THE IMPORTANCE OF TEAMWORK

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INTERDISCIPLINARY IN MANAGING HIV/AIDS INFECTED PATIENTS - THE IMPORTANCE OF TEAMWORK (Abstract): The role of an interdisciplinary approach is useful in maintaining a good quality of life and low mortality rates among HIV-infected people. A better understanding of the evolution of comorbidities may help to improve the clinical management of HIV/AIDS patients. **Material and methods:** We performed a retrospective study between 1st of January and the 1st of December 2022 including 1157 patients who have been admitted to Iasi HIV/AIDS Regional Center, from “Sf. Parascheva” Clinical Hospital of Infectious Diseases, in order to identify the main factors that lead to major imbalances in the status of patients with HIV/AIDS infection, highlighting the most common comorbidities. **Results:** In the study period, 1,157 (70.46%) patients were admitted, and 89 cases (5.48%) were newly diagnosed. The study patients were virologically and immunologically evaluated. It was observed that 12.62% of cases had a CD4 level between 1-200 cells/mm³, in 58.95% of cases the CD4 value was between 201-500 cells/mm³, and 28.44% of patients had CD4 over 501 cells/mm³, with an average CD4 level of 375.28 cells/mm³. The average of HIV viral load was 107.46 copies/mL. Out of the total of 1157 cases, 146 (12.62%) patients had a CD4 level under 200 cells/mm³, considered to have a viro-immunological failure, and they were recommended other antiretroviral regimens, most of them being prescribed a single tablet regimen. Depending on the related comorbidities, 62.32% of the 1157 cases admitted in our clinic required interdisciplinary examinations. In descending order, the following conditions were the most common comorbidities that the patients presented: metabolic (45.20%), dermatological (31.20%), ENT (12.79%), gastrointestinal (10.29%), infectious diseases (9.16%), cardiovascular issues (5.10%), psychiatric disorders (4.06%), pulmonary (3.54%), neurological (2.68%), ophthalmic (1.21%), and hematological conditions (0.78%). Out of the newly diagnosed cases, 85.39% were recommended single tablet regimen and in 14.61% cases were given a regimen that took into account their comorbidities. A large percentage of patients (82.20%) were evaluated through psychological consultation to ensure compliance and adherence to antiretroviral treatment, thus helping a better understanding of their disease for effective management. **Conclusions:** Multidisciplinary strategies for HIV have become more prevalent as various scientific environments have evolved. Assessing risk behaviors, clinical manifestations, health status, psycho-behavioral and cultural factors, as well as HIV assistance have emerged. **Keywords:** HIV/AIDS, COMORBIDITIES, ANTIRETROVIRAL THERAPY, INTERDISCIPLINARY.

Over the past four decades, researchers highlighted many challenges in addressing the pandemic with human immunodeficiency virus (HIV). The challenges include geographical, cultural and economic characteristics of affected regions, which could exert influences on how the epidemic presents itself, including its prevalence, severity, accessibility, treatment adherence and associated factors. Stigma, discrimination and barriers to treatment due to poverty are social impacts that can hinder treatment effectiveness and prevention efforts. Furthermore, we must adopt a multi-disciplinary approach to address this disease. HIV and AIDS (acquired immunodeficiency syndrome) are and remains complex diseases that requires extensive, coordinated care including clinical, psychological and social factors to ensure positive outcomes in HIV/AIDS infected patients (1, 2). Specialists have an important contribution to the health care system, specifically in increasing patient awareness by importance of medication adherence, encouraging behavioral changes and providing additional access to care for patients with HIV infection (3). Despite the remarkable progress in medical management, HIV infection continue to be an extremely stigmatized and socially intricate disease. Therefore, it is important to provide psychological support to newly diagnosed patients, by an experienced HIV counselor, as they adjust to HIV diagnosis and get ready to start antiretroviral therapy (4).

People with HIV who are effectively treated with antiretroviral treatment (ART) and with effective sustained viral suppression have a near-normal life expectancy. Even in the era of ART, the identification, mitigation and treatment of HIV-associated comorbidities continue to be a challenge

that must be addressed (5).

Obesity, diabetes mellitus, cardiovascular disease, liver disease and neurocognitive illness comorbidities, all contribute significantly to the morbidity and mortality of people with HIV (6).

Dysbiosis, which includes a decline in butyrate-producing bacteria in the general population, is linked to the development of diabetes. A reduced relative abundance of butyrate-producing bacteria and its link with signs of microbial translocation and immunological activation have been observed in people with HIV, despite the lack of a correlation with diabetes (6).

