



CLINICAL PROFILE OF PATIENTS LIVING WITH HIV-AIDS PRESENTING WITH NEUROLOGICAL MANIFESTATIONS

General Medicine

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ABSTRACT

HIV/AIDS has posed many unprecedented challenges. It causes a wide spectrum of disease manifestation. Approximately 60 % of the AIDS patients have neurological symptoms and 80-90 % is found to have neuro-pathological abnormality at biopsy. The pattern of neurological complication in HIV infection in India is different from that of western countries. This study was undertaken to :

1--Study the neurological manifestations in HIV patients admitted in to GMC & SIR T General Hospital, Bhavnagar

2-to note differences with various studies carried out in other parts of the world.

The study was conducted on Patents admitted in GMC & SIR T General Hospital, Bhavnagar between January 2020 to June 2020 with symptoms referring to nervous system were screened and confirmed to have HIV-1 and/or HIV-2 infection by ELISA technique were enrolled if they met the inclusion criteria

KEYWORDS

Human Immunodeficiency Virus; Tubercular meningitis; Cryptococcal meningitis; bacterial meningitis; Tuberculoma; CD4 count

INTRODUCTION

AIDS was first recognized in the United States in 1981⁰¹. In India it was first pointed out in 1986 in Tamil Nadu. The HIV/AIDS has posed many challenges. Like the tip of the ice and real magnitude of iceberg remains under sea, the real magnitude of HIV and AIDS still remains to be evaluated. HIV and AIDS cause a wide spectrum of diseases and manifestations. Approximately 60 percent of patients with AIDS have neurological symptoms and 80 to 90 percent were found to have neuropathological abnormalities in autopsy³. Neurological complications of HIV infection cause marked morbidity and are often associated with high mortality. The pattern of presentation in India appears to differ from the world literature in that TB meningitis leads the list of opportunistic neurological infections.

AIM AND OBJECTIVES

AIM

To evaluate the proportion of different neurological presentations among patients living with HIV-AIDS presented with neurological manifestations.

OBJECTIVES

To evaluate the age wise distribution pattern among the patients.

To evaluate the pattern of CD4 count among the patients.

MATERIAL & METHOD

Source of Data

The subjects of the study will be all adult HIV patients admitted to Medical Units with Neurological manifestations during the study period and also HIV Patients Reviewed at the ART Centre at GMC Bhavnagar, with Neurological manifestations, presenting to the clinic during the study period who fulfil the inclusion criteria.

Sample Size: 83 cases

Sample Procedure: Observational cross-sectional study

Duration: 6 months

Inclusion Criteria:

All PLHA patient presented with NEUROLOGICAL INVOLVEMENT

Patients above the age of 18 years

Exclusion Criteria:

Pregnancy

HIV -REACTIVE SUBJECTS with history of neurological deficit prior to sero-positive state

METHOD:

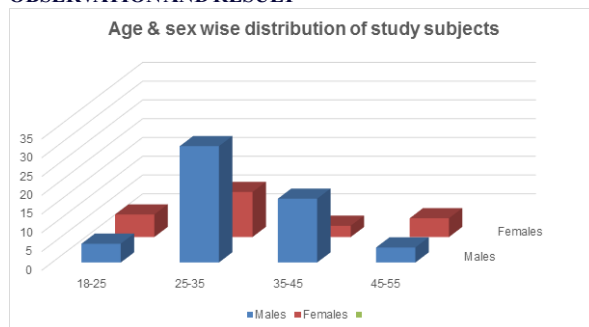
Our study will be conducted in the General ward, ICU, General Medicine OPD, ART Centre of Government Coimbatore Medical College & Sir T General Hospital, Bhavnagar. Over the study period of 6 months, all adult patients, who fulfils the inclusion criteria will be

enrolled in the study. The diagnosis of HIV will be defined as per the National Aids Control Organisation criteria. along with initial routine assessment, written informed consent will be obtained from eligible patients/ their relatives. They will undergo the treatment according to their clinical status.

The patients are free to discontinue from the study at any point of time according to their will and there will be no change in the treatment instituted to them irrespective of their willingness to continue/ discontinue from the study.

