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Clinical Characteristics of HIV Patients Presenting with Weight Loss: A Cross-Sectional Study

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ABSTRACT

Recognizing the epidemiology of human immunodeficiency virus (HIV) infection is essential for managing HIV infection. Research on the nutritional health of patients infected with HIV has revealed significant weight loss during the course of the infection, and this occurrence is frequently viewed as a negative indicator of survival prognosis. Over 26 million individuals with HIV are currently undergoing antiretroviral therapy (ART), which has greatly lessened the impact of HIV disease. **Objectives:** To determine the frequency of human immunodeficiency virus in patients presenting with weight loss at Lady Reading Hospital, Peshawar. **Methods:** This observational cross-sectional study was conducted at the Department of General Medicine, Lady Reading Hospital, Peshawar, from 1st July 2022 to 1st January 2023. 117 patients of both genders with weight loss were included in this study. Every patient was tested for HIV through an initial screening test. Patients with positive status on initial screening tests were referred to the special testing clinic for further confirmation. Human immunodeficiency virus was noted. **Results:** The mean age was 41.5±7.8 years and the age range in this study was from 25 to 60 years. Males were 69.2% and females were 30.8%. Human immunodeficiency virus (HIV) was positive in 7.7% of patients. HIV had a significant association with family socioeconomic status, with a p-value of 0.00. **Conclusion:** In conclusion this study demonstrates that HIV is associated with weight loss and wasting remains a highly prevalent complication in the modern antiretroviral era.

INTRODUCTION

According to the Joint United Nations Programme on HIV/AIDS, 2019 saw 1.7 million new infections of human immunodeficiency virus (HIV) and approximately 700,000 deaths related to AIDS, representing a 37% and 50% decline since 2000. Over 26 million individuals living with HIV were receiving antiretroviral therapy (ART), which has notably alleviated the impact of the disease [1]. The foundation of the global strategy for AIDS control is presently a universal test-and-treat (UTT) approach aimed at identifying all person with HIV (PWH), starting ART without delay, and achieving long-term viral load suppression to enhance health outcomes and stop further HIV transmission; however, it is estimated that one in five PWH globally do not know their HIV status [2]. Starvation is a common but varied occurrence with HIV infection and remains one of the leading causes of mortality in this setting. Dietary decrease, healthy malabsorption, metabolic abnormalities, and endocrine dysfunction are all etiological aspects that are still poorly understood [3]. Prior studies have identified variations in the ways men and women living with HIV recognize and encounter stigma associated with the virus [4]. Studies on the dietary state of HIV-infected individuals have revealed significant weight loss during infection, which has typically been seen as a negative predictor for survival [5]. However, some research has been undertaken on the association between

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malnutrition and illness progression, and the majority of them focused on specific communities [6]. While scientific markers are currently employed in clinical practice, the effectiveness of clinical markers for nutritional status to forecast the progression of HIV disease warrants additional investigation since they are more often and cheaply available [7]. An increase in hospitalizations among people living with HIV due to weight loss remains a relevant issue [8]. This is primarily due to various factors, including medication side effects, gastrointestinal complications, metabolic changes, and nutritional deficiencies [9,10]. The clinical characteristics and effects of HIV infection seen in studies from developed nations cannot be uniformly applied to the various virus subtypes found in Asia, especially in Pakistan. This research was carried out to assess how often human immunodeficiency virus occurs in patients showing weight loss at Lady Reading Hospital, Peshawar, ensuring that all clinicians recognize these indicators and that appropriate and prompt screening for HIV infection is conducted. By investigating this relationship, we aim to fill gaps in the existing research and provide valuable insights into the management and care of people living with HIV.

Nutritional and clinical indicators of HIV are often underrecognized, particularly in resource-limited settings where advanced laboratory testing may not be readily available. Evidence linking unexplained weight loss with HIV infection is limited in local populations, especially in Pakistan, where disease patterns and subtypes differ from developed countries. This study aims to determine the frequency of HIV among patients presenting with weight loss at Lady Reading Hospital, Peshawar. Early identification through clinical presentation may support timely diagnosis and improved patient management.

