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General Medicine

PREVALENCE AND CLINICAL FEATURES OF CRYPTOCOCCAL MENINGITIS IN HIV SERO-POSITIVE PATIENTS : ORIGINAL REASERCH STUDY IN TERTIARY CARE HOSPITAL.

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ABSTRACT

AIM: To find out the prevalence & clinical features of Cryptococcus neoformans in CSF causing meningitis in HIV seropositive patients and other bacterial pathogens in CSF causing meningitis in HIV seropositive patients.

METHODS: This Study was undertaken in Government General Hospital , VJA during July 2018 to March 2016.Total 50 HIV sero-positive patients who presented with the clinical features suggestive of meningitis and low CD4 count were screened for cryptococcal meningitis.

RESULTS: In present study amongst 50 cases, 4 cases (8%) were positive for Cryptococcus neoformans and 46 cases (92%) were negative for Cryptococcus neoformans.

CONCLUSION: cryptococcal infections should be suspected in all cases of meningitis among HIV seropositive patients as early diagnosis of paramount importance for better management of such patients.

KEYWORDS : Opportunistic Infections; Cryptococcus Neoformans; Meningitis; Hiv Seropositive; Cd4 Count

INTRODUCTION:

Cryptococcal meningitis is an opportunistic fungal infection in HIV seropositive patients[1].It is one of the presenting manifestations of Acquired Immunodeficiency Syndrome (AIDS)[2]. Human Immunodeficiency Virus (HIV) infections continue to be the most important risk factor for the development of Central Nervous System (CNS) cryptococcosis which is important contributors to morbidity and mortality to HIV infected patients. Cryptococcus neoformans causes primarily a chronic infective condition that affects the CNS. This infection is fatal without treatment[3].Therefore, early diagnosis of such patients is the key to therapeutic success.The present study was undertaken with the aims and objectives of to find out the prevalence & clinical features of Cryptococcus neoformans in CSF causing meningitis in HIV seropositive patients and other bacterial pathogens in CSF causing meningitis in HIV seropositive patients.

METHODOLOGY:

Total 50 HIV sero-positive patients who presented with the clinical features suggestive of meningitis and low CD4 count were screened for cryptococcal meningitis.This Study was undertaken in GGH , VJA during July 2018 to March 2019.A total of 50 CSF samples of HIV seropositive suspected of meningitis, were included in the study for morphological analysis and for biochemical analysis including ADA. All the samples of CSF were processed for routine bacterial culture, mycobacterial culture and fungal culture after performing preliminary microscopic examination of the sample by wet mount, India- ink, gram stain and Z/N stain .Routine bacterial cultures were followed up for 72 hour and mycobacterial cultures for 6 weeks. Cryptococcus neoformans was identified on narrow based budding capsulated yeasts in india- ink preparation, a negative germ tube test, failure to ferment sugars viz, glucose lactose, maltose, sucrose, a positive urease test.

RESULTS:

In present study amongst 50 cases, 4 cases (8%) were positive for Cryptococcus neoformans and 46 cases (92%) were negative for Cryptococcus neoformans and amongst these 46 cases,30 cases were positive for bacterial pathogens (60%) and 16 cases were positive to Mycobacterium tuberculosis (32%).

Clinical feature	Case 1	Case 2	Case 3	Case 4
Headache	+	+	+	+
vomiting	+	+	+	-
Fever	+	+	+	+
Altered sensorium	+	+	-	-
Seizures	+	+	-	-
FND	+	-	-	-
Neck stiffness	+	+	+	-
Kernig's sign	+	+	-	-
papilledema	+	+	-	-

Feature	Case1	Case2	Case3	Case4
CD4 Count	58	98	120	160
CSF	Proteins↑ Sugars↓ Lymphocytes↑	Proteins↑ Sugars↓ Lymphocytes↑	Proteins↑ Sugars↓ Lymphocytes↑	Proteins↑ Sugars↓ Lymphocytes-N
Indian Ink	+	+	+	+
CSF Cryptococcal Ag	+	+	-	-
Prognosis	Death	Improved	Improved	Improved

DISCUSSION

Cryptococcus neoformans is one of the most common opportunistic fungal CNS infections in HIV/AIDS patients.Incidence of cryptococcal meningitis varies from place to place.The prevalence of cryptococcal meningitis among HIV seropositive patients in this regions is 8%.*Cryptococcus neoformans* exists in asexual or sexual forms. The asexual form is characterized by oval to spherical budding yeast cells with a polysaccharide capsule, while the sexual or perfect stage is characterized by the presence of basidiospores. The asexual form with capsule is frequently seen in clinical specimens[4].Meningitis in cryptococcosis is the most common central nervous system manifestation. It would be more accurate to describe the syndrome as meningoencephalitis, since histopathological examination demonstrates that along with the subarachnoid space, the brain parenchyma is usually involved. The presentation varies, it may present as subacute (presentation over 2–4 weeks). However, the organisms can also cause acute meningitis occurring over a few days to a week, and true chronic meningitis[5,6,7].

• Features	• Cryptococcal meningitis	• TB meningitis	• Bacterial meningitis
• Headache	• 4 (100%)	• 16 (100%)	• 22 (75%)
• Vomiting	• 3 (75%)	• 8 (50%)	• 7 (25%)

• Fever	• 4 (100%)	• 16 (100%)	• 30 (100%)
• Altered sensorium	• 2 (50%)	• 8 (50%)	• 15 (50%)
• Motor deficit	• 1 (25%)	• 4 (25%)	• 3 (10%)
• Seizures	• 2 (50%)	• 4 (25%)	• 15 (50%)
• Neck stiffness	• 3 (75%)	• 12 (75%)	• 21 (75%)
• Papilledema	• 2 (50%)	• 4 (50%)	• 7 (25%)
• CSF - glucose • Proteins • Cell type • ADA levels	• ↓ • ↑ • Lympho - ↑ • -	• ↓ • ↑ • Lympho - ↑ • ↑	• ↓ • ↓ • PMN ↑ • -
• CSF Indian ink	• 4 (100%)	• -	• -
• Culture	•	• -	• -
• Mortality	• 1 (25%)	• 4 (25%)	• 4 (15%)

CONCLUSIONS:

In present study amongst 50 cases, 4 cases (8%) were positive for Cryptococcus neoformans and 46 cases (92%) were negative for Cryptococcus neoformans and amongst these 46 cases,30 cases were positive for bacterial pathogens (60%) and 16 cases were positive to Mycobacterium tuberculosis (32%). Microscopy and Cryptococcus culture positive correlation is 100%.Hence, in routine laboratories where facilities for culture if not possible microscopic positivity correlates well with Cryptococcus neoformans meningitis.Thus cryptococcal infections should be suspected in all cases of meningitis among HIV seropositive patients as early diagnosis of paramount importance for better management of such patients.Lower the CD4 count higher is the occurrence of Cryptococcal meningitis in HIV sero-positive patients.Response to therapy with Amphoterecin – B and Fluconazole is well tolerated with good recovery.Low CD4 count & Altered sensorium are associated with the worst prognosis.

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