

AIDS

A CSF LABORATORY EXPERIENCE ON 470 CASES IN A 7 YEAR TIME PERIOD

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SUMMARY — In a seven year time period (July 1984 to June 1991) were studied CSF samples of 36,216 new patients, 470 of them infected by HIV. Number of AIDS patients represents 1.30% of total cases examined in the laboratory during this time period. Normal CSF was observed in only 16 cases (3.4%). Associated pathologies occurred in 66% of cases. Opportunistic infections predominated among them (227 cases). Data support indication for CSF examination in HIV infected patients. This exam must be as complete as possible.

KEY WORDS: AIDS, cerebrospinal fluid, opportunistic infections.

AIDS: experiência de laboratório de líquido cefalorraqueano com 470 casos analisados durante período de 7 anos.

RESUMO — Durante período de 7 anos (Julho 1984 a Junho 1991) foram estudados em laboratório de LCR 36,216 novos pacientes, 470 com AIDS. O número de pacientes com AIDS representa 1,30% de todos os casos novos no período; para os primeiros 6 meses de 1991 esse número atingiu 2,8%. LCR normal foi observado apenas em 16 casos (3,4%). Patologias associadas foram observadas em 66% dos casos. Infecções oportunistas predominaram entre elas (227 casos). Esses dados justificam indicar o exame de LCR em pacientes infectados pelo HIV, devendo o exame ser o mais completo possível.

PALAVRAS CHAVE: AIDS (SIDA), líquido cefalorraqueano, infecções oportunistas.

Ho et al. considered the central nervous system (CNS) as a sanctuary for the HIV virus¹. On the other hand, cerebrospinal fluid (CSF) analysis is the best way for elucidating various opportunistic infections of the CNS occurring in AIDS^{2,5}. Our experience support this view, as previously reported^{3,6,7}. Since risk for HIV infection in Brazil is high and neurological complications registered are many⁴, CSF findings are revisited in this study. It was carried out in a neurodiagnostic laboratory basically working on CSF.

The aim of the study is to analyse CSF findings in 470 patients infected by HIV virus during a seven year time period.

CASUISTICS AND METHODS

In a seven year time period (July 1984 to June 1991) were studied CSF samples from 36,216 new patients, 470 of them infected by HIV. Number of AIDS patients represents 1.30% of total cases examined during this time period in the laboratory. Clinical and immunolo-

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gical diagnosis of infection by HIV was previously established in all the 470 cases. All them had HIV antibodies in serum. All these patients were submitted to cisternal or lumbar puncture because they had some clinical complaint suggesting CNS involvement. For this reason the phase of the disease was not considered. The 470 patients infected by HIV included: 424 male and 46 female; 440 white, 27 negro and 3 yellow; their mean age was 34.1 years (range 23 days to 70 years old).

CSF analysis included: pressure, cytology (cell number and cytomorphologic profile); total protein content and protein profile; glucose and chlorides concentrations; GOT and LDH enzyme activity; immunological reactions for cysticercosis, syphilis, toxoplasmosis, schistosomiasis, American trypanosomiasis and virus (cytomegalovirus, varicella-zoster, herpes simplex 1, HTLV-1 and HIV₁/HIV₂); bacteriological and mycological investigation (direct and cultures); cryptococcus latex agglutination antigen test. Immunological tests used were complement fixation, indirect immunofluorescence, passive haemagglutination and/or ELISA. All CSF samples were analysed in the same laboratory through the same techniques.

RESULTS

The percentage of CSF from new patients with AIDS examined in the seven year time period of this study is illustrated in Figure 1: for total period considered it is 1.30%; for the first six months of 1991 it is 2.8%.

General alterations of CSF in the 470 AIDS cases are shown in Table 1. The associated pathologies are shown in Table 2, and in Table 3 CNS infections detected by CSF analysis. Associated infections occurred in 38 cases (Table 4). Normal CSF was observed in 16 cases (3.4% of total cases).

