

Study of hematological manifestations in hiv/aids at medical College Hospital Kota

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Abstract

Introduction: Haematological abnormalities are common findings in patients infected by HIV virus. The common findings include anemia, leukopenia, thrombocytopenia or pancytopenia.

Materials and Methods: It was a hospital based observational descriptive study conducted in department of medicine and ART centre at Government Medical College Kota and associated group of hospital.

Results: Leucopenia was seen in 44% cases and thrombocytopenia in 12% of cases. Hemoglobin level below 10gm% was seen in 63%. Blood urea level was 110.95±111.38gm/l and S. creatine level was 2.703±3.12mg/dl. Liver marker was higher than normal level.

Conclusion: Hematological abnormalities were common in patients with Acquired Immuno Deficiency Syndrome.

Keywords: Acquired Immuno Deficiency Syndrome (AIDS), Hematological manifestations, Hemoglobin, Liver function test, Kidney function test.

Introduction

Haematological abnormalities are common findings in patients infected by HIV virus. The common findings include anaemia, leukopenia, thrombocytopenia or pancytopenia. These abnormalities may be attributable to the direct cytotoxic effect of the virus on progenitor cells, ineffective hematopoiesis, opportunistic infections, immune mechanisms, and drug reactions.¹

Anemia is a very common finding in HIV infected patients, particularly in individuals with more advanced disease. HIV infection alone without other complicating illness can produce anemia in some patients. HIV not only causes low CD4 counts, but is also associated with granulocytopenia, thrombocytopenia, loss of specific cytotoxic lymphocytes, and antibody specific response.²

Most patients will experience some hepatobiliary manifestations during the course of their HIV disease, with abnormal liver function in approximately 80% patients and hepatomegaly and jaundice in 50% patients. HIV can involve the liver directly as demonstrated by presence of HIV P24 in kupfer cells and endothelial cells, and presence of HIV messenger RNA in hepatocytes. The degree of involvement of liver can be demonstrated by measuring alkaline phosphatase, alanine amino transferase, aspartate amino transferase, lactate dehydrogenase, creatinine phosphokinase.³

Renal disorders are encountered at all stages of HIV infection & range from fluid & electrolyte imbalances commonly seen in hospitalised patients to HIV associated nephropathy which can progress rapidly to end stage renal disease.

Material and Methods

Place of study: Inpatient and outpatient departments of department of medicine and ART centre at Government Medical College Kota and associated group of hospital.

Study design: It was a hospital based observational descriptive study.

Sample size: The sample size was 100 patients.

Sampling method: Convenience sampling.

Duration of study: 6 months between June 2017 to December 2017.

Inclusion Criteria

1. The patients diagnosed with HIV-1 & 2 reactive by ELISA method (both symptomatic and asymptomatic).

2. Age 18 years.

Exclusion Criteria

1. Patients with previously known hematological disorder prior to HIV infection.

2. Patients with hepatic disorders and renal disorders due to other causes.

3. Patients not willing to participate in the study.

Study population: All the patients who are HIV positive and fulfilling the inclusion and exclusion criteria attending OPD and IPD at department of medicine and ART center of Government Medical College Kota and associated group of hospitals.

Data collection: All the patients who are HIV positive and fulfilling the inclusion and exclusion criteria attending OPD and IPD at department of medicine and ART center of Government Medical College Kota and associated group of hospitals. The patients were examined by investigator of the study (Dr. Vinit Agarwal, junior resident in department of Medicine, and Dr. Shiv Charan Jelia, Sr. Professor and Head of Department of department of medicine). Informed written consent was obtained from each of the patient

after explaining them about the purpose of study in their own language. The patients were evaluated according to predetermined and pretested proforma to record the details of history, physical examination and investigations.

Observations

Table 1: Age wise distribution of AIDS patients

Age group (Yrs)	No. of Patients	Percentage
10-20	2	2%
21-30	20	20%
31-40	24	24%
41-50	25	25%
51-60	13	13%
More than 60	16	16%
Total	100	100%

Maximum 25% patients were belonged to 41-50 years age group and only 2% patients were less than 20 years of age.

Table 2: Sex wise distribution of AIDS patients

Sex	No. of patients	Percentage
Male	73	73%
Female	27	27%
Total	100	100%

73% patients were male and 27% were female.