METHODS

This observational cross-sectional study was conducted at the Department of General Medicine, Lady Reading Hospital, Peshawar, from July 2022 to January 2023. Ethical approval was obtained from the Institutional Review Board of Lady Reading Hospital Medical teaching institution (Ref. No. 382/LRH/MTI) and the College of Physicians and Surgeons Research evaluation unit (Ref. No. CPSP/REU/MED-2020-022-17115). All patients underwent an initial screening test for HIV. Those who tested positive in this initial screening were directed to the special testing clinic for further confirmation. Sample size for this study was calculated using G*Power version 3.1.9.7, based on a two-tailed t-test for comparing means between two independent groups, HIV patients presenting with weight loss versus those without. The primary outcome variable selected for sample size estimation was Body Mass Index (BMI), a clinically relevant indicator of nutritional status and disease progression in HIV-positive individuals. An effect size of 0.4 (medium effect) was used, with a significance level (α) of 0.05 and statistical power of 0.95. Parameters yielded a required sample size of 105, which was increased to 117 after accounting for a 10% non-response rate [11]. All the patients between the ages of 25 to 60 years of both genders were included, and pregnant women and those patients who had a previous history of Anemia, any malignancy, or tuberculosis were excluded from this study. We took three measurements for weight using a digital scale and height using a stadiometer (Seca, Germany), and used their median values to calculate body mass index (BMI) as weight (kg)/(height(m))2. All the data was collected with the help of a well-designed questionnaire, which included the personal information of patients, age, gender, drug addiction, weight loss, and family socioeconomic status. Eligible patients filled out the consent form, and patients underwent a standard baseline evaluation with laboratory tests and chest X-ray. The initial screening test was done for HIV, along with antibodies to P24 antigen. When these two came back positive, then these patients were sent for PCR for further confirmation. All the data was confidential, and the benefits of the study were communicated to the patients. The data were entered and analyzed in the SPSS version 25.0. The quantitative variables were described as Mean ±SD. The categorical variables were described as Frequency and percentages, like gender, drug addiction, and family socioeconomic status. To check the association between the variables, the chi-square test was used. The level of significance was 5%.

RESULTS

The mean age was 41.5±7.8 years. Out of 117, 81(69.2%) were male and 36(30.8%) were female. According to sociodemographic status, most of the patients were poor 66, 56.4%), 42(35.9%) belonged to middle-class families, and 9(7.7%) were rich. According to our results, 91(77.8%) patients had no drug addiction while 26(22.2%) had drug addiction. Similarly, when checking the HIV status of these patients, out of 117 patients, 9(7.7%) were HIV positive while 108(92.3%) were HIV negative (Table 1).

Table 1: Demographic Parameters of Patients

Parameters	n (%)
Age (years) (mean ± S.D)	41.50±7.80
Gender	
Male	81 (69.2%)
Female	36 (30.8%)
Socioeconomic Status	
Poor	66 (56.4%)
Middle	42 (35.9%)
Rich	9 (7.7%)

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Drug Addiction	
Yes	26 (22.2%)
No	91 (77.8%)
Weight Loss	
Yes	21 (17.7%)
No	97 (82.3%)
HIV	
Yes	9 (7.7%)
No	108 (92.3%)

Age was categorized into two categories: 25-40 years and 41-60 years. 5(11.1%) patients belonged to the 1st category, and 4(5.66%) belonged to the 2nd category, who were HIV positive. Out of 9 patients, 8(9.9%) were male who were suffered from HIV. 7(10.6%) patients were poor, 2(4.8%) were belonged to middle class family who had HIV. Most HIV patients were drug-addicted. There was no significant association observed among Human immunodeficiency virus for age, gender, or drug addiction. While HIV had a significant association with family socioeconomic status, with a p-value of 0.00 (Table 2).

Table 2: Characteristics of Demographic Parameters for Human Immunodeficiency Virus (HIV)

Parameters	Human Immunodeficiency Virus (HIV)		p-Value
	Yes	No	
Age (Years)			
25-40	5 (11.1)	40 (88.9)	0.273
41-60	4 (5.6)	68 (94.4)	
Gender			
Male	8 (9.9)	73 (90.1)	0.184
Female	1 (2.8)	35 (97.2)	
Socioeconomic Status			
Poor	7 (10.6)	59 (89.4)	<0.001*
Middle	2 (4.8)	40 (95.2)	
Rich	–	9 (100)	
Drug Addiction			
Yes	7 (26.9)	19 (73.1)	0.359
No	2 (2.2)	89 (97.8)	
Weight Loss			
Yes	14 (66.7)	7 (33.3)	0.02*
No	38 (39.2)	59 (60.8)	

