

A CLINICAL AND HAEMATOLOGICAL PROFILE OF HIV POSITIVE PATIENTS AT A TERTIARY CARE HOSPITAL WITH SPECIAL REFERENCE TO OPPORTUNISTIC INFECTIONS

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ABSTRACT: BACKGROUND: HIV/AIDS remains one of the world's most significant public health challenges, particularly in low- and middle-income countries. HIV affects the immune system. Its effects are seen in all the systems of the body. These manifestations may be due to HIV infection itself or due to opportunistic infections or malignancies. The clinical and pathologic findings in various organ systems including the pulmonary, skin, gastrointestinal, hematological and nervous systems have been well described in the young adult population. The present study was undertaken to study the presentation of HIV/AIDS infection. **OBJECTIVES:** 1. To study the clinical profile of HIV positive patients. 2. To study about the hematological manifestations in HIV positive patients. 3. To study the pattern of opportunistic infections in HIV positive patients. **DESIGN:** This was a hospital based cross sectional study conducted over a period of 2 years from September 2011 to September 2013. **SETTING:** ESIC Medical College & Post Graduate Institute Of Medical Science & Research Rajajinagar, Bengaluru. **METHODS:** This study was conducted in Department of General medicine, ESIC-MC & PGIMSR, Rajajinagar, Bangalore. 100 HIV positive patients were included in the study. **RESULTS:** In this study, out of 100 HIV positive patients, 62% of patients were males and 38% females. 56% patients were in the age group of 31-40 years. 61% of patients presented with fever as main symptom followed by weight loss as the next most common mode of presentation. 38% belonged to tuberculosis group (both pulmonary and extra pulmonary) and 68% to the non-tuberculosis group. Among the tuberculosis group, 16% of patients had pulmonary tuberculosis (PTB). 8% of the patients had tubercular lymphadenopathy. 10% of patients had abdominal tuberculosis and 4% had tubercular meningitis. 60% patients had absolute lymphocyte count (ALC) of $<1000/\text{mm}^3$ and 40% patients had $>1000/\text{mm}^3$. 46% patients had CD4 count of less than $200/\text{mm}^3$ and 54% patients had $>200/\text{mm}^3$. CD4 count is significantly correlated with ALC with a P value = 0.023*. **CONCLUSION:** Majority of HIV positive patients presented with increased incidence of fever, weight loss, chronic diarrhea, cough and oral candidiasis. Most of the adults with HIV presented with AIDS defining illnesses and most of them presented with multiple concurrent opportunistic infections. Categorically most of them presented with WHO stage 3 or stage 4 illnesses. **KEY WORDS:** HIV, AIDS, ALC, CD4 Count, Pulmonary Tuberculosis, Opportunistic infections.

INTRODUCTION: AIDS was first clinically observed in 1981 in the United States¹. The initial cases were a cluster of injection drug users and gay men with no known cause of impaired immunity who showed symptoms of Pneumocystis carinii pneumonia (PCP), a rare opportunistic infection that was known to occur in people with much compromised immune systems². Soon thereafter, additional

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homosexual men developed a rare skin cancer called Kaposi's sarcoma (KS)^{3,4}. Many more cases of PCP and KS emerged, alerting U.S. Centers for Disease Control and Prevention (CDC) and a CDC task force was formed to monitor the outbreak⁵.

HIV/AIDS remains one of the world's most significant public health challenges, particularly in low- and middle-income countries. As a result of recent advances in access to antiretroviral therapy (ART), HIV-positive people now live longer and healthier lives. In addition, it has been confirmed that ART prevents onward transmission of HIV.

At the end of 2012, close to 10 million people were receiving ART in low- and middle-income countries. However, almost 19 million other people who are eligible for ART under new 2013 guidelines do not have access to antiretroviral drugs.

The spectrum of HIV infection includes asymptomatic cases to AIDS at other extreme. The diagnosis rests on clinical manifestations and laboratory markers. In India the socioeconomic and cultural environment is important in disease transmission and prevalence, as also the clinical spectrum is very different from western society.

The purpose of this study was to know the different patterns of clinical presentation of HIV infection in this region.

OBJECTIVES:

1. To study the clinical profile of HIV positive patients.
2. To study about the hematological manifestations in HIV positive patient.
3. To study the pattern of opportunistic infections.

Design: This was a hospital based cross sectional study conducted over a period of 2 years from September 2011 to September 2013.