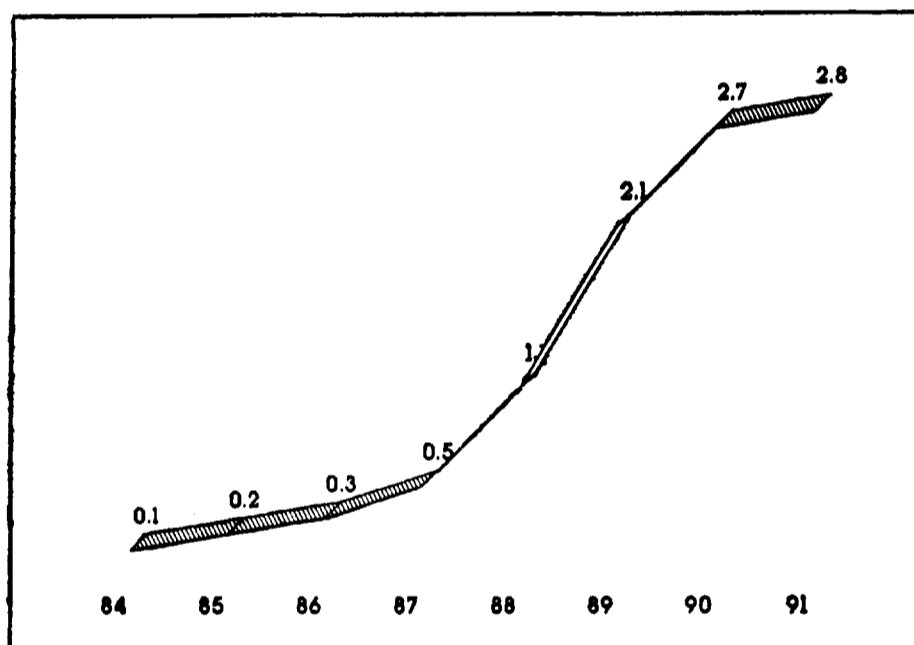


Fig. 1 — Percentage of CSF from new patients with AIDS examined in the seven year time period of the study (1984-1991).

Table 1 — CSF general alterations observed in the 470 patients infected by HIV.

CSF	Number of cases	%
Pressure increase (437)	60	13.7
Hypercytosis	194	41.3
Total protein increase	311	66.1
Gamma globulins increase (433)	322	74.4
Glucose decrease	135	28.7
Chlorides decrease	103	21.9
GOT increase (157)	50	31.8
LDH increase (157)	85	54.1
HIV antibodies detection (358)	315	88.0

() indicates number of cases the exam has been done when under 470.

Table 2 — Associated pathologies detected by CSF analysis in 309 cases of AIDS (66.0% of total cases).

Pathology	Number of cases	%
Hemorrhage	11	2.3
Neoplastic cells (lymphoma)	12	2.6
Aseptic meningitis	59	12.5
Infections	227	48.3

Table 3 — Etiology of infections detected through CSF exam in 227 patients infected by HIV (48.3% of total cases).

Infection	Number of cases	%
Toxoplasmosis	73	15.5
Cryptococcosis	53	11.2
Syphilis	28	6.0
Candida infection	4	0.9
Tuberculosis	3	0.6
Chagas disease	2	0.4
Nocardia infection	1	0.2
Bacteria	8	1.7
Cytomegalovirus	2	0.4
Varicella-zoster	6	1.3
Herpes simplex 1	5	1.1
HTLV-1	4	0.9
Associated infections *	38	8.1

* see Table 4.

Table 4 — Association of infections detected through CSF exam of 38 AIDS patients (8.1% of total cases).

Associated infections	Number of cases
Toxo + Syphilis	15
Toxo + Crypto	8
Toxo + Tuberculosis	1
Toxo + CMV	1
Toxo + Syphilis + Crypto	1
Toxo + Syphilis + CMV	1
Crypto + Syphilis	2
Crypto + Syphilis + H. simplex 1	1
Crypto + H. simplex 1	1
Syphilis + H. simplex 1	1
CMV + H. simplex + V-zoster	1
V-zoster + Proteus sp	1
V-zoster + H. simplex 1	3
Candida + Schistosomiasis (mansoni)	1

Toxo, toxoplasmosis; Crypto, cryptococcosis; CMV, cytomegalovirus; H, herpes; V, varicella.

COMMENTS

AIDS is a great task for underdeveloped countries such as Brazil⁴. In our laboratory, number of AIDS cases gets higher and higher every year (Fig. 1). Almost 3% of total CSF examined during the present year (1991) are from patients infected by HIV.

CNS disorders in AIDS may occur in any phase of the disease. CSF examination may be diagnostics for several opportunistic infections commonly observed in AIDS, as well as suggestive for aseptic meningitis occurring in the early stage of the disease^{2,3}. General CSF alterations (cell number, total protein concentration, gamma globulins and IgG increase) may frequently occur in any phase of the disease (Table 1). This may be explained by the presence of the virus in the CNS and or in the CSF¹. Anti-HIV antibodies were found in 88% of CSF samples from patients studied in this series.

Associated pathologies occurred in 66% of cases (Table 2), and opportunistic infections predominated among them (227 cases). Neoplastic cells in CSF were found in 12 cases, all of them with the diagnosis of CNS lymphoma.

Aseptic meningitis may be observed in any phase of disease. CSF was suggestive for aseptic meningitis in 59 patients (12.5%). In several of them this manifestation made possible the diagnosis of AIDS.

Among opportunistic infections, as seen worldwide, toxoplasmosis (15.5%), cryptococcosis (11.2%) and syphilis (6.0%) prevailed (Table 3). Chagas disease was detected in two patients: acute meningoencephalitis occurred in both, and presence of *Trypanosoma cruzi* in the CSF has been shown in them⁴. Association of opportunistic infections occurred in 38 patients. The association of toxoplasmosis and syphilis, and toxoplasmosis and cryptococcosis were the most commonly observed (Table 4).

Normal CSF was observed in only 16 cases (3.4%) of cases studied in this series.

Some concluding remarks must be emphasized in report to AIDS and CSF: (1) CSF must be analysed in every AIDS patient independently of phase of the disease. (2) Systematic examination, as complete as possible, must be carried out in every CSF sample. (3) CSF changes are frequently detected; in this series changes were detected in 96.6%.

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