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Initial Clinical Presentation and Laboratory Parameters of Indoor Hiv-Positive Patients

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ABSTRACT

Objective: To determine the pattern of the clinical presentation and laboratory parameters and factors associated with low CD-4 count among the patients hospitalized for initial presentation of human immune deficiency virus (HIV) in Pak Emirates Military Hospital.

Study Design: Case series

Place and Duration of Study: Pak Emirates Military Hospital Rawalpindi. From January 2019 to January 2020.

Methodology: A total of 60 cases were included in this study in liaison with other departments where the patients with initial presentation of HIV were admitted. Patients without any past history of HIV and diagnosed first time in current presentation by ELISA were included. Routine investigations along with CD-4 count and viral load were performed. Patients were screened for all the diseases and clinical conditions associated with HIV.

Results: Mean age of study participants was 39.4±4.81 years. 55 (91.7%) were males while 05(8.3%) were females. Thirty-nine (65.0%) patients had CD-4 count within range while 21(35.0%) had low CD-4 counts. Thirty-six (60.0%) had viral load in range while 24(40.0%) had high viral load. Chronic diarrhea was the commonest condition in our study sample followed by tuberculosis. Pearson chi-square analysis revealed that high viral load and presence of more than HIV related diseases were the factors strongly linked with the presence low CD-4 count among the HIV patients at their initial presentation.

Conclusion: Considerable number of patients presented with low CD 4 counts and high viral load at the initial presentation. Similarly, high number of patients had more than one HIV related clinical conditions at initial presentation. This highlights the delayed presentation of most of the HIV patients in our set up.

Keywords: Clinical profile; HIV; laboratory investigations

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INTRODUCTION

HIV has been a constant interest for physicians and researchers of various specialties for more than four decades now due to involvement of almost all systems of the body in addition to significant psycho-social stress faced by the patient after the diagnosis has been established.[1] This condition has considerably high prevalence in all parts of the world with some areas really showing alarming rates.[2] Previously it was believed that Pakistan has been a relatively spared country with markedly less prevalence of this potentially lethal viral infection, but current scientific data has been contrary to this belief stating a high incidence and prevalence of HIV.[3]

Diagnosis and clinical spectrum of HIV may vary from being asymptomatic carrier to full blown acquired immune deficiency syndrome with multiple AIDS defining diseases.[4] Most of the patients lie in between these extremes and early diagnosis and management may serve as key for good prognosis and stopping or slowing down the damage caused by the virus to the immune system.[5] With the use of highly active anti-retroviral therapy life expectancy and quality of life of the patients suffering from HIV has really been increased manifold.[6] Therefore clinicians especially infectious disease teams must be aware of all the clinical and laboratory spectrum of this illness in order to manage the patient effectively.

Multiple biological, psychological and social factors could have an impact on time and spectrum of patient presenting with HIV infection. In a country like ours stigma associated with this condition may also cause a delay in presentation. Li in 1992 published a study which was so comprehensive that its result stand valid even today. He concluded that early clinical signs and symptoms of human immunodeficiency virus infection are protean and can reflect the effects of the virus or represent early manifestations of an illness associated with the acquired immunodeficiency syndrome. Knowledge of a patient's potential risk for HIV infection and of the natural history of the illness allow early signs and

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symptoms to be recognized. Early intervention can delay progression to AIDS.[7] Hoenigl et al. in 2016 concluded that 52% of study participants reported ongoing signs or symptoms at the time of diagnosis with HIV infection testing while 80% reported signs or symptoms occurring within 2 weeks before undergoing testing and getting diagnosed with this catastrophic illness.[8] Work published by Sutcu et al. in 2017 is also worth mentioning in this regard. They came up with clinical spectrum of HIV patients belonging to pediatric age group and revealed that most common presenting symptom and the sign were history of recurrent upper respiratory tract infections 8(36.4%) and lymphadenopathy 12(54.5%), respectively. Recurrent pneumonia 6(27.3%), prolonged fever 5(22.7%), recurrent otitis media 4(18.2%), and gastroenteritis 4(18.2%) were other clinical symptoms. Other than bacterial sinopulmonary infections, tuberculosis was the most frequent opportunistic infection 3(13.6%). Mortality occurred in two patients.[9]

Study of Green et al. published in 2019 in a well reputed journal like Lancet is an eye opener for all of us and especially those clinicians who think that HIV has been problem of west and taboo for our society and we need not to discuss or get our self-ready to tackle the situation which is getting worse with each day.[10] It has become need of the hour to accept the actual disease burden and screen the population for this potentially lethal infection which if diagnosed in time may be well managed if not cured. We therefore conducted this study with the objective to look for the pattern of clinical presentation and laboratory parameters and factors associated with low CD-4 count among the patients hospitalized for initial presentation of human immune deficiency virus (HIV) in Pak Emirates Military hospital.

