

## Clinical Presentation of Newly Diagnosed Hiv Positive patients and their correlation with Cd4 count in Indian Scenario

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### Abstract

**Background:** Infection of immune system by HIV leads to gradual deterioration of immunity ultimately leading to a state of immune deficiency known as AIDS. When the infection is rapidly spreading, it is of great importance to know clinical patterns of the disease at the earliest possible so as to modify the course and the prognosis. This study focuses on clinical presentation in HIV positive individuals in Indian scenario and its correlation with CD4 count.

**Materials & Methods:** This is a randomized, cross-sectional study of 200 patients attending Medicine OPD or admitted in a tertiary care hospital. Pretested Proforma was used to collect data after taking informed consent. Final analysis has been done with use with the help of epiinfo software.

**Results:** Among the newly diagnosed HIV positive patients, fever was the most common symptom (35%); followed by weight loss (33.5%) and anorexia (29.5%). Anemia was seen in 36% cases and majority of the patients with anaemia had CD4 count < 350/ $\mu$ L. Pulmonary tuberculosis was found to be the most common opportunistic infection.

**Conclusion:** Fever, anorexia, weight loss and recurrent diarrhea were the main presenting symptoms among the symptomatic patients. Majority of the patients with anemia and raised ESR (>20mm/hr) and sputum AFB positive had CD4+ count <350/ $\mu$ L. Tuberculosis, recurrent diarrhea, candidiasis were common opportunistic infections and associated with lower CD4 count (<350/ $\mu$ L). Higher CD4 count was detected in majority of asymptomatic patients.

**Keywords:** HIV, Clinical presentation, CD4 count

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### I. Introduction

HIV is a virus (of the type called retrovirus) that infects cells of the human immune system (mainly CD4 T cells and macrophages), and destroys or impairs their function<sup>1</sup>. Infection of CD4 T cells and macrophages by HIV leads to gradual deterioration of immunity ultimately leading to a state of immune deficiency known as AIDS<sup>2</sup>. The accurate measurement of CD4 cell counts is essential for assessment of immune system of HIV infected person as the pathogenesis of Acquired Immunodeficiency Syndrome is largely attributable to the decrease in CD4 lymphocyte counts. AIDS can lead to infection by microbes which do not usually cause any symptoms in healthy individuals. These are called opportunistic infection which can be the presenting feature in lots of AIDS patients<sup>3</sup>. The clinical presentation in HIV infected individuals can vary from being absolutely asymptomatic to life threatening opportunistic infection.

When the infection is rapidly spreading, it is of great importance to know clinical patterns of the disease at the earliest possible so as to modify the course and the prognosis. This study reviews the clinical presentation of newly diagnosed HIV positive patients in Indian scenario.

### Aims and Objectives

1. To study complete clinical profile of newly diagnosed HIV positive patient.
2. To find the mean CD4+ count in newly detected HIV positive patients.
3. To find out common opportunistic infections in newly detected HIV positive patients.
4. To find out the various clinical presentations in newly diagnosed patient.

### II. Materials And Methods

The present study included 200 newly diagnosed HIV positive patients attending Surat Municipal Institute of Education in Research (SMIMER), Surat from May 2011 to May 2012. This is a randomized, cross-sectional study of 200 patients attending Medicine OPD or admitted in SMIMER hospital.

The findings were analyzed in the light of clinical and laboratory tests. Pretested Proforma was used to collect data after taking informed consent.

Final analysis has been done with use with the help of epiinfo software.

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**Inclusion Criteria:**

1. Newly diagnosed HIV patient (not on any previous treatment).
2. Age more than 18 years.

**Exclusion Criteria:**

1. Previously diagnosed HIV positive and on treatment.
2. Age less than 18 year.
3. Patient not willing to participate in study.