Age-group	Total	Males	Females	Trans-gender
18-25	11	5	6	0
25-35	43	31	12	0
35-45	20	17	3	0
45-55	09	4	5	0

OBSERVATION AND RESULT



Age & Sex Wise Distribution Of Study Subjects

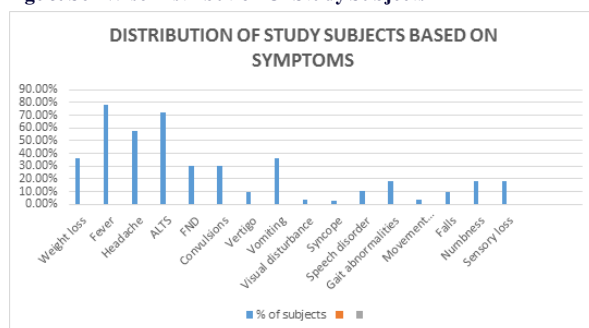
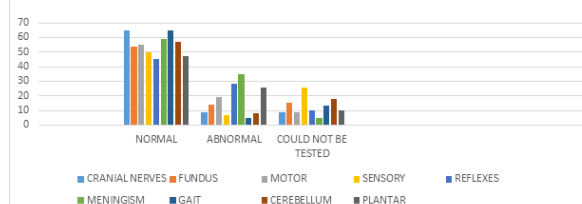


Table 7: Distribution Of Study Subjects Based On Symptoms

Symptoms	% of subjects	Frequency
Weight loss	36.14%	30
Fever	78.31%	65

Headache	57.83%	48
ALTS	72.29%	60
FND	30.12%	25
Convulsions	30.12%	25
Vertigo	9.63%	08
Vomiting	36.14%	30
Visual disturbance	3.61%	03
Syncope	2.41%	02
Speech disorder	10.84%	09
Gait abnormalities	18.07%	15
Movement abnormalities	3.61%	03
Falls	9.64%	08
Numbness	18.07%	15
Sensory loss	18.07%	15

Frequency of various CNS Evaluations in the study subjects



10.2 Frequency of various CNS Abnormalities in the study subjects

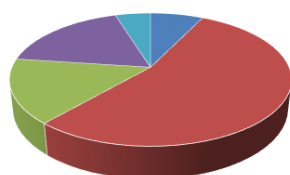
	Cranial Nerves	Fundus	Motor	Sensory	Reflexes	Meningism	Gait	Cerebellum	Plantar
ABNORMAL	09	14	19	07	25	19	05	08	26
PERCENTAGE (IN%)	10.84	16.87	22.89	8.43	30.12	22.89	6.02	9.63	31.32

CD-4 COUNTS:

Table:CD4 Counts

Distribution of study subjects based on CD4 count	
CD4 cell count	Frequency
<100 cells/ μ l	06
100-199 cells/ μ l	45
200-299 cells/ μ l	13
300-399 cells/ μ l	15
>400 cells/ μ l	04

Distribution of study subjects based on CD4 count



Mean CD4 count for the study subjects is 226.78 cells/ μ L

P value:.001 so development of neurological manifestations in HIV is strongly associated with low CD4 count.

DIAGNOSIS:

Diagnosis In Study Patients

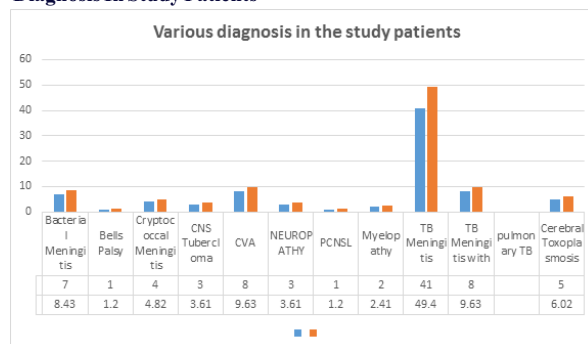


Table Diagnosis In Study Patients

Various diagnosis in the study subjects		
Diagnosis	Frequency	%
Bacterial Meningitis	07	8.43
Bells Palsy	01	1.20
Cryptococcal Meningitis	04	4.82
CNS Tuberculoma	03	3.61
CVA	08	9.63
NEUROPATHY	03	3.61
PCNSL	01	1.20
Myelopathy	02	2.41
TB Meningitis	41	49.40
TB Meningitis with pulmonary TB	08	9.63
Cerebral Toxoplasmosis	05	6.02