METHODOLOGY

This case series was conducted from January 2019 to January 2020 at Pak Emirates Military Hospital. It was a case series so all the cases which presented in the hospital in the given time were included in the study. Purposive sampling technique was used to gather the sample from Medicine and Allied wards of Pak Emirates Military Hospital Rawalpindi.

Inclusion Criteria: Male/female gender, age 18-60 years, first presentation with HIV i-e HIV virus detected during this presentation.

Exclusion Criteria: Those in whom presence of HIV virus could not be detected on ELISA were excluded from the study. Those who were already diagnosed at other centers and were admitted in any ward with AIDS defining illness or any other medical or surgical cause were not included in the study. Pediatric and geriatric patients were also excluded as this study aimed to assess the initial presentation of HIV patients among young adults.

Hospital Ethical Committee granted ethical approval (via letter no A 28) for this study. Enzyme-linked immunosorbent assay (ELISA) test was used to detect and confirm the presence of HIV virus among the individuals.[11,12] Once confirmed the presence of HIV virus among the individuals and ascertaining that this is the first presentation they underwent clinical and laboratory screening for all the HIV associated diseases including hepatitis, syphilis, EBV, gonorrhea, cryptococcus meningitis, aspergillosis, retinitis, tuberculosis and other atypical infections. Lymphoma and Kaposi sarcoma were also ruled out. Detailed history, clinical examination and relevant laboratory and radiological examinations were carried out by the multidisciplinary team in order to ascertain the features and findings of first presentation of HIV patients in our setting. Viral load and CD-4 count was also calculated for each patient with in 24 hours of confirmation of diagnosis of HIV infection.[13]

Statistical Package for the social sciences for Windows (version 23.01) was used for statistical analysis. Mean and Standard deviation were calculated for age of the patients. Frequency and percentage were calculated for presence of each clinical parameter or HIV related diseases and patients with high viral load and low CD 4 count. Factors like age, gender, viral load and presence of more than one HIV related diseases were correlated with presence of low CD 4 count in the target population with the help of Pearson chi-square test. *p*-value was considered significant if it was less than or equal to 0.05.

RESULTS

After application of inclusion and exclusion criteria set at start of the study,60 patients who were diagnosed with HIV at this clinical presentation were enrolled in the study. Table-I shows that mean age of study participants was 39.4±4.81 years. Fifty-five (91.7%) were males while 05(8.3%) were females. 39(65.0%) patients had CD-4 count within range while

21(35.0%) had low CD-4 counts. Thirty-six (60.0%) had viral load in range while 24(40.0%) had high viral load. Chronic diarrhea 09(15.0%) was the commonest condition in our study sample followed by tuberculosis 08(13.3%). Intravenous drug users were most common at risk population18(67.5%) followed by homosexual males 07(32.5%).

Table-I: Characteristics of Patients with first Presentation of HIV (n=60)

Study parameters	n(%)
Age (years)	
Mean + SD	39.4±4.81 years
Gender	
Male	55(91.7%)
Female	05(8.3%)
CD 4 count	
Within range	39(65.0%)
Low	21(35.0%)
Viral load	
Within range	36(60.0%)
High	24(40.0%)
At risk population	
I/V drug users	18(67.5%)
Homosexuals	07(32.5%)
HCW	03(5.0%)
More than one sexual partner	14(23.3%)
HIV related clinical	
conditions	
Hepatitis B or C	06(10.0%)
Syphilis	05(8.3%)
Gonorrhea	03(5.0%)
Meningitis	01(1.7%)
Retinitis	02(3.4%)
EBV	01(1.7%)
Toxoplasmosis	03(5.0%)
Chronic diarrhea	09(15.0%)
Tuberculosis	08(13.3%)
Kaposi's sarcoma	01(1.7%)
Lymphoma	02(3.4%)
HIV related dementia	01(1.7%)
Psychiatric symptomatology	04(6.7%)
Others	03(5.0%)

Table II shows that statistical analysis revealed that high viral load (*p*-value<0.001) and presence of more than HIV related diseases (*p*-value-0.006) were the factors strongly linked with the presence low CD-4 count among the HIV patients at their initial presentation while age (*p*-value-0.248) and gender (*p*-value-0.234) had no statistically significant relationship with presence of high CD 4 count among the patients included in our study.

