

Original article

Clinical study of HIV antibody positive patients manifesting with neurological manifestations

¹DrMidhun M, ²DrPravin U Naphade, ³DrSatishNirhale, ⁴DrAnu N. Gaikwad

¹ Resident, Department of Medicine, Dr D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune

² Assistant Professor, Department of Neurology, Dr D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune

³Department of Neurology, Dr D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune

⁴Professor, Department of Medicine, Dr D. Y. Patil Medical College, Hospital and Research Centre, Pimpri, Pune

Corresponding author : Dr Midhum M

Abstract:

Introduction: Neurologic manifestations are frequent in human immunodeficiency virus (HIV)-1 infection. They constitute the initial presentation in 10% of patients, whereas 30% to 50% develop neurologic complications during the course of the disease.

Materials and methods : A total of 25 patients has been studied who are HIV positive and having neurological manifestations. The cases were taken from general medicine wards and general out patient department. Patients were asked a questionnaire and an informed consent was taken and detailed neurological examination was under taken. Detailed clinical history including history of exposure, history of blood transfusion and history of drug abuse was taken.

Results: In the study group of 25 HIV patients with neurological manifestations, the most common primary diagnosis was peripheral neuropathy (5 patients having neuropathy as associated symptom, not included in table), followed by TBM (4 patients with meningitis as associated finding is not included in tale), then tuberculoma and HIV encephalopathy having the same incidence and lastly stroke and epilepsy in decreasing order. Out of 25 patients in the study group, 23 patients were in WHO stage 4.

Conclusion: The commonest associated secondary manifestation is again peripheral neuropathy in 6 patients (24%), making the total number of patients with peripheral neuropathy in the study group to 13 patients (52%) (8 patients with peripheral neuropathy as mentioned earlier included).

Keywords: Peripheral neuropathy , HIV

Introduction:

Neurologic manifestations are frequent in human immunodeficiency virus (HIV)-1 infection. They constitute the initial presentation in 10% of patients, whereas 30% to 50% develop neurologic complications during the course of the disease. ^{1,2}

Autopsy shows involvement of the nervous system in up to 80% of cases^{3,4,5} The reason for taking this topic for study was to find out the percentage and types of different neurological manifestations in HIV patients. The crisis of HIV is colossal one and so far no vaccine has been discovered to combat the virus.

This study is my modest participation in the challenging fight of medical science against the retro virus.

Materials and methods

A total of 25 patients has been studied who are HIV positive and having neurological manifestations. The cases were taken from general medicine wards and general out patient department. Patients were asked a questionnaire and an informed consent was taken and detailed neurological examination was under taken. Detailed clinical history including history of exposure, history of blood transfusion and history of drug abuse was taken.

Onset, duration and progression of the disease was asked in detail. These patients were examined, including detailed general physical examination. Nervous system will be examined including higher mental functions, cranial nerve examinations, motor system and sensory system

Results:

Table 1: Symptom wise distribution of cases in study group

Symptoms	No of cases	Percentae
Fever	12	48
Headache	10	40
Vomiting	5	20
Seizure	4	16
Loss of weight	13	52
Neck stiffness	7	28
Burning pain & numbness in LL	13	52
Forgetfulness	2	8
Sensory loss	3	12

In the study group of 25 HIV patients the commonest symptoms on presentation were burning pain and numbness in lower limb and loss of weight followed by fever, headache, neck stiffness, vomiting, seizures, sensory loss and forgetfulness in the decreasing order.

examination in detail.

Inclusion criteria

Patients whose *HN* antibodies are positive with neurological manifestations will be studied in detail.

HIV patients who has drug induced neuropathy or myopathy.

Exclusion criteria

Paediatric age group under 12 years

HIV positive patients who are not having any neurological involvement

Analysis was done by SPSS (Statistical package for social science) software version II, using chi-square and t test. A p value <0.05 is considered as significant. Study was started only after the permission of Institute of Ethical Committee and Confidentiality was strictly maintained in the study regarding the identity of the patients and the concerned data.

Table 2: Association between Symptom and CD4 count in studygroup

Symptoms	CD4 count		Chi-square	P Value
	<200 (n=16)	2:200 (n=9)		
Fever	7	5	0.32	>0.05
Headache	6	4	0.12	>0.05
Vomiting	3	2	0.04	>0.05
Seizure	3	1	0.25	>0.05
Loss of weight	11	2	0.37	>0.05
Neck stiffness	4	3	0.20	>0.05
Burning pain & numbness in LL	8	5	0.07	>0.05
Forgetfulness	1	1	0.18	>0.05
Sensory loss	3	0	1.92	>0.05

Table 3: Primary diagnosis wise distribution of cases in study group

Primary diagnosis	No of cases	Percentage
Epilepsy	1	4
HIV Enceph & dementia	3	12
Peripheral neuropathy	8	32
TBM	6	24
PML	3	12
Stroke	1	4
Tuberculoma	3	12
Total	25	100

In the study group of 25 HIV patients with neurological manifestations, the most common primary diagnosis was peripheral neuropathy (5 patients having neuropathy as associated symptom, not included in table), followed by TBM (4 patients with meningitis as associated finding is not

included in table), then tuberculoma and HIV encephalopathy having the same incidence and lastly stroke and epilepsy in decreasing order. Out of 25 patients in the study group, 23 patients were in WHO stage 4.

