RESULTS OF TREATMENT OF RETINAL ANGIOMATOUS PROLIFERATION WITH PHOTODYNAMIC THERAPY

RESULTADOS DEL TRATAMIENTO DE LA PROLIFERACIÓN ANGIOMATOSA RETINIANA MEDIANTE TERAPIA FOTODINÁMICA

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ABSTRACT

Purpose: To determine the effects of photodynamic therapy using verteporfin in the treatment of patients with retinal angiomatous proliferation (RAP) and the incidence of this retinal disease in our area.

Methods: We performed a retrospective study of 11 cases of RAP who were treated with photodynamic therapy using verteporfin (PDT).

Results: The incidence of RAP in the group of eyes with minimally classic or occult subfoveal choroidal neovascularization was 8%. The mean follow-up time after treatment was 15 months. The visual acuity improved in 3, remained the same in 4, and decreased in 4. In 4 patients, angiomatous lesions were observed in both eyes.

Conclusions: There is no method proven to be effective for the treatment of retinal angiomatous proliferation. Our results suggest that PDT may be useful therapy in patients with RAP as it appeared to reduce the risk of visual loss (Arch Soc Esp Oftalmol 2006; 81: 401-404).

Key words: Macula, age-related macular degeneration, retinal angiomatous proliferation, photodynamic therapy, choroidal neovascularization.

RESUMEN

Propósito: Determinar el efecto de la terapia fotodinámica con el uso de verteporfin en el tratamiento de pacientes con proliferación angiomatosa retiniana (PAR) y la incidencia de esta patología retiniana en nuestro medio.

Métodos: Se presenta un estudio retrospectivo de 11 casos diagnosticados de PAR y que fueron tratados con terapia fotodinámica con verteporfin.

Resultados: La incidencia de PAR en el grupo de ojos con neovascularización coroidea subfoveal mínimamente clásica u oculta fue del 8%. El seguimiento medio fue de 15 meses. La AV mejoró en 3, permaneció igual en 4, y disminuyó en 4. 4 pacientes presentaban una lesión bilateral.

Conclusiones: La proliferación angiomatosa retiniana no tiene un tratamiento demostrado. Estos resultados sugieren que TFD puede ser una terapia útil en pacientes con PAR y parece reducir el riesgo de pérdida visual.

Palabras clave: Macula, degeneración macular asociada a la edad, proliferación angiomatosa retiniana, terapia fotodinámica, neovascularización coroidea.
INTRODUCTION

Retinal Angiomatosis Proliferation (RAP) may be defined as a different type of macular degeneration linked to neovascular age (DMAE) associated with the proliferation of retinal capillary, where several evolutional stages can be identified. In such cases, it may progress beyond the retina limits to give way to subretinal neovascularization (1-3).

Angiographic behavior in RAP is that of a neovascular membrane of the classic or hidden subtype, which can be overlapping a retinal pigment epithelium detachment (fig. 1). In the indocyanine green angiography (IGA) it is identified as a hot spot (fig. 2).

The present article assesses the occurrence of RAP in our environment, as well as the outcome of treatment with TFD.

SUBJECTS, MATERIAL AND METHODOLOGY

A retrospective study was performed on 537 consecutive eyes treated in our offices with photodynamic therapy (PDT) from February 2003 to February 2005. All patients were above 55 years of age and presented alterations in the optic fundus compatible with DMAE.

Each of the eyes identified with RAP were treated with verteporfin PDT after proper identification of injuries using fluorescein angiography in all cases and indocyanine green whenever deemed necessary for accurate assessment.

Subsequent PDTs were given at a minimum interval of 3 months to assess the presence of leaks through fundus biomicroscopy and fluorescein angiography with or without indocyanine green. All patients consented to the performance of angiofluoresceingraphy (AGF), IGA and PDT.

Preparation and administration of verteporfin was done following procedures used during TAP clinical tests. In one case was a spot adjustment performed on the IGA to try and avoid potential complications in the event of a large retinal pigment epithelium detachment (fig. 3). Quantification of visual acuity (VA) before and after treatment with Snellen optotypes and the corresponding data were subjected to retrospective analysis.