Setting: ESIC MEDICAL COLLEGE & POST GRADUATE INSTITUTE OF MEDICAL SCIENCE & RESEARCH RAJAJINAGAR, BENGALURU. Patients were subjected to a detailed history and complete physical examination. Data was collected in a predesigned Performa. Patients taken in to study were tested for HIV, absolute lymphocyte count and CD4 count.

Method of collection of data: This study was conducted in Department of General medicine, ESIC-MC & PGIMSR, Rajajinagar, and Bangalore. 100 HIV positive patients were included in the study.

Informed consent was taken prior to inclusion in the study.

Various samples e.g. sputum, oral swab, blood, stool, urine, cerebrospinal fluid (CSF) and lymph node aspirate were collected as per symptoms and clinical presentations.

All the specimens were collected under universal aseptic precautions in suitable sterile containers.

Inclusion criteria:

1. HIV positive patients as per NACO guidelines.
2. Patients aged above 18 years.
3. Patients who were willing to give written signed consent.

Exclusion criteria:

1. Below 18 years of age.

Statistical Methods: Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean SD (Min-Max) and results on categorical measurements are presented in Number (%).

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Analysis of variance (ANOVA) has been used to find the significance of study parameters between three or more groups of patients, Student t test (two tailed, independent) has been used to find the significance of study parameters on continuous scale between two groups (Inter group analysis) on metric parameters.

Levene's test for homogeneity of variance has been performed to assess the homogeneity of variance.

Chi-square/ Fisher Exact test has been used to find the significance of study parameters on categorical scale between two or more groups.

Statistical software: The Statistical software namely SAS 9.2, SPSS 15.0, Stata 10.1, MedCalc 9.0.1, Systat 12.0 and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc.

RESULTS: In this study, out of 100 people, 62% of patients were males and 38% females. 56% patients were in the age group of 31-40 years (Table 1, Fig 1). 61% of patients presented with fever as main symptom followed by weight loss as the next most common mode of presentation.

38% belonged to tuberculosis group (both pulmonary and extra pulmonary) and 62% to the non-tuberculosis group. 16% of patients had pulmonary tuberculosis (PTB). Presence of PTB was significantly associated with Lower CD4 count with $P < 0.001^{**}$. 8% of the patients had tubercular lymphadenopathy. 10% of patients had abdominal tuberculosis. 4% of our patients had tubercular meningitis.

14% patients had severe anemia. 59% patients had high ESR (>60). 60% patients had ALC $<1000/\text{mm}^3$ and 40% patients had $>1000/\text{mm}^3$. Absolute Lymphocyte Counts of $609.64 \pm 277.03/\mu\text{l}$ and 702.38 ± 311.83 cells/ μl showed observations similar to CD 4 counts of <100 cells/ μl and <200 cells/ μl respectively. The P value was highly significant. 46% patients had CD4 count of less than $200/\text{mm}^3$ and 54% patients had $>200/\text{mm}^3$. CD4 count was significantly associated with ALC with $P = 0.023^*$.

DISCUSSION: In this study, out of 100 people, 62% of patients were males and 38% females. 56% patients were in the age group of 31-40 years. Study done by Kothari K et al⁶ in 2001 showed that 90% of the cases were in the age group of 20 to 40 years and male population constituted 83.33%.

Ghate M.V et al⁷ in their study on changing trends in clinical presentation of HIV infected persons in Pune, found that 88.1% of the cases were in the age group between 21 years and 40 years and it was the male population that was more affected as compared to the females.

In a study done by Mandal A.K et al⁸, 81.16% of cases were in the age group of 20 to 40 years. 61% of patients presented with fever as main symptom followed by weight loss as the next most common mode of presentation. This finding is comparable with other studies done by Colebunders Ret al⁹, which showed fever and weight loss in 21.83% and 29.31%, Lakshmi V. et al¹⁰ in 61% and 45%, Kothari K et al in 96% and 66% of cases.

38% belonged to tuberculosis group, both pulmonary (16%) and extra pulmonary (18%) and 62% to the non-tuberculosis group. Chacko Set al¹¹ reported incidence of pulmonary tuberculosis of 30% and extra pulmonary tuberculosis constituting 22%.

