

Letters to the Editor

The Diagnosis and Treatment of Age-Related Macular Degeneration

by Prof. Dr. med. Andreas Stahl in issue 29–30/2020

Plasmapheresis

It is known that the pathophysiological processes leading to age-related macular degeneration (AMD) are not yet fully understood. Little attention is paid to reduced microcirculation that often is observed in old age. However, a therapeutic approach developed early on has been used successfully for many years to treat AMD (1).

Plasmapheresis improves the rheological properties of blood, in particular by eliminating large protein particles. Plasmapheresis can thereby improve microcirculation and thus possibly promote the removal of accumulated metabolic by-products. Plasmapheresis can be used to treat AMD, sudden hearing loss, microangiopathies, and other disorders of microcirculation. However, pathophysiological explanations for the positive effects achieved here are also lacking (2).

The American Society for Apheresis recommends grade 2B in its current guidelines for the therapy of dry AMD using plasmapheresis. It can then be used as second-line therapy alone or in combination with other therapeutic options (3).

Rheohemapheresis is a safe therapy option that is not overly intrusive for the patient. For the correct indication, it can complement the therapy options described

by Stahl et al. (4) and can at least slow down the course of dry AMD. In addition, positive rheological effects can be demonstrated not only locally but also systemically.

The costs for an outpatient rheohemapheresis therapy are usually not covered by statutory health insurance.

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Low-Level Laser Therapy

Current treatments for age-related macular degeneration (AMD) are limited to the later form of the disease. Both complications and high costs should be expected with outpatient surgery.

In recent years, low-level laser therapy (LLLT) has been used with great success in ophthalmology (1–3). This is a transconjunctival irradiation of the affected area of the retina with a weak continuous wave (CW) laser. The laser strength is so low that it cannot damage healthy or diseased cells. All stages of AMD are treatable.

The laser causes hyperpolarization of the cell membrane and activation of the resynthesis of adenosine triphosphate (ATP), which provides free energy for the regenerative bioprocesses through hydrolysis. This facilitates the transport of cell debris towards choriocapillaris and regeneration, and edema and exudates are absorbed. Visual acuity, color vision, and central scotoma improve. The therapy is non-invasive, simple, of

short duration, inexpensive, and non-damaging to tissue. As it has no adverse effects, it can be used both curatively and preventively to preserve eyesight. It can be repeated as often as necessary.

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**In Reply**

Our colleagues mention plasmapheresis/rheopheresis and low-level laser therapy as therapy options for age-related macular degeneration (AMD).

A discussion of treatment methods that are neither mentioned in the treatment recommendations from German associations of ophthalmology (1), nor in guidelines from NICE or the American Academy of Ophthalmology, would have gone beyond the scope of our article (2).

With respect to rheopheresis, I would like to add that one of the largest self-help groups in Germany (Pro Retina e. V.) has pointed out the high costs for patients of rheopheresis.

A single treatment usually costs around 1 500 Euro. With an initial treatment frequency of mostly eight cycles, the costs of treatment already at the start of therapy are around 12 000 Euro, which are usually covered by the patients themselves. In the following years, a further four treatments per year are often suggested (3).

In a detailed analysis of rheopheresis in AMD, Finger and colleagues further stress the fact that rheopheresis not only lacks evidence of effectiveness and is costly but also bears medical risks (4).

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**CLINICAL SNAPSHOT**



**Post-Traumatic Aneurysms of the Superficial Temporal Artery**

A 21-year-old male presented with two painless, compressible, pulsatile nodules on the left temple that had spontaneously appeared 1 week previously. The patient's history revealed that he was a semi-professional Muay Thai boxer and usually trained without a helmet. The physical examination was unremarkable except for the two temporal nodules. Investigations for possible vasculitis, including laboratory parameters, yielded normal results. Duplex ultrasound showed two true aneurysms of the left superficial temporal artery (2.8 × 4.6 mm and 3.0 × 4.8 mm) with normal, arterial perfusion, whereas the literature usually describes pseudoaneurysms following trauma. In this particular case, repetitive shearing and crushing forces possibly triggered a pathological process that promoted the development of the true aneurysms. Although surgical removal of the aneurysms would normally be indicated, the patient declined surgical resection. Therefore, we advised him to wear a suitable helmet during sports in order to avoid further trauma to the head.

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