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Uveitis in HIV-infected patients

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PURPOSE. *To determine the prevalence of HIV infection and to find out the possible causes (associated conditions) of uveitis in HIV-infected patients.*
METHODS. *We retrospectively analyzed the data of 581 patients with uveitis diagnosed over an 11-year period. All patients received a routine eye examination and most of them a general examination as well as complementary tests.*
RESULTS. *The prevalence of HIV infection was 14.3% (89 patients). Anterior uveitis (62%) was the most frequent form, followed by posterior uveitis (22%), panuveitis (12%) and intermediate uveitis (4%). Associated conditions or causes were found in 88% of these 89 patients, the most frequent being Herpes zoster ophthalmicus (43%), tuberculosis (16%), CMV infection (12%) and toxoplasmosis (10%).*
CONCLUSIONS. *In HIV-infected patients uveitis is frequently associated with opportunistic infections. (Eur J Ophthalmol 2001; 11: 53-56)*

KEY WORDS. *Uveitis, HIV infection, AIDS*

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INTRODUCTION

Uveitis is an intraocular inflammatory condition involving the uveal tract and adjacent structures, and due to a large group of various diseases (1-3) including infections, among which HIV infection, autoimmune disorders, trauma, malignancy or drug toxicity (4, 5). To date, more than 30 million persons have been infected by the HIV throughout the world, of which 27 million live in the developing world, particularly in sub-Saharian countries and South-East Asia (6, 7). The prevalence of HIV infection in the population of Kinshasa is 4.3% (8).

Several studies have recognized uveitis as a manifestation of AIDS (4, 9). In Africa, only few studies have focussed on the ocular manifestations of HIV infection. Moreover, epidemiological data on uveitis in Africa are rare (1, 10). The main purpose of the present study was to obtain additional data on uveitis in Africa, and specific aims were to determine the prevalence of HIV infection in patients with uveitis and to find out the possible causes (associated conditions) of uveitis in HIV-infected patients.

MATERIAL AND METHODS

We retrospectively analyzed the data from 581 uveitis patients seen at the Department of Ophthalmology, University Hospital of Kinshasa during an 11-year period, from 1985 to 1995. Only those infected by the HIV were enrolled and evaluated in the present study. A routine eye examination was done in all patients including visual acuity testing, slit-lamp biomicroscopy, intraocular pressure, measured by applanation tonometry, and direct ophthalmoscopy. Other ophthalmologic explorations (visual fields, retinal fluorescein angiography) were done when indicated. Patients were examined by internists, rheumatologists, dermatologists, dentists and otorhinolaryngologists depending on the clinical presentation.

The following investigations were done to find out

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the etiology: routine blood tests including total WBC and differential formula, erythrocyte sedimentation rate, rheumatoid factor, antinuclear antibodies, serological tests for *T. pallidum* and HIV, skin tuberculin test and chest X-rays. Other tests were done when clinically indicated. Because our laboratories were not sufficiently equipped, procedures such as paracentesis of the anterior chamber, HLA typing and CD4 count were not possible.

The diagnosis of HIV infection was based on the positivity of the enzyme-linked immunosorbent assay (ELISA) with a confirmation by Western Blot test. Ocular toxoplasmosis was diagnosed on the basis of typical clinical grounds and specific antibodies in serum. The diagnosis of ocular Herpes zoster was based on a concurrent typical clinical picture of vesiculobullous dermatitis, a recent or delayed history of cutaneous lesions in the distribution of the trigeminal nerve. Ocular Herpes simplex was defined as a characteristic linear or branching corneal lesion or a geographic ulceration that had elevated, granular epithelium at the edges. The diagnosis of CMV retinitis was based on dilated fundus examination showing full-thickness retinal whitening with retinal hemorrhage. The clinical picutre, positive skin-tuberculin test and isolation of *M. tuberculosis* were used to diagnose tuberculosis. Ocular onchocerciasis was diagnosed when microfilariae were seen in the anterior chamber using a slit-lamp after head-down positioning of patients for 10 minutes, when the fundus presented a typical Ridley chorioretinitis and/or when microfilariae were seen in the skin biopsies in patients who had ever stayed in areas where onchocerciasis is endemic. The diagnosis of cryptococcosis was established on clinical grounds and identification of *C. neoformans* from cerebral spinal fluid. All cases of uveitis due to trauma were excluded. Cases of uveitis were classified according to the International Uveitis Study Group classification (11).

TABLE I – DISTRIBUTION OF PATIENTS BY AGE AND SEX

Age group (years)	Sex		Total (%)
	M	F	
21 – 30	13	17	30 (34)
31 – 40	15	19	34 (38)
41 – 50	6	8	14 (16)
≥ 51	5	6	11 (12)
Total (%)	39 (44)	50 (56)	89 (100)

RESULTS

During these 11 years, HIV infection was diagnosed in 89 out of 581 patients with uveitis, giving a prevalence of 14.3%. There were 39 males (44%) and 50 females (56%). Their mean age was 32 years (range 21 to 55 years). Most of them were between 21 and 40 years (Tab. I).