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60% patients had ALC $<1000/\text{mm}^3$ and 40% patients had $>1000/\text{mm}^3$ Absolute Lymphocyte Counts of $609.64 \pm 277.03/\mu\text{l}$ and 702.38 ± 311.83 cells/ μl showed observations similar to CD 4 counts of <100 cells/ μl and <200 cells/ μl respectively. The P value was highly significant.

46 % patients had CD4 count of less than $200/\text{mm}^3$ and 54% patients had $>200/\text{cmm}$. CD4 count is significantly associated with ALC with $P=0.023^*$

A study conducted by John Hopkins University showed a significant correlation between TLC of less than 1200 cells/ μl to CD 4 count of less than 200 cells/ μl ¹².

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Age in years	No. of patients	%
21-30	26	26.0
31-40	56	56.0
41-50	14	14.0
51-60	4	4.0
Total	100	100.0

Table 1: Showing age distribution of patients studied

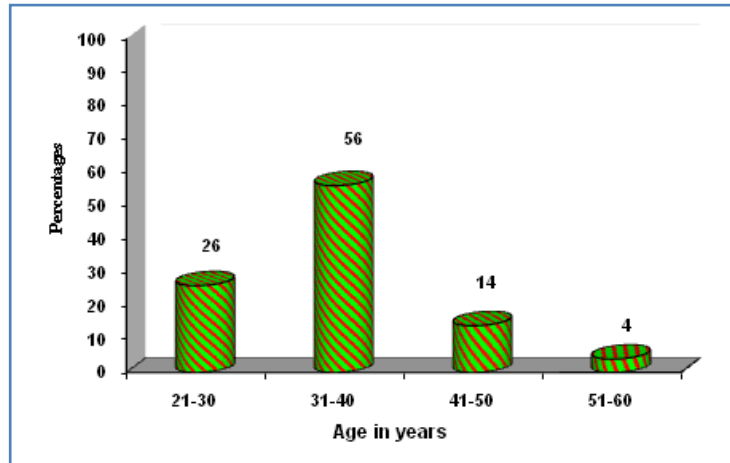


Fig. 1: Showing age distribution of patients studied

In our study majority(56%)of patients were in the age group of 31-40years.

Gender	No. of patients	%
Female	38	38.0
Male	62	62.0
Total	100	100.0

Table 2: Showing gender distribution of patients studied

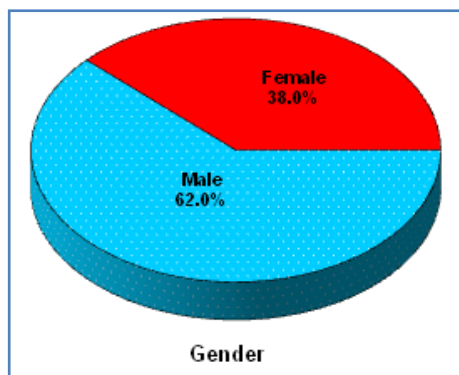


Fig. 2: Showing gender distribution of patients studied

Out of 100 patients in our study 62% were males and 38% were females.

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Clinical Features	Number	Percentage
Fever	61	61%
Cough	38	38%
Breathlessness	32	32%
Weight loss	53	53%
Diarrhoea	38	38%

Table 3: Showing major clinical features in the study subjects.

Majority of patients presented with fever (61%) followed by weight loss.

Pulmonary Tuberculosis	No. of patients	%
Absent	84	84.0
Present	16	16.0
Total	100	100.0

Table 4: Showing distribution pattern of pulmonary tuberculosis

In our study 16% of patients had pulmonary tuberculosis

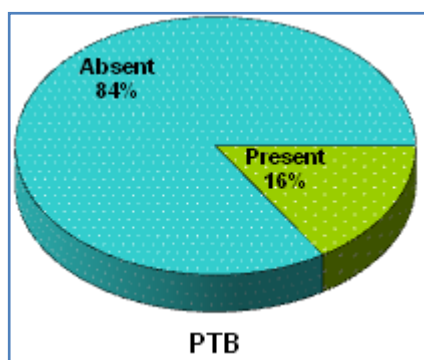


Fig. 3: Showing distribution pattern of pulmonary tuberculosis

TB Lymphadenopathy	No. of patients	%
Absent	92	92.0
Present	8	8.0
Total	100	100.0