**III. Results**

The present study comprises 200 newly diagnosed HIV positive adult patients presenting at SMIMER Hospital, Surat during the period May 2011 to May 2012. Most of the patients in the study were in the age group of 30-39 years (40%), followed by 20-29 years (28.5%), 40-49 years (22.5%) and 9% patients were more than 49 years of age. The age range was 20-66 years in male patients, 20-75 years in female patients and 22-40 in transgenders. Overall, the age range was 20-75 years. The median age was 35 years in male patients, 32 years in female patients and 40 years in transgenders. Overall, the median age was 35 years. Out of the 200 patients in study, 122 patients (61%) were male, 75 patients (37.5%) were female and 3 patients (1.5%) were transgenders. The ratio of Male: Female: Transgender was 41:25:1. Among the newly diagnosed HIV positive patients, fever was the most common symptom (35%); followed by weight loss (33.5%) and anorexia (29.5%). The other common complaints were recurrent diarrhea (16%), cough (13.5%) and oral thrush (12.5%). The lesser common complaints were dysphagia (6.5%), urethral discharge (4%), generalized weakness (3.5%), leucorrhoea (2.5%), breathlessness (2%), cutaneous rash (3%), pain in abdomen (1.5%), cervical lymphadenopathy (0.5%) and jaundice (0.5%). (Table 1) 46 patients (23%) were asymptomatic. Out of these 46 patients, 24 patients were screened because of their spouse being HIV positive, 8 cases for routine checkup due to pregnancy or 6 cases for pre-operative screening. 5 cases presented themselves for checkup while 3 patients were detected HIV positive during blood donation.

From Table 2, it is evident that sexual transmission was the major risk factor (97%) in the present study of 200 patients. 194 patients (97%) were heterosexual and 3 patients (1.5%) were MSM. 3 patients were infected through blood and blood products transfusion.

In the present study, pyrexia was seen in 11.5% cases, tachycardia in 15.5% cases, tachypnoea in 6% cases and hypotension in 2.5% cases. Blood pressure was normal in majority of the patients (97.5%). (Table 3) The other findings on general examination included pallor (36%), oral candidiasis (12.5%), cutaneous rash (herpes zoster) (3%) and cervical lymphadenopathy & icterus (0.5% each)

In systemic examination, the most common RS findings were crepitations (11.5%) and decreased air entry (2%). In per abdomen examination, 3 patients had splenomegaly (1.5%), 1 patient had hepatosplenomegaly (0.5%) and 1 patient (0.5%) had ascites. 167 patients had normal systemic examination findings. Among all 200 patients, none of the patients had abnormal CVS and CNS examination findings. (Table 4) In present study, 36% cases had anemia. Majority of the patients (66 patients) with anemia had CD4+ count < 350/ $\mu$ L. Similarly among the cases of raised ESR, majority of the patients (66%) had CD4+ count < 350/ $\mu$ L. Pulmonary TB was found in 26 patients (13%). Out of these, 8 patients (30.76%) had sputum AFB positive. Pleural effusion was found in 9 patients and all of them were tuberculous in nature. Only 1 patient was detected with tuberculous ascites. FNAC of cervical lymph node was done in 1 patient and it showed tuberculous lymphadenopathy. All the patients of tuberculous pleural effusion, tuberculous ascites and tuberculous cervical lymphadenopathy had CD4+ count < 350/ $\mu$ L. (Table 5)

Table 6 shows that 67 patients (33.5%) had tuberculosis, out of which 26 patients (13.0%) had pulmonary TB and 41 cases (20.5%) had extrapulmonary TB. Recurrent diarrhea was seen in 32 patients (16%). In 1 patient of recurrent diarrhea, roundworm infection was detected in stool examination. Oral candidiasis was seen in 25 patients (12.5%), STD in 11 patients (5.5%) and herpes zoster, leucorrhoea and PCP in 2 patients (1.0%) each. CD4+ count was done in all 200 patients. Lower CD4+ counts (<350/ $\mu$ L) were more common in extrapulmonary TB, recurrent diarrhea and pulmonary TB. Higher CD4 counts were more common in asymptomatic patients, patients having STD, skin rash, herpes zoster and leucorrhoea. All patients of oral candidiasis had CD4+ count < 350/ $\mu$ L, and all patients of PCP had CD4+ count < 50/ $\mu$ L. (Table 7) Among the cases having extrapulmonary TB, 31 patients had abdominal TB, 9 patients had TB pleural effusion and 1 patient had TB cervical lymphadenopathy. Majority (36 patients) of these cases had lower CD4+ counts (<350/ $\mu$ L).

Patient distribution according to revised classification system is as shown in Table 8.