*Statistically significant

DISCUSSION

The mean age of patients was 41.5±7.8 years. Male patients were 69.2% and females were 30.8%. According to sociodemographic status, most of the patients were poor, 56.4%. Human immunodeficiency virus was observed in 7.7% of patients. Stratification of human immunodeficiency virus for age, gender, drug addiction, and family socioeconomic status was studied in our research. Research determined that individuals with lower socioeconomic status experience higher stress levels due to factors like food scarcity. This heightened stress has been associated with a greater tendency to partake in risky sexual behaviors, which, over time, increases the risk of contracting HIV. [12] In our study, 7(10.6%) patients had a lower socioeconomic status, with a significant p=0.000. Additionally, a study by Funke B found that any type of drug dependency may lead to engaging in risky behaviors, further increasing the chances of acquiring or transmitting HIV. Such actions can have detrimental effects on the health of those living with HIV. Specifically, the use of substances like drugs and alcohol can weaken the immune system and cause significant liver damage. Moreover, the interactions between recreational drugs and HIV medications can heighten the risk of severe side effects [13]. According to our study, HIV and drug addiction were statistically insignificant. According to our study, patients who were newly diagnosed with HIV, only 17.7 % experienced significant weight loss. HIV infection is linked to weight loss and wasting, even with significant progress in antiretroviral therapies and improved survival rates for those infected. In a study involving HIV-positive adults, weight loss and wasting were prevalent issues, with an overall occurrence rate of 38% when broader definitions beyond the original AIDS-defining criteria were considered.[14] Weight loss associated with HIV is a complex issue influenced by two primary factors: reduced nutrient intake and changed metabolism [15]. Decreased intake may stem from HIV-related anorexia, oral health issues, difficulties in swallowing, diarrhea, and socioeconomic factors impacting food access. Malabsorption may also contribute, as nearly 90% of patients exhibit some level of gastrointestinal dysfunction [16]. Weight loss primarily involved fat reduction when CD4 counts were sufficient, whereas both fat and lean mass were lost as immunosuppression worsened. Greater weight loss was linked to lower CD4 counts, more advanced stages of HIV disease, and increased mortality. [17] Even a 5% reduction in weight over six months was indicative of higher mortality risks, while higher lean body mass was associated with better physical functioning and quality of life in men. Therefore, weight loss and wasting have notable negative effects on clinical outcomes and remain critical complications in the management of HIV [18]. The study depended on self-reported dietary intake, which can be subject to recall bias. More objective assessments, like measuring resting energy expenditure, were not conducted for all participants. finally, the interventions were limited pilot trials with brief follow-up periods. Larger clinical trials are necessary to more accurately assess treatments for HIV-related wasting. [19] Regarding our study, most of the patients belonged to the lower middle class who were suffering from HIV, and did not have enough resources for proper dietary intake. Weight loss and

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muscle wasting still impact a significant number of individuals living with HIV, even with current treatment options. The reasons for this are complex and include both insufficient nutritional intake and metabolic issues. Even small amounts of weight loss can lead to worse clinical results and a decline in quality of life.[20] Further research is warranted to enhance strategies for recognizing and managing wasting in HIV patients on antiretroviral therapy. Some limitations should be considered when interpreting the findings. As this was an observational study, causal relationships could not be determined between variables. The patients were predominantly from one geographic area, which may limit generalizability.

There are certain limitations of this study as it depended on self-reported dietary intake, which can be subject to recall bias. More objective assessments, like measuring resting energy expenditure, were not conducted for all participants. finally, the interventions were limited pilot trials with brief follow-up periods. Larger clinical trials are necessary to more accurately assess treatments for HIV-related wasting. [19] Regarding our study, most of the patients belonged to the lower middle class who were suffering from HIV, and did not have enough resources for proper dietary intake. Weight loss and muscle wasting still impact a significant number of individuals living with HIV, even with current treatment options. The reasons for this are complex and include both insufficient nutritional intake and metabolic issues. Even small amounts of weight loss can lead to worse clinical results and a decline in quality of life.[20] Further research is warranted to enhance strategies for recognizing and managing wasting in HIV patients on antiretroviral therapy. Some limitations should be considered when interpreting the findings. As this was an observational study, causal relationships could not be determined between variables. The patients were predominantly from one geographic area, which may limit generalizability.

CONCLUSIONS

These findings highlight the significance of identifying and managing weight issues in HIV patients despite advances in therapy. Effective strategies are available to improve weight, but they need to be customized for each person. Further investigation is needed to refine nutritional approaches, address disparities, and improve results for HIV patients in the context of managing chronic illnesses.

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Authors' Contribution

Conceptualization: AA, SB
Methodology: SB
Formal analysis: SU, O
Writing and Drafting: SB, QI, NU
Review and Editing: AA, SB, QI, NU, SU, O

All authors approved the final manuscript and take responsibility for the integrity of the work

Conflicts of Interest

All the authors declare no conflict of interest.

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