Table 4: Associated Secondary diagnosis wise distribution of cases in study group

Diagnosis	Associated diagnosis	No of cases	Percentage
TBM +PML	Peripheral neuropathy	4	16
Tuberculoma	Stroke & Peripheral neuropathy	1	4
Tuberculoma + HIV	Meningitis	4	16
Encephalopathy & dementia			
PML	HIV Dementia & Peripheral neuropathy	1	4
	No	15	60
	Total	25	100

Table 5: Peripheral neuropathy wise distribution of cases in study group

Peripheral neuropathy	No of cases	Percentage
Distal sym polyneuropathy (HIV)	10	40
Drug induced Neuropathy (Drug)	3	12
Normal	12	48
Total	25	100

In the study group of 25 HIV patients 13 patients had Peripheral neuropathy (52%), in that 10 patients were having neuropathy secondary to HIV (40%) and 3 patient had drug induced neuropathy(12%).

Discussion:

The total number of patients studied were 25, all of whom were HIV positive and manifesting with neurological complications. Even drug induced complications were included in the study group. The patients were drawn from general wards and out-patient department of DR.D.Y.Patil Medical College Pimpri. After detailed clinical examination and relevant investigations (radiological, laboratory and monofilament studies) various observations were found, which are being discussed here below in detail.

A symptom wise analysis and clinical evaluation was done at the time of presentation and during the period of hospital stay. Out of the 25 HIV patients studied, the patients presented with various symptoms like

fever, headache, vomiting, burning pain and numbness, loss of weight, neck stiffness, forgetfulness, sensory loss and seizures.

The commonest presentations were loss of weight and burning pain and numbness in the lower limbs in 13 patients (52%). The next commonest being fever and headache in 12 patients (48%) and 10 patients (40%) respectively. Next being neck stiffness elicited for 7 patients (28%) and seizure in 4 patients (16%), sensory loss in 3 patients (12%) and forgetfulness in 2 patients (8%) in the decreasing order.

In the study the incidence of a particular symptom in the patient was compared with the CD4 count of the respective patient, CD4 count range was divided as <200 and >200⁶

It was observed that the manifestation of symptom and signs were more common in patients who were having their CD4 count below 200 as compared to the patients who had a CD4 count more than 200 .

The frequency of incidence of the type of symptom was similar as described earlier as loss of weight and burning and numbness in lower limb, fever, headache, neck stiffness, vomiting, sensory loss, seizures and forgetfulness in the decreasing order .In the 25 HIV patients with neurological manifestations studied in the group, the primary manifestations (associated secondary manifestations not included) were analysed clinically.

In the group, the most common manifestation what patients had was peripheral neuropathy for 8 patients(32%)(patients who had only peripheral neuropathy as primary diagnosis was included and 5 patients who had neuropathy as an associated symptom in not included in the table). Tubercular meningitis being the second commonest manifestation in 6 patients(24%)(4 patients who had bacterial meningitis as an associated feature with other primary manifestations are not included in the table which will be subsequently discussed). Next commonest was tuberculoma and HIV-encephalopathy in 3 patients each (12%) ,followed by stroke and epilepsy in 1 patient (4%). The nervous system is among the most frequent and serious targets of human immunodeficiency virus (HIV) infection. 40% to 70% of all persons infected with HIV develop symptomatic neurological disorders.⁷ Although nervous system involvement typically occurs with profound immunosuppression and in the presence of other acquired immunodeficiency syndrome (AIDS) defining illnesses, yet in 10% to 20% of HIV seropositive persons it heralds AIDS.^{8,9}

The different neurological manifestations in the study group of 25 patients were also compared with the CD4 count of respective patients. And it was found that the presentation of neurological manifestations were more seen in patients who had their CD4 less than 200 16 patients(64%) compared to the patients who had CD4 counts more than 200. The manifestations like PML and HIV encephalopathy was seen more commonly in patients who had CD4 count <200 than patients with CD4 count >200. In fact in the study group PML is not present in patients with CD4 count >200 (Table 5). Tubercular meningitis being the next commonest was equally present in both categories of patients.

The spectrum of neurological manifestations in HIV-1 infected individuals depends on their degree of immune suppression, related by their CD4 T lymphocyte counts, and the speed of disease progression, as estimated by measurement of their plasma HIV-1 viral load¹⁰ In a study in Punjab from 2006 to 2010 ,the 268 patients having evidence of neurological involvement. HIV-associated dementia (HAD) was the most common cause of morbidity, being present in 33.65%, followed by CNS infections in 21.63% . The most common cause of CNS infections was tuberculosis, (65.56%) followed by cryptococcosis in 27.78%. Tubercular meningitis was almost twice as common as compared to cryptococcal meningitis (59 vs 25 cases).¹¹

In the study group of 25 HIV patients, 8 patients (32%) presented with secondary associated clinical manifestations along with their primary diagnosis (Table 6) and the rest of the 17 patients (68%) did not associate with any associated manifestations . All the patients who were with multiple manifestations had a very much compromised immunity, as

associated with their CD4 counts ,most of them having it less than 200.

Conclusion:

The commonest associated secondary manifestation is again peripheral neuropathy in 6 patients

(24%),making the total number of patients with peripheral neuropathy in the study group to 13 patients (52%) (8 patients with peripheral neuropathy as mentioned earlier included).

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