Roomaney *et al.* found that the most common comorbidity among HIV-positive individuals was estimated to be hypertension. Also, tuberculosis (infection with *Mycobacterium tuberculosis*), TB was the next most prevalent disease, followed by diabetes, heart disease and cancer (7).

Results revealed patterns that show stable hospitalization rates for people with HIV overall, with a drop in AIDS-defining illnesses and an increase in other comorbidities disorders (respiratory, cardiovascular and gastrointestinal causes), (8, 9).

The role of a multidisciplinary approach is useful in maintaining a good quality of life and low mortality rates among HIV-infected persons. A better understanding the evolution of comorbidities may help to improve the clinical management of HIV/AIDS patients including screening for risk factors and optimal selection of ART to balance HIV outcomes. Providing optimal care and treatment to people living with HIV/AIDS is an ongoing challenge (8, 9).

MATERIAL AND METHODS

We performed a retrospective study between January and December 2022 includ-

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ing 1157 patients who have been admitted to Iasi HIV/AIDS Regional Center from “St. Parascheva” Clinical Hospital of Infectious Diseases, in order to assess the importance of a multidisciplinary approach in managing patients diagnosed with HIV/AIDS.

RESULTS

Iasi HIV/AIDS Regional Center cares for a total of 1642 patients from 6 counties - Bacău, Botoșani, Iași, Neamt, Suceava, and Vaslui. The patients benefit of periodic clinical, biological, and viral-immunological evaluations from a multi-

disciplinary team of infectious disease doctors, gastroenterologists, ophthalmologist, ENT doctor, dermatologist, radiologists, psychologist, nurses, and social workers.

Between the 1st of January and the 1st of December 2022, 1,157 (70.46%) patients were admitted, and 89 cases (5.48%) were newly diagnosed. They were all evaluated in our clinic.

Regarding the patients distribution by county, it was observed the following: Iași, 22.73% of patients; Bacău, 18.67%, Botoșani 15.99%, Neamt, 19.53%, Suceava, 16.68%, Vaslui, 6.4% from patients (fig. 1).

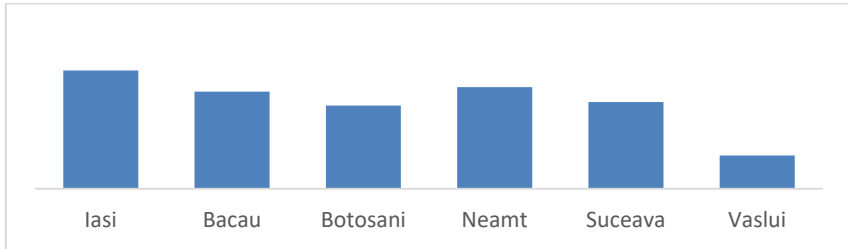


Fig. 1. Distribution of HIV/AIDS cases by county

From total number of hospitalized patients, predominantly 664 (57.39%) were male and 493 (42.61%) were female (fig. 2). The majority of the cases were young adults with ages between 21- 40 years old - 774 (66.9%) patients, followed by the age

group 41-60 - 304 (26.27%) patients, 61-80 - 48 (4.15%) patients, and 0-20 - 31 (2.68%) patients (fig. 3). The average age of the study group is 37.78 years old, demonstrating the impairment of young adults.

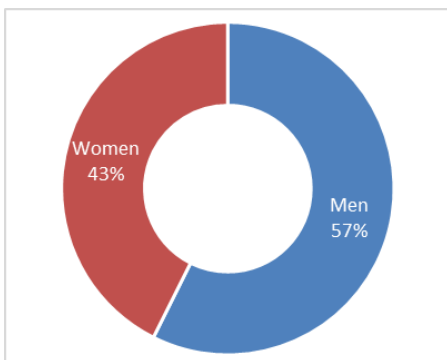


Fig. 2. Distribution of studied cases by gender

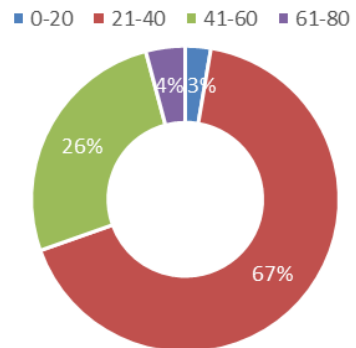


Fig. 3. Distribution of studied cases by age

Regarding the hospitalization way, 577 patients (49.87%) were admitted as outpatients and 580 patients (50.13%) were hospitalized, with an average of 5.72 days of hospital care. The patients were periodically evaluated. Taking into consideration the number of hospitalizations, 690 (59.64%) were admitted just once, 151 (13.05%) between 2 and 4 times, 54 (4.67%) between 5-7 times, 109 (9.42%) between 8-10 times and 153 (13,22%) over 11 times (fig. 4). It was observed that more than half of the study group required only one hospitalization while patients with more than one

were most often associated with comorbidities that demanded multidisciplinary evaluations.