Table 5: Showing distribution pattern of Tubercular lymphadenopathy

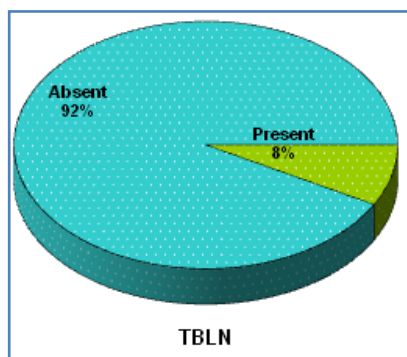


Fig. 4: Showing distribution pattern of Tubercular lymphadenopathy

In this study 8% of the patients had tubercular lymphadenopathy

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Abdominal TB	No. of patients	%
Absent	90	90.0
Present	10	10.0
Total	100	100.0

Table 6: Showing distribution pattern of Abdominal Tuberculosis

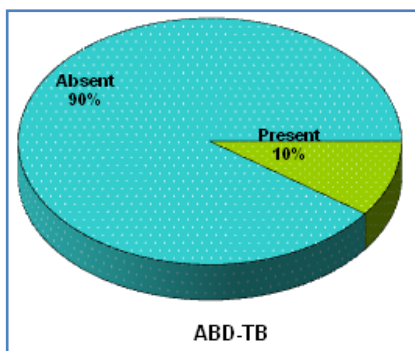


Fig. 5: Showing distribution pattern of Abdominal Tuberculosis

10% of patients had abdominal tuberculosis in our study

TBM	No. of patients	%
Absent	96	96.0
Present	4	4.0
Total	100	100.0

Table 7: Showing distribution pattern of Tubercular Meningitis

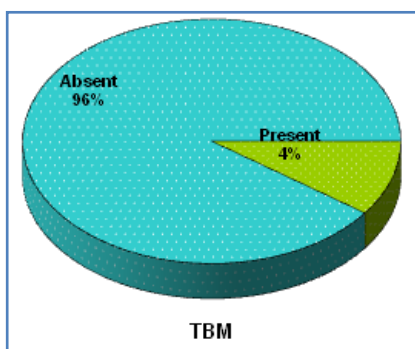


Fig. 6: Showing distribution pattern of Tubercular Meningitis

In our study 4% of our patients had tubercular meningitis

Haemoglobin	No. of patients	%
<6	7	7.0
6.1-7	7	7.0
7.1-8	8	8.0
8.1-9	15	15.0
9.1-10	12	12.0
>10	51	51.0
Total	100	100.0

Table 8: Showing distribution pattern of Haemoglobin concentration.

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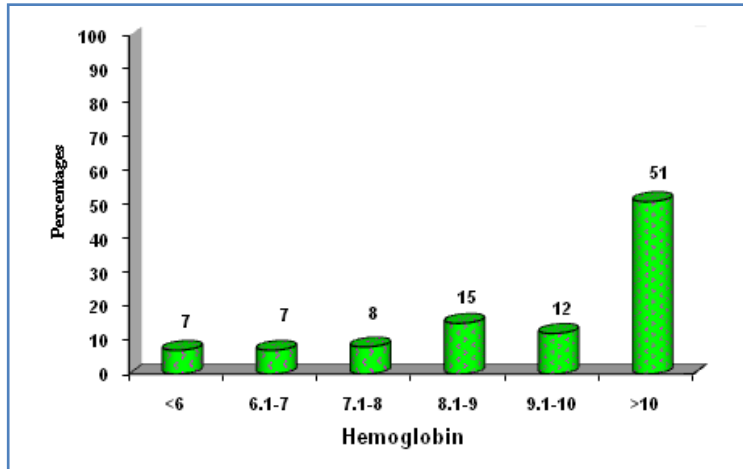


Fig. 7: Showing distribution pattern of Haemoglobin concentration.

In this study 14% patients had severe anaemia.

ESR	No. of patients	%
<30	4	4.0
31-40	5	5.0
41-50	14	14.0
51-60	18	18.0
>60	59	59.0
Total	100	100.0

