SPECTRUM OF OPPORTUNISTIC INFECTIONS RELATED TO THE CENTRAL NERVOUS SYSTEM AMONG AIDS PATIENTS IN HOSPITAL KUALA LUMPUR

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ABSTRACT: A retrospective study was conducted in Hospital Kuala Lumpur, May, 2001. 49 (12.1%) of 406 AIDS patients were diagnosed as opportunistic infections related to the central nervous system. The sex ratio (M:F) was 7.2. The median age was 34 years. The predominant age group for male as same as female was 25-34 years.The majority of the study subjects were Chinese (79.6%), married (49%), unemployed (42.9%) and heterosexuals (95.9%) as the risk behavior related to HIV infection. The most frequent clinical manifestations was headache (71.4%). At the time of diagnosis, the greater number of patients 39 (79.6%) had CD4 count < 200 cell/cumm. Outcome of acute therapy the patients had a complete (85.7%), treatment continued (10.3%), and transfer to other hospital (2.0%). Toxoplasmic encephalitis (7.6%) and cryptococcosis (3.9%) were the frequent cause of focal intracerebral lesions and meningitis in these patients respectively. Oral candidiasis (32.7%) was the most common among other opportunistic infections in this study. *(JUMMEC 2000; 2:89-92)*

KEYWORDS: AIDS, Opportunistic infections, central nervous system, clinical manifestations, outcome.

Introduction

With the incidence of patients infected with human immunodeficiency virus (HIV) increasing in many developing countries, each with its own characteristics in terms of the trends in HIV prevalence, those affected, and the HIV-related opportunistic diseases observed (1). Central nervous system infections are among the most frequent and serious causes of morbidity and mortality in HIV/AIDS patients. In previous study, neurological disease occurred in 63% of patients with AIDS and heralded the disorder in 20% of these patients (2) Disease due to a coinfecting pathogen may be due to primary infection, recurrent infection, or the reactivation of latent infection (3). Certainly, the central nervous system (CNS) manifestations of the disease will be seen more frequently. This study was conducted to determine the prevalence of opportunistic infections related to the central nervous system among AIDS patients in Hospital Kuala Lumpur (HKL), Kuala Lumpur, in order to accumulate information which lead to better understanding and management toward HIV/AIDS patients in the future.

Materials and Methods

406 patients and age more than 14 years with anti-HIV antibodies positive by any serological tests (ELISA (I,II), CLIA, or LA) were recruited in this retrospective study, who attended the OPD clinic or admitted to the ward in HKL. All patients' data (demographic characteristics, risk factors related to HIV infection, clinical manifestations, investigations and outcome of opportunistic infections related to the central nervous system) were recorded in the data collection sheet.

Statistical analysis

The results were analyzed by using the statistical software SPSS. The data with quantitative variable were expressed as mean and range, qualitative variable were expressed as frequency and percentage.

Results

Table 1 and 2 summarise the patients' baseline demographic profiles at the time of this study. The age range of patients was 20-62 years with a median of 34 years. The ratio of M:F was 6.8:1. The predominant age group for male as same as female was 25-34

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years. The various ethnic groups were Chinese 39 (79.6%), Malays 7 (14.3%) and Indians 3 (6.1%). The majority of patients were married 25 (51%), unemployed 21 (42.9%), and heterosexuals 47 (95.9%) as the risk behaviors.

We found that the spectrum of opportunistic infections related central nervous system (49) among AIDS patients (406) was 12.1% included toxoplasmic encephalitis 31 (7.6%), cryptococcal meningitis 16 (3.9%), neurosyphilis 1 (0.3%), and tuberculous meningitis 1 (0.3%) as shown in table 3.

Table 4 and 5 show headache (71.4%), fever (53.1%) were the common clinical manifestations in this study. The greater number of patients had CD4+T cell count < 200 cell/cumm. (79.6%).

Table 6 shows the outcome following the acute therapy the patients had a complete (85.7%), treatment continued (10.3%), loss follow up (2.0%) and transfer to other hospitals (2.0%). Relapsing toxoplasmic encephalitis (6.1%) and cryptococcal meningitis (2.0%) were detected in this study

Oral candidiasis (32.7%) and tuberculosis (20.5%) were among other common opportunistic infections coinfected with AIDS-related to the central nervous system infections in this study as shown in table 7.

Discussion

The prevalence of toxoplasmic encephalitis in this study was 7.6%. It is not surprising even though it was much lower than other studies e.g. 25-50% from Europe and Africa (4,5), 47% from Austria (6), or 30-50% from USA (7). Most cases of clinical toxoplasmosis in AIDS result from reactivation of a chronic infections (8). Brain toxoplasmosis is one of the more frequent opportunistic infections and the most common of brain focal lesions complicating the course of AIDS (9,10). Furthermore, toxoplasmic encephalitis is a life-threatening condition and early diagnosis is highly desirable for initiation of specific therapy and to avoid misdiagnosis, especially with primary brain lymphoma (11).