All of the patients from the Iasi HIV/AIDS Regional Center were virologically and immunologically evaluated. It was observed that 12.62% of cases had a CD4 level between 1-200 cells/mm³, in 58.95% of cases the CD4 value was between 201-500 cells/mm³, and in 28.44% of patients had CD4 over 501 cells/mm³, with an average CD4 level of 375.28 cells/mm³ (fig. 5). The average of HIV viral load was 107.46 copies/mL.

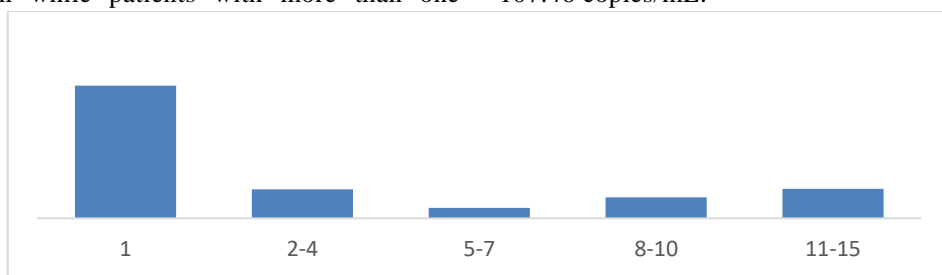


Fig. 4. Distribution of studied cases by number of hospitalizations

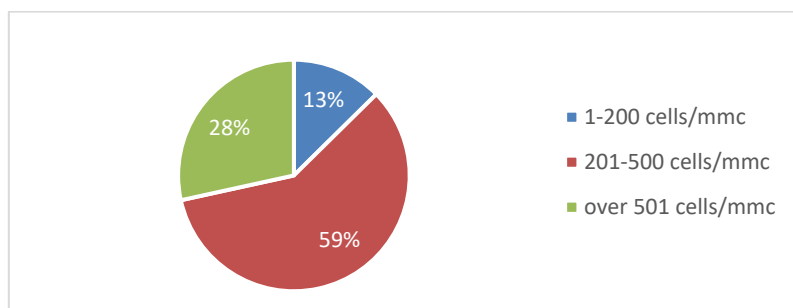


Fig. 5. Distribution of study cases by CD4 levels

Out of the total of 1157 cases, 146 (12.62%) patients had a CD4 level of under 200 cells/mm³, were considered to have a viro-immunological failure, and they were recommended other antiretroviral regimens, most of them being prescribed a single tablet regimen.

Throughout the studied period, 164

(14.17%) patients needed an antiretroviral treatment (ART) switch. The most common reason was regimen simplification (66%), followed by viro-immunological failure (19%) and comorbidities (11%), (fig. 6).

Between January and December 2022, in Iași HIV/AIDS Regional Center, there were 89 newly diagnosed patients. They

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benefited from clinical and biological investigations, and interdisciplinary consultations in order to better understand the infection they are dealing with, and to start antiretroviral treatment tailored to their

needs. Out of the newly diagnosed cases, 85.39% were recommended a single tablet regimen and in 14.61% cases, was chosen a regimen that took into account their comorbidities.

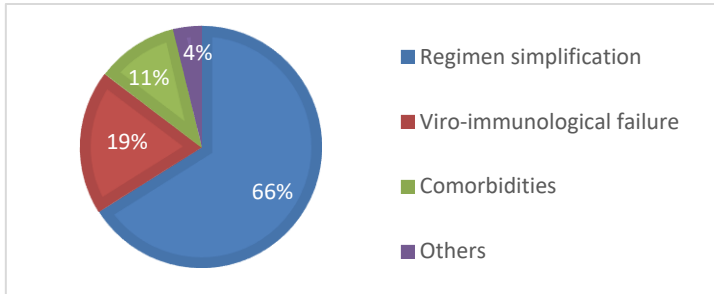


Fig. 6. Reasons for ART switch in the study patients

TABLE I.