Table 3: Hematological manifestations wise distribution of AIDS patients (n=100)

Hematological manifestations	No. of Patients	Percentage
Leucopenia	44	44%
Thrombocytopenia	12	12%
HB level below 10GM%	63	63%

Leucopenia was seen in 44% cases and thrombocytopenia in 12% of cases. Hemoglobin level below 10gm% was seen in 63%.

Table 4: Haematological parameters of HIV patients

Haematological Parameters	Mean	SD
HB(gm/dl)	8.215	2.59
Total WBC ($\times 10^3$ cells/ μ L)	4.36	0.60
Absolute lymphocytes ($\times 10^3$ cells/ μ L)	0.060	0.02
Platelet ($\times 10^3$ / μ l)	13.33	6.80

Mean HB level in HIV patients was 8.21 ± 2.59 gm/dl, total WBC level was $4.36 \pm 0.60 \times 10^3$ cells/ μ l, Absolute lymphocytes level was $0.060 \pm 0.02 \times 10^3$ cells/ μ l and platelet level was $13.33 \pm 6.80 \times 10^3$ cells/ μ l.

Table 5: Kidney function test wise distribution of AIDS patients (n=100)

Kidney function test	Means	SD
Blood urea level (gm/l)	110.95	111.38
S.creatinine level (mg/dl)	2.703	3.12

In this study blood urea level was 110.95 ± 111.38 gm/l and S. creatine level was 2.703 ± 3.12 mg/dl.

Table 6: Liver function test wise distribution of AIDS patients (n=100)

Liver function test	Means	SD
SGOT	275.80	449.89
SGPT	320.79	569.55
S. Bilirubin (direct)	4.89	5.88
S. Bilirubin (indirect)	3.83	5.48
Alkaline phosphate	107.05	130.70
Albumin	1.74	0.53
Total protein	3.38	0.80
A/G ratio	1.18	0.58

In this study all parameters of liver function test was higher level than normal.

Discussion

In our study, maximum numbers of patients 25% belonged to 41-50 years of age group and 2% patients belonged to less than 20 years age group.

In Study done by Sitalakshmi et al.⁴ it was observed that maximum numbers of patients belonged to 41-50 years of age group. Chanarat et al.⁵ also reported similar age group distribution.

Bartholomew Okechukwulbeh et al.⁴ observed the ages of the HIV⁺ HAART group 36 ± 10 Yrs.

Males were more commonly affected by the disease 73% than female 27% in our study.

Sitalakshmi et al.⁵ observed similar findings with male 60% and female 40% in their study.

Chanarat et al.⁶ also observed that males were affected more effected than females.

Leucopenia was seen in 44% cases and thrombocytopenia in 12% of cases. Hemoglobin level below 10gm% was seen in 63% in our study.

In the study by Chanarat et al.⁵ anemia was seen in 51% cases and thrombocytopenia in 16% of cases.

Leucopenia was seen in 30% cases and thrombocytopenia in 21% of cases. Hemoglobin concentration, percentage of neutrophils and lymphocytes were significantly reduced in study conducted by Ramakrishna et al.⁴

In our study 52% were normocytic hypochromic 18% were Normocytic Normochromic 15% patients were Microcytic hypochromic.

Swati Kathuria et al.⁵ observed that prevalence of anemia, leucopenia and thrombocytopenia were 46%, 25% and 24% respectively. The incidence of these abnormalities increased in patients having lower CD4

counts. Anemia was more common in untreated group whereas patients on ART had a higher incidence of leucopenia.

In the present study, liver abnormalities in the form of raised bilirubin and liver enzymes were noted in 83% of the cases. This was same to the finding of the studies done by Housset et al.⁶ and Steffan et al.⁷ where liver abnormalities were seen in 80% and 43% of cases respectively.

In the present study, altered renal function tests were seen in 82% of cases, in the form of raised blood urea and serum creatinine. In the studies done by Valeri et al.⁸ and Shusterman et al.⁹ altered renal function tests were reported in 20% and 25% of the cases respectively.

Conclusions

Hematological abnormalities were common in patients with Acquired Immuno Deficiency Syndrome.

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