The distribution of different types and causes of uveitis in these 89 HIV-infected patients is set out in Table II. Anterior uveitis was the most frequent form,

TABLE II – TYPES AND CAUSES OF UVEITIS

Causes	Ant (%)	Int (%)	Post (%)	Pan (%)	Total (%)
HZO	35 (61)	0	0	3 (27)	38 (43)
Tuberculosis	10 (18)	1 (33)	2 (10)	1 (9)	14 (16)
CMV infection	0	0	9 (45)	2 (18)	11 (12)
Toxoplasmosis	0	0	7 (35)	2 (18)	9 (10)
Herpes simplex	4 (7)	0	0	0	4 (4)
Cryptococcosis	0	0	1 (5)	0	1 (1)
Pneumocystosis	0	0	1 (5)	0	1 (1)
Undetermined	6 (11)	2 (67)	0	3 (27)	11 (12)
Total (%)	55 (62)	3 (4)	20 (22)	11 (12)	89 (100)

HZO = *Herpes zoster ophthalmicus*
Ant = Anterior; Post = Posterior; Int = Intermediate; Pan = Panuveitis

followed by posterior uveitis, panuveitis and intermediate uveitis. Herpes zoster ophthalmicus (HZO) was by far the most common associated condition. Other frequent associated conditions or causes included tuberculosis, CMV infection and toxoplasmosis.

Anterior uveitis was mainly associated with HZO (Tab. II); of these 35 patients, 11 (31%) had keratitis. Ten patients had tuberculosis and four Herpes simplex. All patients with Herpes simplex had a typical dentritic keratitis; one of them developed a corneal perforation two months after the onset of the disease.

Posterior uveitis was frequently due to CMV infection and toxoplasmosis (Tab. II). Tuberculosis was the only condition associated with intermediate uveitis (1 out of 3 patients). Panuveitis was associated with HZO in three patients, tuberculosis in one, CMV infection and toxoplasmosis (two patients each). Two patients with CMV retinitis had retinal detachment at first presentation.

Cryptococcal meningitidis and *P. carinii pneumoniae* were each associated with one case of retinochoroiditis.

DISCUSSION

HIV infection was found in 14.3% of patients with uveitis. This prevalence is similar to that found by Kaimbo (12). Anterior uveitis was the most frequent form in this series. Other reports found that posterior uveitis was the most common type in AIDS patients (9, 13).

Associated conditions or causes in our patients were essentially opportunistic infections and the clinical presentation was sufficiently characteristic to facilitate the diagnosis. In some cases confirmation was obtained by isolation of the causal agent.

HZO was the leading cause of uveitis, accounting for 43% of cases. Patients were 26-38 years old, confirming that HZO is uncommon in a person less than 50 years old and should suggest an immunosuppressive condition (14). Previous reports from this country had also mentioned that HZO is more prevalent in AIDS patients (12, 15).

Tuberculosis, accounting for 16%, was the second most common condition associated with uveitis in our HIV-infected patients. It is more frequent in developing countries (16). Recent studies in Africa showed that tuberculosis was the most frequent disease associated with AIDS (17, 18).

Our incidence of CMV retinitis is lower than that reported in developed countries. The same finding came from an interesting study by Lewallen and Countright (16). The reason is almost certainly related to: 1) the shorter life expectancy of AIDS patients in Africa because drugs needed to treat the HIV infection are very expensive and not always available in developing countries, and 2) higher frequencies of exposure to causative infectious agents and higher rates of death early in the course of HIV infection. Consequently, CMV retinitis, which usually develops very late when the peripheral CD4 T-lymphocyte count falls below 100 cells per cubic millimeter, has no time to develop. To date, however, the incidence of CMV retinitis in countries where highly active antiretroviral therapy is available has decreased dramatically because of early reconstitution of the CD4-T cell population (19).

One patient presented bilateral focal choroiditis associated with cryptococcal meningitidis. *C. neoformans* is a well known organism causing opportunistic infections in HIV-infected patients. Patients with cryptococcal meningitis frequently have ophthalmic complications such as papilledema, optic atrophy or extraocular muscle paresis (20, 21). Although rare, cryptococcal retinochoroiditis has been reported (23-25).

Uveitis due to *P. carinii* is also rare (22, 23). One of our HIV-infected patients had choroiditis with concurrent *P. carinii pneumoniae* diagnosed from clinical features and chest X-rays. Most cases have, however, been diagnosed at autopsy (23, 25) which is difficult to perform in our areas, because of local habits and beliefs.

In conclusion, in HIV-infected patients uveitis is frequently associated with opportunistic infections.

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