DISCUSSION

HIV has been one the most stigmatized illness especially in the third world country like ours.[14] General physicians and most primary care doctors lack knowledge and training in this regard in order suspect and diagnose HIV in time and refer to the tertiary care units for extensive work up and management. With the advent of highly active antiretroviral therapy it is clear that early diagnosis and prompt management is the key for effective management among these patients.[5] HIV infection has a large spectrum of sign and symptoms in the patients and it is very difficult to chalk out one or two symptoms which could be discriminative or pathognomonic to this infection.[3] Limited data has been available in our part of the world as infectious diseases and virology both are specialties at toddler stage in Pakistan with very limited number of trained physicians.[15] We therefore planned this study with the rationale to look for the pattern of clinical presentation and laboratory parameters and factors associated with low CD-4 count among the patients hospitalized for initial presentation of human immune deficiency virus (HIV) in Pak Emirates Military Hospital.

Table-II: Association of Variables with Presence of Low Cd 4 Count (n=60)

Socio-demographic factors	CD 4 count within normal range	Low CD 4 count	*p*-value
Age			
40 year or less	19(48.8%)	07(33.3%)	0.248
>40 years	20(51.2%)	14(66.7%)	
Gender			
Male	37(94.9%)	18(85.7%)	0.234
Female	02 (5.1%)	03(14.3%)	
Viral load			
Normal	30(76.9%)	06(28.6%)	<0.001
High	09(23.1%)	15(71.4%)	
HIV related clinical conditions			
1 or less	29(74.3%)	08(38.1%)	0.006
More than one	10(25.7%)	13(61.9%)	

Pozansky *et al.* performed a study on first presentation of HIV patients in London with the objective to study the presentation and survival of patients who present with their first diagnosis of being HIV positive at the same time as their AIDS defining illness. They concluded that 97 out of 436 patients (22%) presented with their first AIDS defining illness coincident with their first positive result of an HIV test. The remaining 339 patients (78%) had tested positive for HIV-1 infection within the previous eight years and had consequently been followed up in clinics before developing their first AIDS defining illness.[16] Our results were similar those of Pozansky et al. despite difference in the time of study and geographical area of study population as most of our

patients presented with HIV or AIDs defining illnesses at first presentation.

Govender et al. studied the things from different perspective and instead of clinical conditions focused on cell counts and viral load which was also part of our study. They concluded that A large proportion of HIV infected adults not qualifying for immediate ART at the CD4 count threshold of 350 cells/mm3 have high viral loads. HIV-infected men at their first HIV diagnosis are more likely to have lower CD4 counts and higher viral loads than women.13More than 30 percent of our target patients had low CD 4 counts while around 40 percent had high viral load at initial presentation which makes most of our patients late presenters.

Results of Khanani et al. in 201117, Brown et al. in 2019 18and ours in 2020 show quite a similar pattern in terms of high-risk population. All these studies conducted in different regions of Pakistan conclude that homosexual men and IV drug users are the most vulnerable group of population to acquire this infection. Over the span of nine years this pattern has not changed which clearly depicts that adequate attention has not been paid to reduce the transmission among the high risk groups.

The study design adopted for this research does not produce generalizable results but due to a smaller number of cases reported in an year, this design was preferred. Data from a single center is also not sufficient to generalize the results and claim that these results are a true picture of what is the actual trend regarding the initial presentation of patients infected with HIV. Studies in future with data gathered from multiple centers and especially involving the primary care centers of rural areas and drug rehabilitation centers may generate more accurate results which could be true reflection of the HIV initial presentation in our part of the world.

CONCLUSION

Considerable number of patients presented with low CD 4 counts and high viral load at the initial presentation. Similarly, high number of patients had more than one HIV related clinical conditions at initial presentation. This highlights the delayed presentation of most of the HIV patients in our set up.

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Authors' Contribution

Following authors have made substantial contributions to the manuscript as under:

AS & SN: Data acquisition, data analysis, critical review, approval of the final version to be published.

KMR & AA: Study design, data interpretation, drafting the manuscript, critical review, approval of the final version to be published.

MHA & MT: Conception, data acquisition, drafting the manuscript, approval of the final version to be published.

Authors agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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