**IV. Discussion**

This study demonstrates the importance of clinical features of newly diagnosed HIV positive patients who were attending the Medicine Department, SMIMER Hospital, Surat.

The present study showed that majority of the patients (68.5%) were in 20-39 years age group. Wani K<sup>4</sup> et al found that 66.5% patients in 20-39 years age group which closely resembles our findings. Joge U<sup>5</sup> et al found 81.4% patients in this age group. NACO has reported 89% of cases were in the age group of 15-44 years<sup>6</sup>. Majority of the patients were in age group of 20-39 years which is sexually active and productive age group. This age group of population is more affected because they are economically productive, sexually more active and social structure is patriarchal. The present study and the comparative studies show male preponderance in the newly detected HIV positive cases.

In present study, fever (35%), weight loss (33.5%) and diarrhea (16%) were predominant presenting complaints. The study by Joshi PN<sup>7</sup> et al showed fever (60.73%), weight loss (51.57%) and diarrhea (33.73%). Joge U<sup>5</sup> et al reported fever (52.93%), weight loss (48.81%) and diarrhea (14.11%). Andrew D<sup>8</sup> found higher incidence of fever (81%) and weight loss (51%) because asymptomatic patients were excluded from their study. Majority of symptomatic patients had more than one symptom. In present study, 23% patients were asymptomatic while Joshi PN<sup>7</sup> et al and Joge U<sup>5</sup> et al reported 8.47% and 19.1% asymptomatic patients respectively. The number of asymptomatic patients in our study was slightly higher as compared to other studies, perhaps because of awareness of people regarding detection of HIV from their spouse positivity, screening during pregnancy and pre-operative screening and voluntary detection.

In our study, 14 female patients were pregnant in which 8 (57.14%) were asymptomatic. Favia A et al's study<sup>9</sup> supports this finding, suggesting that most of the pregnant women were asymptomatic, as compared to non-pregnant females.

The commonest probable mode of transmission in the present study was heterosexual (95.5%), followed by MSM (1.5%) and blood & blood products transfusion (1.5%). This closely resembled to the studies of Joge U<sup>5</sup> et al and Wani K<sup>4</sup> et al. No patient was found to have IV drug use or needle prick as the mode of transmission of HIV in the present study or either of the above two studies.

In our study, pallor was found in 36% patients while Joshi PN<sup>7</sup> et al and Andrew D<sup>8</sup> et al reported 41.36% and 40% incidence of pallor respectively. Oral candidiasis was found in 12.5% of our study which was similar to the findings of Joshi PN et al study (11.52%).

The most common finding on investigation was anemia in the present study (36%) which was similar to the Joshi PN<sup>7</sup> et al study (41.36%). Joshi PN et al also reported incidence of altered RFT, VDRL reactive and HCV reactive patients which were not seen in the present study, perhaps because of the larger sample size in Joshi PN et al's study<sup>7</sup> (n=1900).

We have found that tuberculosis is the most common opportunistic infection (33.5%). Similar finding was reported by Joshi PN<sup>7</sup> et al who found 36.73% incidence of TB. Other common opportunistic infections were recurrent diarrhea (16%) and oral candidiasis (12.5%). In the study of Joshi PN<sup>7</sup> et al, recurrent diarrhea and oral candidiasis were 33.73% and 11.52% respectively.

## V. Conclusion

Fever, anorexia, weight loss and recurrent diarrhea were the main presenting symptoms among the symptomatic patients. Majority of the patients with anemia and raised ESR (>20mm/hr) and sputum AFB positive had CD4+ count <350/ $\mu$ L. Tuberculosis, recurrent diarrhea, candidiasis were common opportunistic infections and associated with lower CD4 count (<350/ $\mu$ L). Higher CD4 count was detected in majority of asymptomatic patients.