In all cases we performed fluorescein angiographies and 4 patients underwent an IGA to obtain a diagnosis.

FINDINGS

We identified 12 eyes corresponding to 9 patients where RAP was present out of a total of 537 eyes treated (fig. 4). Out of these 537 eyes, 148 presented hidden or minimally classic membranes.

The average age of the 9 patients was 83 years. 7 were women (77%) and 2 men (23%). In the 4 bilateral patients, neovascularization translated into RAP for both eyes and 3 were bilaterally treated.
Follow-up for one patient (the last to be identified) lasted less than 1 month and he was subjected to treatment with intravitreal triamcinolone linked to photodynamic therapy, and thus he was not taken into account when assessing our findings. Follow-up for the remaining 11 eyes had an average duration of 15 months, ranging from 9 to 24 months. 4 out of 11 presented the same VA at the end of the follow-up period, 3 improved their VA in 1 line or more and 4 worsened in the same proportion.

Six eyes were still being treated at the time of assessing the results. Among the 5 eyes which completed treatment, 2 showed impaired VA, 2 the same VA and 1 case improved.

**DISCUSSION**

The present study assessed our clinical experience in the treatment of retinal angiomatosis proliferation with photodynamic therapy.

We identified a total of 12 eyes with retinal angiomatosis proliferation out of 537 eyes treated with photodynamic therapy, which amounts to 2% of the total. We should clarify that at all times we followed treatment guidelines defined by TAP and VIP studies; thus, patients with hidden or minimally classic membranes were an indication of more recent treatment. With respect to those eyes included among the latter two subgroups, the occurrence of RAP amounted to 8% of this subtotal.

Our centre is one of the two existing facilities within our community devoted to treatment with PDT, providing medical coverage in the treatment of DMAE to a population of approximately 1,400,000 inhabitants. This is possibly the reason why the occurrence might be underestimated depending on the different criteria applied when referring patients.

The existence of a higher number of women among our patients (77%) and their advanced age (on average 83 years old) was already reported by other authors (3). This process is likely to be more age dependent than DMAE in general and the greater life expectancy shown by women is determined by a gender bias.

We were surprised by the fact that bilateral cases (fig. 4) showed the same type of injury (retinal angiomatosis proliferation) in both eyes, which reveals that we are probably studying a process with differential characteristics with respect to other neovascular alterations linked to age (4).

Many alternative therapies have been suggested for treatment of retinal angiomatosis proliferation. In general, initial stages do not exhibit many symptoms, appearing many times as injuries affected by choroidal neovascular processes.

We performed a green laser photocoagulation guided by a high-speed indocyanine green angiography (communication Murphy R during subspecialty day-AAO 2005 in Chicago). One could argue against the thesis that the existence of a flow dependent on both circulations may hinder vascular collapse. This may be explained by the presence of a greater angiogenic stimulus in the environment due to the nature of this pathology.

Submacular surgery may be theoretically hindered by the presence of connections between cho-

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**Fig. 3:** Photomontage of case shown in figure 1 for IGA and aneritra light as a guide for treatment.

**Fig. 4:** Fluorescein angiography performed on the other, more evolved eye in the same patient.
roids and the retina that could lead to iatrogenic ruptures. Improvement has been observed in individual cases by performing selective cuts on the venula and arteriola with vitrectomy microscissors (5).

Also, effects of treatment with photodynamic therapy for RAP associated with retinal pigment epithelium detachment (6) have been reported; caution should be exercised in those cases where retinal pigment epithelium detachment may be the main component of injury due to the possibility of rupture.

In our study, 64% of patients show stable VA, defined as a minor loss or gain of one line, with 15-month follow-ups on average. These results favorably compare to those obtained for the VIP study on hidden membranes in a so-called stable situation (minor loss of 3 ETDRS lines) in 49.3% of the cases (7).

Therefore, we conclude that in our clinical experience the treatment's results with photodynamic therapy on retinal pigment epithelium detachment are good in the short-medium term, while still in need of determining whether the effects persist in time and being aware of the limitations inherent to a retrospective study with such a small number of cases.

REFERENCES