

Study of Hematological Manifestations in HIV/AIDS and To Assess Their Correlation to Severity of Disease

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Abstract

Background: Haematological abnormalities were common in patients with HIV infection. The common peripheral blood findings include anemia, thrombocytopenia, leucopenia or pancytopenia. These abnormalities may be attributable to the direct toxic effect of the virus on progenitor cells, ineffective hematopoiesis, opportunistic infections, immune mechanisms and drug reactions. **Methods:** It was a hospital based observational descriptive study conducted in department of medicine and ART centre at S P medical College Bikaner and associated group of hospital. **Results:** Leucopenia was seen in 46% cases and thrombocytopenia in 13% of cases. Hemoglobin level below 10gm% was seen in 65%. Mean HB level in HIV patients was 8.32 ± 2.64 /dl, total WBC level was $4.27 \pm 0.54 \times 10^3$ cells/ μ L, Absolute lymphocytes level was $0.059 \pm 0.023 \times 10^3$ cells/ μ L and platelet level was $13.29 \pm 6.76 \times 10^3$ cells/ μ L. **Conclusion:** Hematological abnormalities were common in patients with Acquired Immuno Deficiency Syndrome. Hemoglobin concentration, percentage of neutrophils and lymphocytes were significantly reduced.

Keywords: Acquired Immuno Deficiency Syndrome (AIDS), Hematological manifestations, Hemoglobin, Neutrophils, Lymphocytes.

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INTRODUCTION

The acquired immunodeficiency syndrome (AIDS), is a fatal illness caused by a retrovirus known as the human immunodeficiency virus that breaks down the body's immune system, progressively leads to AIDS. There are 2.47 million persons in India living with HIV; equivalent to approximately 0.36% of the adult population. The revised national estimate reflects the availability of improved data rather than a Substantial decrease in actual HIV prevalence in India. The transmission route is still predominantly sexual (87.4%); other routes of transmission by order of proportion include prenatal (4.7%), unsafe blood and blood products (1.7%), infected needles and syringes (1.8%) and unspecified routes of transmission [1].

Haematological abnormalities were common in patients with HIV infection. The common peripheral blood findings include anemia, thrombocytopenia, leucopenia or pancytopenia. These abnormalities may be attributable to the direct toxic effect of the virus on progenitor cells, ineffective hematopoiesis, opportunistic infections, immune mechanisms and drug reactions [2]. Anemia was a very common finding in

patients with HIV infection, particularly in individuals with more advanced HIV disease. HIV infection alone without other complicating illness may 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 [3].

MATERIAL AND METHODS

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

Sample size: The sample size was 100 patients.

Sampling method: Convenience sampling.

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 was be excluded from the study.

Data Collection

The patients was evaluated according to predetermined and pretested proforma to record the details of history, physical examination and investigations.

OBSERVATION

Maximum 30% patients were belong to 41-50 Yrs age group and only 1% patients were less than 20 Yrs. 80% patients were male and 20% were female.

Table-1: Hematological manifestations wise distribution of AIDS patients (n=100)

| Hematological manifestations | No. of patients | Percentage |
|------------------------------|-----------------|------------|
| Leucopenia | 46 | 46% |
| Thrombocytopenia | 13 | 13% |
| HB level below 10GM% | 65 | 65% |

Leucopenia was seen in 46% cases and thrombocytopenia in 13% of cases. Hemoglobin level below 10gm% was seen in 65%.

Table-2: Blood picture wise distribution of AIDS patients (n=100)

| Blood picture | No. of patients | Percentage |
|-------------------------|-----------------|------------|
| Dimorphic | 6 | 6% |
| Marcocytic | 13 | 13% |
| Microcytic hypochromic | 12 | 12% |
| Normocytic hypochromic | 51 | 51% |
| Normocytic Normochromic | 18 | 18% |

In this study 51% were normocytic hypochromic, 18% were Normocytic Normochromic, 13% patients were Microcytic hypochromic.

Table-3: Haematological parameters of HIV patients

| Haematological parameters | Mean | SD |
|--|-------|-------|
| HB(gm/dl) | 8.32 | 2.64 |
| Total WBC ($\times 10^3$ cells/ μ L) | 4.27 | 0.54 |
| Absolute lymphocytes ($\times 10^3$ cells/ μ L) | 0.059 | 0.023 |
| Platelet ($\times 10^3$ / μ l) | 13.29 | 6.76 |

Mean HB level in HIV patients was 8.32 \pm 2.64/dl, total WBC level was 4.27 \pm 0.54 $\times 10^3$ cells/ μ l, Absolute lymphocytes level was 0.059 \pm 0.023 $\times 10^3$ cells/ μ l and platelet level was 13.29 \pm 6.76 $\times 10^3$ cells/ μ L.

Table-4: Association between Hematological manifestations and severity of AIDS patients (n=100)

| Hematological manifestations | CD4 count <200mm ³ | CD4 count >200 mm ³ | P-value |
|------------------------------|-------------------------------|--------------------------------|---------|
| Leucopenia | 13 | 23 | >0.05 |
| Thrombocytopenia | 3 | 10 | <0.05 |
| Hb level below 10gm% | 18 | 47 | >0.05 |

The association between severity of HIV infection and was Hematological manifestations significant.

DISCUSSION

In our study, maximum 30% patients were belong to 41-50 Yrs age group and only 1% patients were less than 20 Yrs.

Studies done by Sitalakshmi *et al.*, [4] was observed that maximum numbers of patients belonged

to 41-50years of age group. Chanarat *et al.*, [5] also reported similar age group distribution.

Bartholomew Okechukwu Ibeh *et al.*, [4] was observed the ages of the HIV⁺ HAART group 36 \pm 10 Yrs.

Males were more commonly affected by the disease (80%) than female (20%) in our study.

Sitalakshmi *et al.*, [5] was observed that male (60%) and female Was (40%).

Chanarat *et al.*, [6] was also observed that male was more effected than female.

Leucopenia was seen in 46% cases and thrombocytopenia in 13% of cases. Hemoglobin level below 10gm% was seen in 65% in our study.

In the study by Chanarat *et al.*, [5] 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 51% were normocytic hypochromic, 18% were Normocytic Normochromic, 13% patients were Microcytic hypochromic.

Swati Kathuria *et al.*, [5] was observed the prevalence of anemia, leucopenia and thrombocytopenia was 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.

Most common type of blood picture was normocytic normochromic blood picture seen in studies, Bodey *et al.*, [7] Moore *et al.*, [8].

Mean HB level in HIV patients was 8.32 ± 2.64 /dl, total WBC level was $4.27 \pm 0.54 \times 10^3$ cells/ μ l, Absolute lymphocytes level was $0.059 \pm 0.023 \times 10^3$ cells/ μ l and platelet level was $13.29 \pm 6.76 \times 10^3$ cells/ μ L in our study and in the study by Chanarat *et al.*, [6] was seen same result.

CONCLUSIONS

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

Hemoglobin concentration, percentage of neutrophils and lymphocytes were significantly reduced.

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