Table 9: Showing distribution pattern of ESR

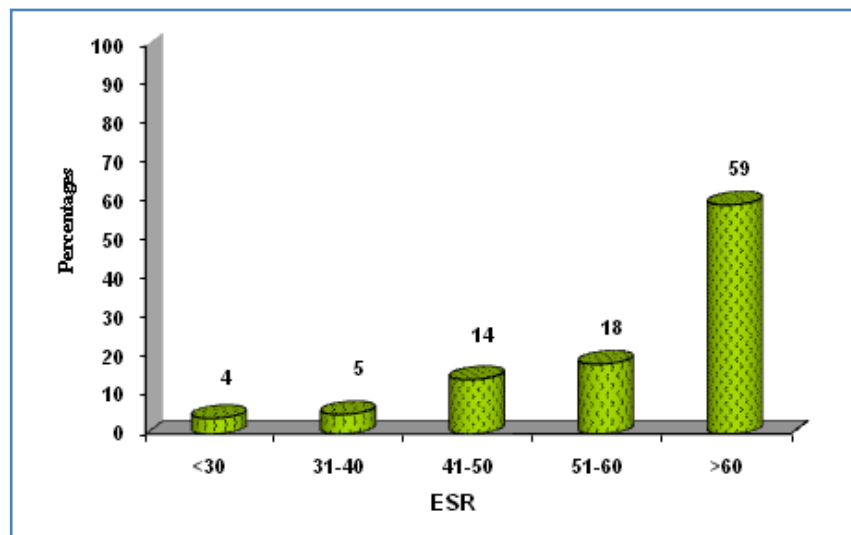


Fig. 8: Showing distribution pattern of ESR

In our study 59% patients had high ESR (>60)

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Absolute lymphocyte count (ALC)	No. of patients	%
<500	18	18.0
501-1000	42	42.0
1001-2000	36	36.0
>2000	4	4.0
Total	100	100.0

Table 10: Showing distribution pattern of Absolute lymphocyte count (ALC).

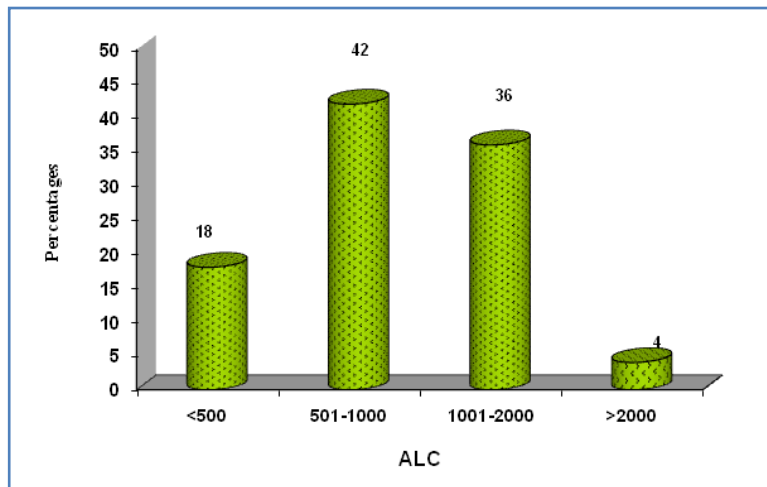


Fig. 9: Showing distribution pattern of ALC

60% patients had ALC <1000/mm³ and 40% patients had >1000/mm³ in this study

CD4 count	No. of patients	%
1-100	14	14.0
101-200	32	32.0
201-500	35	35.0
>500	19	19.0
Total	100	100.0

Table 11: Showing distribution pattern of CD4 count.

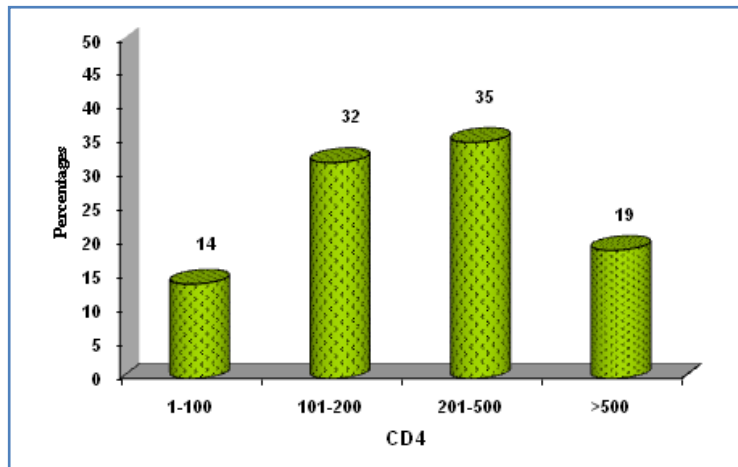


Fig. 10: Showing distribution pattern of CD4 counts.

In our study 46 % patients had CD4 count of less than 200/mm³ and 54% patients had >200/mm³

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