Distribution of comorbidities by gender in the study group

Comorbidities		Gender		Total No./%
		M	F	
Infectious diseases	n	56	50	106
	%	4.84	4.32	9.16
Metabolic diseases	n	231	292	523
	%	19.97	25.24	45.20
Dermatological diseases	n	169	192	361
	%	14.61	16.59	31.20
Gastrointestinal diseases	n	82	37	119
	%	7.09	3.20	10.29
Psychiatric disorders	n	27	20	47
	%	2.33	1.73	4.06
ENT diseases	n	73	75	148
	%	6.31	6.48	12.79
Neurological diseases	n	14	17	31
	%	1.21	1.47	2.68
Cardiovascular diseases	n	24	35	59
	%	2.07	3.03	5.10
Ophthalmic diseases	n	8	6	14
	%	0.69	0.52	1.21
Hematological diseases	n	4	5	9
	%	0.35	0.43	0.78
Pulmonary diseases	n	28	13	41
	%	2.42	1.12	3.54

From a total of 1,157 cases hospitalized in our clinic in the mentioned study period, 62.32% required multidisciplinary evaluations, depending on the associated comorbidities. The most common comorbidities presented in the study group were

metabolic, dermatological, ENT (otorhinolaryngological), gastrointestinal, infectious diseases, cardiovascular ailments, psychiatric disorders, pulmonary, neurological, ophthalmic and hematological (fig.7, tab. I).

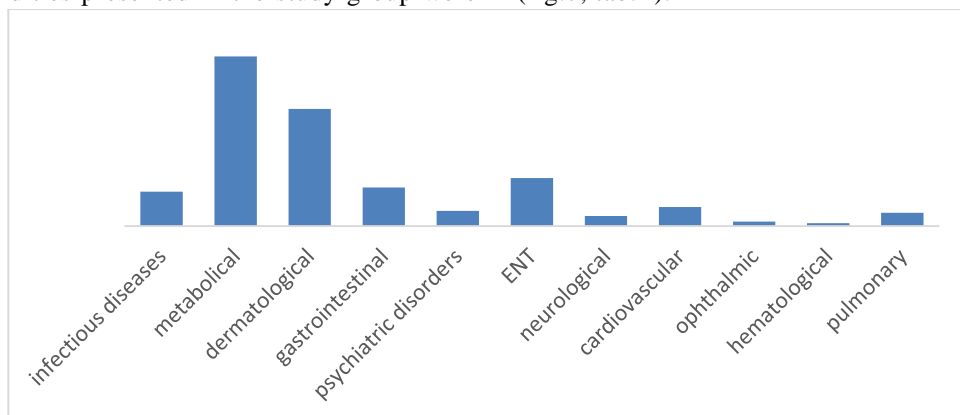


Fig. 7. Distribution of study cases by comorbidities

The metabolically disorders consisted in signs of lipodystrophy, central adiposity, dyslipidemia, increased risk of cardiovascular disease and atherosclerosis. This was observed to be caused by HIV infection and some antiretrovirals. The patients with lipid dysfunction were recommended changes in diet and lifestyle, and assessment in the internal medicine clinic, and in some cases, they benefited from ART switch.

Dermatological disorders were oral candidiasis, herpetic lesions, syphilis, anogenital condylomas, and Kaposi's sarcoma.

The most frequent ENT diseases were represented by sinusitis and otitis, which were evaluated in our clinic.

Gastrointestinal diseases were evaluated biologically, by ultrasound and computer tomograph, the patients received hygienic-dietary recommendations and specific treatment.

Opportunistic infections of HIV/AIDS were evaluated at each periodic visit of the

patients in our clinic.

The neurological, cardiovascular, pulmonary, hematological, and psychiatric conditions were assessed, and later the patients received recommendations for consultation in specialized clinics depending on the disease.

Ophthalmic disorders

Were found in 14 cases, 2 patients had *Molluscum contagiosum* on eyelids, 3 cases with *Candida* keratitis, 2 patients had *Cytomegalovirus* retinitis, in 2 cases, *Herpes* keratitis, and in 5 cases was established the HIV-retinopathy diagnosis (fig. 8).

Out of the total of 14 patients with ophthalmic disorders, 3 (21.43%) cases had CD4 levels over 200 cells/mm³, and 11 (78.57%) cases, under 200 cells/mm³, with an average of 132.71 cells/mm³. The average of HIV viral load was 1.025.000 copies/mL (fig. 9).

They were recommended ART switch to a single tablet regimen and specialized

ophthalmological treatment. In 5 cases were associated other conditions, such as oral candidiasis, liver disease and *Cytomegalovirus* infection.

At the one-month evaluation, 9 patients had CD4 level over 200 cells/mm³ and 5 patients had a CD4 level under 200 cells/mm³.



