Treatment of cytomegalovirus retinitis with DHPG in a patient with AIDS

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Abstract. A 31-year-old homosexual man with AIDS, bilateral cytomegalovirus (CMV) retinitis and optic neuritis in one eye, was treated with DHPG. The drug is an acyclic nucleoside analogue of guanosine with antiviral activity. The visual acuity at the start of treatment was R.E.: no light perception and L.E.: 1.25. There was bilateral regression of retinal exudates on DHPG 5 mg/kg twice a day during 2 weeks. The visual result however was poor because of the optic nerve involvement, which did not improve during DHPG treatment. Four weeks later there was a recurrence of retinitis with the development of exudative retinal detachment in the eye with optic neuritis, despite maintenance therapy of 5 mg/kg once a day Monday through Friday. The dose was increased to 5 mg/kg twice a day, but after 1 week treatment had to be discontinued because of neutropenia. Eight days later treatment was restarted with DHPG 5 mg/kg in a single daily dose during 17 days, which led to remission of retinitis but retinal reattachment did not occur. Thereafter maintenance therapy was continued. Visual acuity remained unchanged. DHPG appears to be effective in treating cytomegalovirus retinitis but long-term suppressive therapy would be necessary to prevent recurrence of the retinitis.

Introduction

Before 1980, cytomegalovirus (CMV) retinitis occurred infrequently, primarily in immunosuppressed patients, who had received organ or bone marrow transplants (Egbert et al., 1980). In past years, CMV retinitis has become increasingly important because of the rising incidence of the acquired immune deficiency syndrome (AIDS) in which cell-mediated immunity is severely suppressed (Holland et al., 1983).

CMV retinitis is a major cause of visual loss in AIDS. It inevitably leads to irreversible retinal necrosis. The ongoing retinal destruction by the virus leads to blindness in 3 to 6 months (Palestine et al., 1984). CMV retinitis has been found in 40% of AIDS patients at autopsy (Pepose et al., 1985).

DHPG, also referred to as ganciclovir, 9-(2-hydroxy-l-(hydroxymethyl)-ethoxymethyl)guanine, BW B759 U, and dihydroxypropoxymethylguanine,
is an acyclic nucleoside analogue of guanosine and has shown potent in vitro activity against human cytomegalovirus (Rasmussen et al., 1984). The antiviral activity is the result of incorporation of the agent into replicating viral DNA and subsequent inhibition of viral DNA replication. DHPG is structurally similar to acyclovir.

DHPG therapy has recently been shown to be effective for CMV retinitis in immunosuppressed adults (Palestine et al., 1986; Rosecan et al., 1986). However, after cessation of therapy almost all AIDS patients had clinical recurrences of the disease. This led to the suggestion that long-term maintenance therapy would probably be necessary.

The main adverse event observed in patients receiving DHPG is a reversible granulocytopenia.

We report the treatment of cytomegalovirus retinitis and optic neuritis with DHPG in a patient with AIDS.

Case report

A 31-year-old homosexual man was found to have AIDS in September 1986 when he developed Pneumocystis carinii pneumonia. His initial ocular complaint began two months later when he noted decreased visual acuity in his right eye.

On pretreatment examination on November 21, 1986 his visual acuity was R.E.: 0.10 and L.E.: 1.25. In the right eye there was an afferent pupillary defect. There was no anterior reaction in either eye, but some cells were noted in the vitreous of the right eye. The fundus of the right eye showed active cytomegalovirus retinitis with confluent white exudates and hemorrhages in the posterior pole (Fig. 1). The optic disc had blurred margins suggestive of optic neuritis. The posterior pole of the left eye was unaffected but white exudates with occasional hemorrhages were visible in the peripheral retina (Fig. 5). Urine culture was positive for cytomegalovirus.

From November 24 to December 9, the patient received DHPG 5 mg/kg of body weight intravenously twice a day. On November 24 (day 1 of therapy) visual acuity had worsened in the right eye to no light perception; the pupil was fixed and dilated. The visual acuity in the left eye was still 1.25.

At the end of the course of treatment the visual acuity was unchanged. Ophthalmoscopy of the right eye showed regression of the exudative lesions, with a residual exudate in the posterior pole (Fig. 2). The optic disc had become pale. The left eye showed decreased density of the white exudates with mild pigment clumping (Fig. 6).

The patient continued as an outpatient with maintenance therapy at a