Relation Of Diagnosis With CD-4 Count

Diagnosis	CD-4 COUNT				
	<100	100-199	200-299	300-399	>400
Bacterial Meningitis	00	04	01	02	00
Bells Palsy	00	01	00	00	00
Cryptococcal Meningitis	02	02	00	00	00
CNS Tuberculoma	00	03	00	00	00
CVA	00	00	00	06	02
NEUROPATHY	00	02	00	01	00
PCNSL	00	00	01	00	00
Myelopathy	00	02	00	00	00
TB Meningitis	00	25	10	05	01
TB Meningitis with pulmonary TB	00	05	01	01	01
Cerebral Toxoplasmosis	04	01	00	00	00

DISCUSSION

In the present study the age group of patients with neurological manifestations ranged from **18-55 years** and the mean age observed in males was **32.66 years** and females was **32.47 years**, with **32.59 years** being that of the entire study population.. The largest number of people with HIV infection falls in the age group of **25-35 years** with males **31** in number and females **12**, in this group.

	MEAN AGE (MALE)	MEAN AGE (FEMALE)	RATIO (M:F)
Present study	32.66 years	32.47 years	2.2:1
Mc- arther et al	37 yars	35 years	
Stricter et al	37 years	34 years	4:1
John et al	34 years	32 years	5:1

PRESENTATION:

18% presented to our hospital with many neurological manifestations and subsequently during the course of hospital stay found to be HIV reactive. Rest were diagnosed as reactive elsewhere Lewy et al in a study conducted in US had 25% of his patients with neurological symptoms at presentation.

MARITALSTATUS

83% of the HIV reactive patients were married,

OCCUPATION

Almost all the people in the study belong to low socioeconomic strata ,

they are involved in the unprotected sexual practices and acquired this infection.

In my study Labourers (Diamond workers and migrant labourers) and their wives were the largest group with this infection.

SYMPTOMS AND SIGNS

Table:34 CNS Symptoms In HIV Patients

Symptoms	Present study	Sircar et al ⁷²
Headache	58	65
Altered sensorium	72	36
FND	30	33
Convulsion	30	28

Altered sensorium was the most common complaint seen in 72% of patients., followed by headache 58 %,convulsion 30 % and focal neurological deficit was observed in 30% .

Weight loss with fever was most common presentation of HIV. It was observed that even if neurological system was not involved ,Headache can be a presenting complaint. Headache could be due to meningitis or due to HIV headache.

In the study fever was present in 80% and weight loss in 36.1% .

CLINICAL MANIFESTATION:

Among the clinical manifestation, abnormal reflexes, was the commonest manifestation, it is followed by abnormal plantar response this is due to large number of patients presented to us with altered sensorium.

Meningism was present in 19 patients Fundus was abnormal in 10 people, 6 had papilloedema.

Tb meningitis and other space occupying lesions can produce increase in ICT thereby papilloedema.

CSF Analysis

We did not attempt CSF studies for 15 PATIENTS.

Mean CSF protein level was 88.86 mg/dl . Since most of the cases were TB meningitis., CSF proteins were raised to higher levels ,but in bacterial meningitis not raised to that extent.(MEAN:77 mg/dl)

Mean CSF sugar level was 50.01 mg/dl . It was low in bacterial meningitis <40 mg/dl. In TB meningitis mostly in the range of 40-60 mg/dl.

Mean cell count was 199.74. In tubercular meningitis,it was upto 400,whereas in other bacterial meningitis, it rose upto 1352.

Total 78 neuroimaging (CT/ MRI) was done., 8 were normal. 32 were showing meningeal enhancement most commonly with basal exudates ,with 14 showing the features of ventriculo-megaly and hydrocephalus, 15 were showing hypo-dense lesion on CT Brain suggestive of Acute infarct,3 multiple enhancing lesion and 3 single enhancing lesion were seen on MRI+contrast study., 3 shows multiple lesions suggestive of tuberculomas.

Levy et al⁷⁰ have reported 7 patients (5.46%) of AIDS with cerebrovascular complication - 4 with infarcts (due to endocarditis).

Mc.Arthur et al⁶⁵ reported 9 cases (7%) of Cerebrovascular accidents (infarcts and Haemorrhage).

Snider et al⁶⁶ reported 6 (12%) cases and postulated granulomatous angitis as probable etiopathology.,

Wadia et al⁶³ in their study in Pune observed mass lesions in 16 % of the patients, single lesion in 24 and multiple lesions in 38. In the study by Puccioni et al⁷¹, 16 % had ring- enhancing lesions, 18 % had non-enhancing lesions and 8 % had normal cranial Cts.