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**Table 1 :** Presenting Symptoms among the 200 newly diagnosed HIV positive patients

Symptom	Number of cases(%)
Fever	70 (35.0%)
Weight loss	67 (33.5%)
Anorexia	59 (29.5%)
Asymptomatic	46 (23.0%)
Diarrhoea	32 (16.0%)
Cough	27 (13.5%)
Oral thrush	24 (12.0%)
Dysphagia	13 (6.5%)
Urethral discharge	8 (4.0%)
Generalised weakness	7 (3.5%)
Leucorrhoea	5 (2.5%)
Breathlessness	4 (2.0%)
Cutaneous rash/ Herpes zoster	6 (3.0%)
Pain in abdomen	3 (1.5%)
Cervical lymphadenopathy	1 (0.5%)
Jaundice	1 (0.5%)

**Table 2 :** Probable modes of transmission of HIV in present study

Mode of transmission	Number of cases	Percentage
Sexual transmission		
Heterosexual	191	95.5%
MSM	3	1.5%
Blood & blood products	3	1.5%
IV drug users	0	-
Needle prick	0	-
Undetermined	3	1.5%

**Table 3 :** General Examination findings in the present study

General Examination	Number of cases
Pyrexia ( $\geq 100^{\circ}\text{f}$ )	23 (11.5%)
Tachycardia (PR $\geq 100$ )	31 (15.5%)
Tachypnoea (RR $> 20$ )	12 (6.0%)
Hypotension (SBP $< 100$ )	5 (2.5%)
Pallor	72 (36.0%)
Oral candidiasis	25 (12.5%)
Cutaneous rash/ herpes zoster	6 (3.0%)
Cervial lymphadenopathy	1 (0.5%)
Icterus	1(0.5%)

**Table 4:** Analysis of Systemic Examination findings in the present study

Systemic Examination	Number of cases (%)
Respiratory system	
Decreased air entry	4 (2.0%)
Crepitations	23(11.5%)
Alimentary system	
Splenomegaly	3(1.5%)
Hepatosplenomegaly	1(0.5%)
Ascites	1(0.5%)

**Table 5:** Analysis of Laboratory Investigations

	CD4+ count ( $\mu\text{L}$ )		Total (%)
	$<350$	$\geq 350$	
Anemia (Hb $<10\text{gm}\%$ )	66	6	72 (36.0%)
ESR			
< 20 mm/hr	7	13	20 (10.0%)
20-100 mm/hr	128	46	174 (87.0%)
> 100 mm/hr	4	2	6 (3.0%)
Sputum AFB +ve	7	1	8 (4.0%)
Body fluid			
Examination/FNAC	9	0	9 (4.5%)
Pleural fluid s/o TB	1	0	1 (0.5%)
	1	0	1(0.5%)

Ascitic fluid s/o TB			
FNAC s/o TB			

**Table 6 : Analysis of opportunistic infections in present study**

Opportunistic Infection	Number (%)
TB	
Pulmonary TB	26 (13.0%)
Extrapulmonary TB	41 (20.5%)
Recurrent diarrhea	32 (16.0%)
Oral candidiasis	25 (12.5%)
STD	11 (5.5%)
Herpes zoster	2 (1.0%)
Leucorrhoea	2 (1.0%)
PCP	2 (1.0%)

**Table 7 : Relation between opportunistic infection and CD4+ count in present study**

Diagnosis	CD4+ count (/μL)				Total
	< 200	201-350	351-500	> 500	
Extrapulmonary TB	24	12	3	2	41
Abd. TB	19	7	3	2	31
TB Pl. Eff	5	4	-	-	9
TB Cx LNpathy	-	1	-	-	1
Pulmonary TB	15	7	2	2	26
Recurrent diarrhoea	28	4	0	0	32
Oral candidiasis	24	1	0	0	25
PCP	2	0	0	0	2
Asymptomatic	2	10	13	21	46
STD	0	4	4	3	11
Skin rash/Herpes zoster	0	5	1	0	6
Leucorrhoea	0	0	1	1	2

**Table 8: Patient distribution according to Revised Classification System for HIV Infection and Expanded AIDS Surveillance Case Definition for Adolescents and Adults**

CD4+ T Cell Categories	Clinical Categories			Total
	A Asymptomatic, Acute (Primary) HIV or PGL	B Symptomatic, Not A or C Conditions	C AIDS-Indicator Conditions	
>500/μL	21 (A1)	7 (B1)	4 (C1)	32(16 %)
200-499/μL	23 (A2)	30 (B2)	24 (C2)	77(38.5 %)
<200/μL	2 (A3)	49 (B3)	40 (C3)	91(45.5 %)
Total	46 (23%)	86 (43%)	68 (34%)	200 (100%)