In this study, we found that 4% of patients were diagnosed as cryptococcal meningitis. Cryptococcal meningitis is the most common life-threatening fungal pathogen among patients with acquired immunodeficiency syndrome (AIDS) (12). However, this result was considered similar with other studies that showed the prevalence in smaller series has ranged from 2% to 4% (13,14), or 6% in New York (15), but much higher (24.10%) in Thailand (16).

It is interesting to note that the prevalence of syphilis in this study was 4.9% and 0.3% of patients developed neurosyphilis later. Syphilis has been recognized as one

Table 1. Demographic and baseline characteristics of the study subjects

Characteristics	No. of patients	Percentage
Sex		
Male	43	87.80
Female	6	12.20
Race		
Chinese	39	79.60
Malay	7	14.30
Indian	3	6.10
Marital status		
Single	23	47.00
Married	25	51.00
Divorced	1	2.00
Occupation		
Labourer	12	24.50
Nonlabourer	16	32.60
Unemployed	21	42.90
Risk behaviors		
Heterosexual	47	95.90
Injecting drug user (IDU)	2	4.10

Range of age = 20-62 years Median = 34 years

Table 2. Age distribution of the study subjects

Age group	No. of patients	Percentage
Male		
15-24	2	4.10
25-34	21	42.90
35-44	15	30.60
45-54	3	6.10
55-64	2	4.10
Female		
15-24	2	4.10
25-34	3	6.10
55-64	1	2.00

M:F = 7.2:1

Table 3. The spectrum of opportunistic infections related to the central nervous system among 49 AIDS patients in this study

	No of patients	Percentage
Toxoplasmic encephalitis	31	7.6
Crytococcal meningitis	16	3.9
Neurosyphilis	1	0.3
Tuberculous meningitis	1	0.3
Total	49	12.1

Total No. of AIDS patients = 406

of the infectious complications of HIV-1 infection (17). Reports from few different studies in the past showed varying prevalence e.g. 16.6% in Germany (18) 44% in AIDS patients with neurosyphilis but only 1.5% under hospitalization in USA (2). Previously the neurosyphilis was very rare, but the incidence of neurosyphilis has been increasing since AIDS has appeared. The reason for development of this stage of syphilis, may be an inadequate treatment as well as a weakening of the immunological responses (19). In light of its diverse manifestations, syphilis should be considered in the differential diagnosis of any HIV-1 infected individual presenting with an unexplained neurological disease.

We found that the prevalence of tuberculous meningitis in this study was 0.3% out of 30% of AIDS-related tuberculosis (TB) patients. Although meningitis due to *M. tuberculosis* has been described in HIV-1-infected patients, it is an unusual complication of systemic tuberculosis although it may pursue an atypically indolent clinical course compared with non-HIV-1-infected populations (20). Tuberculous meningitis has been the most life-threatening form of extrapulmonary TB and was uniformly fatal before the advent of antituberculous chemotherapy (21).

Unexpectedly, 6.1% of TE patients had relapsed. Lifelong pyrimethamine plus sulfadiazine is the treatment of choice but this therapy has had to be discontinued due to adverse reactions in up to 40% of patients. Atovaquone appears to be an effective therapeutic agent in this situation, and is generally well excepted (22).

Last but not least, 2.0% of patients had relapsing cryptococcal meningitis in this study. Although life-long therapy has been widely advocated, the true efficacy of maintainance therapy remains unproved. Prognostic factors associated with a higher risk of relapse or worse, early death remain largely unknown (23).

Table 4. Clinical manifestations of the study subjects

Clinical manifestations	No. of patients	Percentage
Headache	35	71.40
Fever	26	53.10
Neurological deficit	14	28.60
Seizure	2	4.10

Table 5. The relationship between CD4 +T cell count and the study subjects

CD4+T cell count (cell/cumm.)	No. of patients	Percentage
≥ 500	2	4.1
200- 499	8	16.3
< 200	39	79.6

Table 6. Outcome of the study subjects

Outcome of treatment	No. of patients	Percentage
Complete	42	85.70
Treatment continued	5	10.30
Loss follow up	1	2.00
Transfer to other hospitals	1	2.00
Relapsed		
Toxoplasmic encephalitis	3	6.10
Cryptococcal meningitis	1	2.00

Table 7. The spectrum of other opportunistic infections in this study

Opportunistic infections	No. of patients	Percentage
Oral candidiasis	16	32.70
Tuberculosis	10	20.50
Pneumocystis carinii pneumonia	5	10.20
Herpes zoster infection	5	10.20
Sexually transmitted diseases	4	8.20
Cytomegalovirus infection	2	4.10
Bacteraemia	2	4.10
Scabies	1	2.00
Mycobacterium avium complex infection	1	2.00

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