Fig. 8. Distribution of ophthalmic diseases in the HIV/AIDS study group

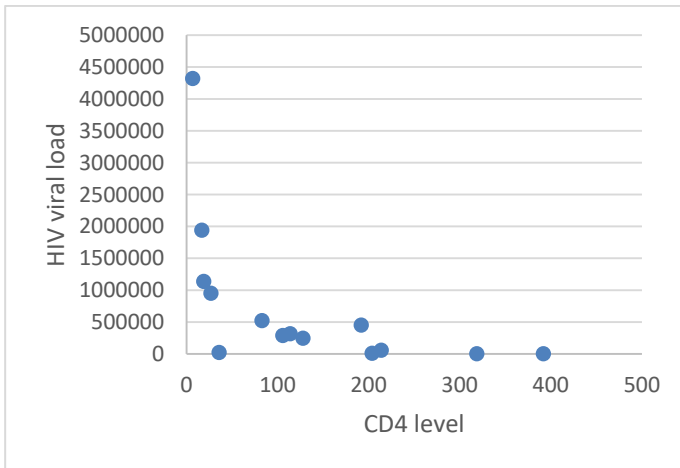


Fig. 9. Distribution of HIV cases associating ophthalmic diseases by CD4 and HIV viral load

A large percentage of patients (82.20%) were evaluated through psychological consultation to ensure compliance and adherence to antiretroviral treatment, thus helping a better understanding of their disease for effective management.

DISCUSSION

The several elements of the HIV multi-disciplinary team on ART adherence are examined in this study. Increased attention has been paid to the needs of people with

HIV, the chronic diseases treatment. To address the varied demands of people with HIV, interdisciplinary care has evolved as well.

Depending on the related comorbidities, 62.32% of the 1157 cases admitted in our clinic required interdisciplinary examinations. In descending order, the following comorbidities were found metabolic (45.20%), dermatological (31.20%), ENT (12.79%), gastrointestinal (10.29%), and infectious diseases (9.16%), cardiovascular

(5.10%), psychiatric disorders (4.06%), pulmonary (3.54%), neurological (2.68%), ophthalmic (1.21%), and hematological conditions (0.78%).

Roomaney *et al.* found that cardiovascular diseases were more frequent in people with HIV (especially hypertension: 13.3%), next prevalent comorbidities were pulmonary diseases (Tuberculosis was the main cause: 3.5%), followed by metabolic diseases, such as diabetes (3.0%) and cancer (0.4%). Elderly people were more likely to get any of the diseases. The prevalence of diseases like cancer, diabetes, heart disease, and hypertension were higher in women (7).

Katano *et al.* showed that in a cohort of a total of 225 cases opportunistic infectious disease were most frequent (94.4% cases of *Cytomegalovirus* infection and *pneumocystis* pneumonia). The prevalence of non-Hodgkin lymphoma and Kaposi's sarcoma was 37.9% and 15.2%, respectively for people with HIV who had received ART from 1985 to 2012 (10).

Pourcher *et al.* found that people with HIV had significantly higher rates of alcohol misuse (5.8%), chronic renal disease (1.2%), cardiovascular disease (7.4%), dyslipidemia (22%), and hepatitis B (3.8%). Other comorbidities such anemia, malnutrition, mental conditions, and tumors were also more common (11).

Funke *et al.* observed that the most common comorbidities were vitamin D deficiency (29.1%), depressive episodes (27.8%), arterial hypertension (16.3%), and hypercholesterolemia (10.8%) in patients with HIV in Germany (12).

Our results may vary compared to other studies. It is important that physicians should provide patients with varied needs extra care and attention if they want to develop the most effective healthcare plans

available.

The global trend in HIV research has been increasing in both quantity and interdisciplinary approaches (13).

CONCLUSIONS

Multidisciplinary strategies for HIV have become more prevalent as various scientific environments have evolved. Assessing risk behaviors, clinical manifestations, health status, psycho-behavioral and cultural factors, as well as HIV assistance have emerged. To provide culturally significant and contextualized evidence of effective therapies to efficiently prevent and manage the condition, more research is needed.

The multidisciplinary approach in the HIV/AIDS research is not surprising. It is absolutely necessary for the scientific fields to intertwine in order to consolidate interdisciplinary.

It is important to identify the main factors that lead to major imbalances in the status of patients with HIV/AIDS infection, whether we are talking about factors related to the disease, community, social factors or factors related to adherence to antiretroviral therapy.

The interdisciplinary approach in HIV/AIDS infection is essential to reach these targets.

CONFLICT OF INTEREST AND FUNDING

The authors declare that there is no conflict of interest, and they received no funding regarding this scientific research.

ETHICAL APPROVAL

The current study was approved by the Ethics Committee of "Sf. Parascheva" Clinical Hospital of Infectious Diseases, Iasi, Romania.

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