

# PDT has applications beyond AMD

**Stefanie Petrou Binder MD  
in Nürnberg**

RECENT studies indicate that a new group of diseases including choroidal haemangioma, presumed ocular histoplasmosis syndrome (POHS), and pathological myopia may benefit from photodynamic therapy (PDT), according to Norbert Bornfeld MD, Department for Diseases of the Posterior Eye Segment, University Clinic Essen, Essen, Germany.

In an investigation that included 19 patients with cavernous choroidal haemangiomas (BJO 87:84, 2003), PDT resulted in tumour regression in every case, Dr Bornfeld reported in a lecture he gave on the topic at the Congress of the DOC (German Ophthalmic Surgeons).

“Visual improvement in cavernous hemangioma patients is generally apparent several months after the second treatment with PDT,” he said.

The average number of PDT sessions in his study was 2.15 and the follow-up time was 10.6 months. There was regression of exudative ablation in 94.8 % of cases and a visual improvement of at least one line in 73.3% of hemangioma patients. PDT successfully obliterated the pathologic vessels, allowed the almost complete resolution of subretinal fluids, and improved vision.

Dr Bornfeld described a typical case of cavernous choroidal hemangioma as a patient with an average visual acuity of 0.4 D and quickly deteriorating vision due to macular oedema over about four weeks time. Patients show a certain degree of metamorphosis. He said that the effect of PDT was particularly pronounced at about two months after the second PDT session, at which

time visual acuity was improved to about 1.0.

Another case involved a patient with visual acuity of 0.3 D and ocular symptoms for more than six months prior to PDT. After two sessions of PDT over 11 months' time, visual acuity improved to 0.6.

The typical histologic picture of cavernous choroidal hemangioma shows cavernous widening of the retinal vessels with fluid exudates that move centrally.

Angiographically, the arterial vessels are characteristically widened very early in the course of the disease

“Our results corroborate those of other study groups that show that PDT is a very effective treatment modality with few side-effects. We choose it as treatment of choice for this clinical picture,” Dr Bornfeld affirmed.

Another retinal disease that has shown improvement after PDT is Presumed Ocular Histoplasmosis Syndrome (POHS). Dr Bornfeld was part of the Verteporfin in Ocular Histoplasmosis (VOH) study group, which published its results in *Ophthalmology* (109:1499, 2002).

The investigation included 26 patients with POHS characterised by choroidal neovascular membranes who he treated with PDT. The follow up time was 12 months and the average amount of sessions was 2.9. The study revealed an average visual improvement of seven letters using the ETDRS scale (approximately equivalent to 1-2 lines) following PDT. The first positive signs were apparent eight weeks after the first PDT.

Therapeutic success was much more pronounced following the second PDT, peaking at about nine months time, when the researchers noted a visual improvement of almost nine

letters. Visual improvement after the nine-month peak averaged seven letters.

In POHS, a typical membrane forms at the posterior pole of the eye, underneath the retina. PDT seemed effective in causing obliteration of this membrane, although not destroying it entirely. While retinal specialists once employed laser coagulation for this clinical picture, studies commenced two years ago that introduced new perspectives for PDT use in POHS patients.

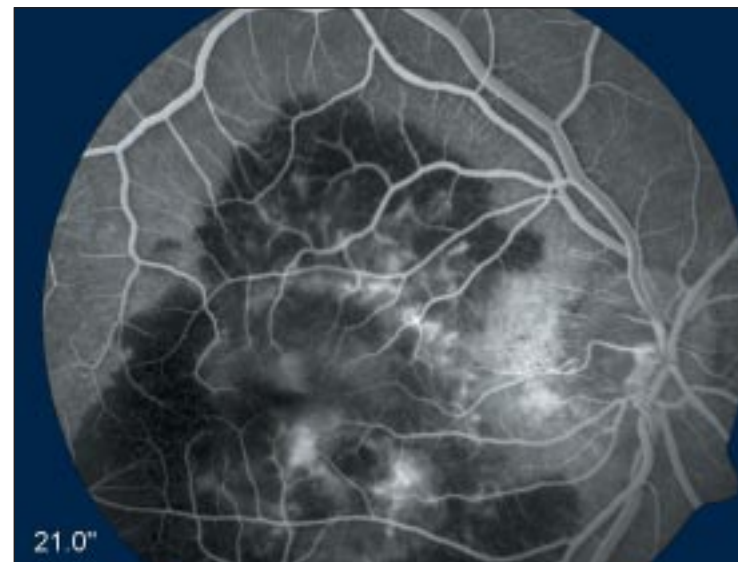
Dr Bornfeld confirmed that two months after the second PDT session, the classic large POHS membrane is much smaller and the patients' vision improved.

“Looking at the trial results, one can assume that treating POHS patients with PDT can give very good results in terms of long term visual recovery,” he said.

The beneficial effects of PDT extend to pathologic myopia and are well documented in the VIP (Verteporfin in PDT) study (*Ophthalmology* 110:667, 2003). The two-year results of PDT revealed an almost even distribution of verteporfin patients having gained and lost lines of visual acuity.

The results show that while 23-35% of verteporfin patients experienced a visual loss of less than 1.5 lines (or eight letters), 45-57% of placebo patients had higher losses, at 24 months time. Of the 39 placebo patients involved in the study, four gained 1-3 lines, 12 showed no change, 11 lost 1-3 lines, eight lost 3-6 lines, and three patients lost over six lines of visual acuity.

The course of improvement in pathologic myopia is typical, Dr Bornfeld said. After conventional photocoagulation, studies showed recurrences on the macula. After PDT, by contrast, results were



*Extensive choroidal neovascularization (CNV) in POHS.*



*Same CNV after two sessions of PDT*

good, even after two years.

“The visual loss in the treated group compared to the untreated group is much less, although there's no gain, particularly within the first year. It's not quite as obvious in the second year. This shows that PDT is effective for these patients,” he stated.

He explained that better results could be seen at the two-year follow up. At this time, only the

verteporfin patients showed gained lines/letters of visual acuity, when compared to the placebo patients. He acknowledged nonetheless that the difference was not very big between the two groups.

[bornfeld@uni-essen.de](mailto:bornfeld@uni-essen.de)  
[retina@uni-essen.de](mailto:retina@uni-essen.de)