

Original article:

Clinical,Radiological and Monofilament study of HIV positive patients depending on the type of neurological symptoms manifestations.

¹Dr Anu N. Gaikwad, ²Dr Satish Nirhale, ³Dr Midhun M, ⁴Dr Pravin U Naphade

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

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

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

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

Corresponding author : Dr Anu Gaikwad

Abstract:

Introduction: Human Immuno deficiency Virus (HIV) is a challenge to the progressive world.This retro -virus was first identified by Barre-Sinousi et al in 1983. Herewith work was done to study clinical,Radiologica and Monofilament study of HIV positive patients depending on the type of neurological symptoms manifested .

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 : Out of the 25 HIV patients studied ,14 patients (56%) had normal MRI findings ,in the remaining 44% patients ,the prominent findings were PML(16%) followed by tuberculoma(12%) , Encephalomyelitis(8%),Cerebral atrophy and neuroglial cyst(4%).

Conclusion: Commonest MRI findings in the study group were of PML in 16% followed by Tuberculoma in 9% patients and then Encephalomyelitis.

Keywords: Human Immuno deficiency Virus , tuberculosis , MRI

Introduction

Human Immuno deficiency Virus (HIV) is a challenge to the progressive world.This retro -virus was first identified by Barre-Sinousi et al in 1983¹.Since then the number of HIV cases are ever increasing. In India till 1985, not a single case was identified.The first case was identified in 1986.Since then it has always been on the uprising and has become the most fighting problem for the medical

Fraternity.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^{2, 3}. Autopsy shows involvement of the nervous system in up to 80% of cases^{4, 5}.Diagnosis of neurologic complications in patients with HIV-1 infection poses a particular challenge for the clinicians. Indeed, HIV-

infected individuals are often severely debilitated and present with multiple constitutional symptoms related to systemic infections or tumors, which might overshadow or mimic a primary neurologic condition. In addition, HIV-infected individuals are usually treated with a combination of prophylactic drugs and a rapidly growing number of antiretroviral medications. Drug interactions and neurologic side effects of these medications are common, which adds another level of complexity for care providers. With this background the work was done to study clinical, Radiologica and Monofilament study of HIV positive patients depending on the type of neurological symptoms manifested.

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,

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

including detailed general physical examination. Nervous system will be examined including higher mental functions, cranial nerve examinations, motor system and sensory system 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: MRI finding wise distribution of cases in study group

MRI finding	No of cases	Percentage
Encephalomyelitis	2	8
Gen cerebral atrophy	1	4
Neuroglial cyst	1	4
Tuberculoma	3	12
PML	4	16
Normal	14	56
Total	25	100

Table 3: Association between Monofilament Test result with CD4 count in study group

MonofInt	CD4 count	CD4 count	Total
	<200	>200	
Positive	8	5	13
Normal	8	4	12
Total	16	9	25

Discussion

This is a clinical study of patients who are HIV positive presenting with neurological manifestations. A detailed clinical, radiological, and monofilament test evaluation has been done in the study group. 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 (Table 2). 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.

As a radiological investigation, MRI Brain was done in all the 25 HIV patients with neurological manifestations in the study group. Out of the 25 patients 14 patients (56%) were having a normal MRI study. In the rest of the 11 patients (44%) had notable findings in their MRI. There were areas of prominent high signal intensities in white matter.

In 4 patients (16%) in the group had findings suggestive of PML in the MRI, 3 patients (12%) had multiple ring enhancing lesions, which was known to be tuberculoma. 2 patients had encephalomyelitis as findings (8%), and very few had generalized cerebral atrophy (4%). The hallmark of PML in MRI is hyperintensity on T2 weighted images, the lesions are usually bilateral, asymmetrical, well demarcated and localized preferentially in periventricular areas and the subcortical white matter.^{7,8}

In the patients the findings in the MRI is correlating with the above data of PML. A simple monofilament test was conducted in all the 25 patients in the study group, using Semme's Weinstein monofilament (10gms/5.07) on the soles.

The patients were asked about the sensation in the sole after touching with monofilament on particular areas in the sole and absence of

sensation should be investigated further for peripheral neuropathy.

In our study group 13 patients (52%) had tested positive for monofilament studies showing signs of peripheral neuropathy. All these patients also had diminished or absent ankle reflexes. Combined with the history of burning pain and numbness in the LL given by the patients, we should co-relate the findings. Ideally peripheral neuropathy has to be confirmed by using Nerve conduction studies (NCV), but as NCV was not included in my material and methods it was not done.

The diagnosis of peripheral neuropathy can be made only after a careful clinical examination with more than 1 test, as recommended by the American Association. Tests for this clinical examination are vibration perception (using a 128-Hz tuning fork), pressure sensation (using a 10-g monofilament at least at the distal halluces), ankle reflexes, and pinprick. When in doubt, a nerve conduction test might be necessary to establish a firm diagnosis.⁹

Conclusion:

Commonest MRI findings in the study group were of PML in 16% followed by Tuberculoma in 9% patients and then Encephalomyelitis.

References:

1. Barre-Sinoussi F, Cherman JC, Rey F. Isolation of T-Lymphotropic retrovirus from a patient at risk for AIDS: 1983, Science 220:868-871
2. Snider WD, Simpson DM, Nielsen S, et al. Neurological complications of acquired immune deficiency syndrome: Analysis of 50 patients. Ann Neurol. 1983;14:403-418.
3. Levy RM, Bredesen DE, Rosenblum ML. Neurological manifestations of the acquired immunodeficiency syndrome (AIDS): Experience at UCSF and review of the literature. J Neurosurg. 1985;62:475-495.
4. Petit CK. Review of central nervous system pathology in human immunodeficiency virus

- infection. *Ann Neurol.* 1988;23(suppl):S54-S57.
5. De Girolami U, Smith TW, Henin D, Hauw JJ. Neuropathology of the acquired immunodeficiency syndrome. *Arch Pathol Lab Med.* 1990;114:643-655.
 6. NACO ,Anti retroviral therapy guidelines for HIV infected adults and adolescents,May 2007;section A4: 18-19
 7. Mark Chikochi R.N,HIV medication side effects& symptoms,About AIDS guide;2009:1-9
 8. Berger JR,Moskowitzl L,Fischl M,Kelley RE.New-ological disease as the presenting manifestations of AIDS;South Med J 1987;80:683-686.
 9. Wadia RS, Pujari SN, Kothari S, Udhar M, Kulkarni S, Bhagat S, et al. Neurological manifestations of HIV disease. *J Assoc Physicians India* 2001;49:343-8