NEUROLOGICAL MANIFESTATIONS

Table : Comparision Of Neurological Manifestations

	This study n=83	Levy et al ⁷⁰ n=315	Snider et al ⁶⁶ n=50	Mc Arthur ⁶⁵ n=186	Sreeji et al N=74
A. Infections					

Tubercular meningitis	59.03 %	<1 %	-	1 %	60.81%
Cryptococcal	4.82%	13%	4%	6%	2.7%
Meningo encephalitis	-	34 %	36 %	23 %	-
Cerebellitis	-	-	-	-	-
Myelitis	2.41 %	1 %	-	4 %	1.35%
Bacterial meningitis	8.43%	-	-	----	6.75%
B. Intracranial mass Lesion	4.81 % 3.6% Tuber- culoma +1.2% Lympho ma	10 % Lympho ma	14 % lympho ma	17 %	4.05% tubercul oma
C. HIV encephalopathy	-	-	-	7.3 %	-
D.Primary Vascular	9.63%	1.5 %	6 %	<1 %	8.11%
E. Other					
Bell's palsy	1.20%	3 %	-	-	1.35%
Toxoplasmosis.	6.02%	32 %	10 %	8 %	12.16%
P. Neuropathy	-	6 %	16 %	5 %	-
Myopathy	-	<1 %	-	-	-

Table No Comparison Of Mean CD4 Count

	PRESENT STUDY	Madid et al n=40	LEWE ET AL	renguer et al ⁷⁰ n=37	Sreeji et al N=54
TB MENINGITIS	227	230	250	217	212
CVA	393	-455	-480	450	428
CM	125	155	160	190	111
TXM	84	89	90	100	53
TUBERCULOMA	176	180	168	180	178
BELL'S PALSY	187	222	230	220	270
NEUROPATHY	243	200	240	190	210
MYELOPATHY	136	100	139	120	79
PCNSL	234	180	143	180	-
BM	241	254	290	270	270
MEAN	226				236

CONCLUSION

The percentage of HIV patients having neurological manifestation is 11 % over 6 month study period from January 2020 – June 2020.

Neurological manifestations heralded HIV in 18 % of patients.Earning individuals ,(mean age 32.6 yrs) are mainly affected.

Meningitis was the commonest manifestation with 70% of the patients. 60 out of 83 patients comprising of cases 59% Tubercular Meningitis, cases, 8.4% bacterial meningitis, 4.8%- Cryptococcal Meningitis. others were: Toxoplasmosis (6%) ,Stroke- (10%), Tuberculoma (4%),Bell's palsy (1%), Myelopathy (2.4%), neuropathy (4 %).Tuberculosis is the commonest disease affecting nervous system (52/83) , (63 %) with 3 of these patients having intracranial space occupying lesion (tuberculoma) and rest is meningitis.

CD4 count has strong correlation with development of TB meningitis (227) , toxoplasmosis (84) ,cva (393),bacterial meningitis (241), myelopathy (136), cryptococcal meningitis (125), PCNSL (234).

SUMMARY:

In our study, 83 patients of the approximately 755 (185 IPD+570 OPD) PLHA patients come to our hospital had Neurological manifestations, prevalence of more than 11%. . More than 50% of the patients presented late in the disease process this indicates the lack of awareness and fear of social stigma attached to this disease.18 percent of the patients who presented with neurological symptoms and were diagnosed to have HIV infection/AIDS during their treatment.

Meningitis was the commonest Neurological presentation in HIV infection in this study around 70%.Tuberculosis is the single most common infection affecting CNS(63%.) Headache, fever and altered sensorium were commonest symptoms in HIV patients with Neurological pathology.

CD4 count less than 200 was seen in 51 of these patients (61%). .which shows strong association between development of opportunistic infection and CD4 count.

TB Meningitis was the commonest disease associated with HIV

infections in our study. It was the presenting pathology in 63 % of the cases. It was associated with Pulmonary TB in 8 of the total cases. 4% patients showed Space occupying lesion.

Mean CD4 Count among the HIV patients observed to be 226 ,most of the opportunistic infections arise when CD4 count goes below 500. There is strong correlation between development of opportunistic infections and declining CD4 counts. so monitoring is required so as to give adequate prophylaxis.

In my study only 3 cases of Peripheral Neuropathy was detected even though it has high prevalence in developed countries and probably due to better investigations tools , better education and more uses of ART medication which have peripheral neuropathy as potential adverse reaction.

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