

## MEDICAL ACUPUNCTURE FOR AGE-RELATED MACULAR DEGENERATION: A PRELIMINARY REPORT

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### ABSTRACT

**Background** Age-related macular degeneration (ARMD) is a common cause of vision loss in older people. The efficacy of acupuncture to treat ARMD is unknown.

**Objective** To evaluate the efficacy and safety of acupuncture to treat ARMD.

**Design, Setting, and Patients** Case series of 10 women and men (age range, 52-90 years) seen at a single private practice in the United States. Visual acuity ranged from 20/50 to 20/1205.

**Intervention** An acupuncture approach combining ear points, direct ocular nerve stimulation, a French Energetic technique, and electroacupuncture were applied to each patient 2 times weekly until no further improvement in acuity was noted.

**Main Outcome Measures** Increase in visual acuity, subjectively recognized by the patient and quantitatively clinically confirmed with an eye chart. Also noted were any complications.

**Results** Eight of the 10 patients experienced improved visual acuity as measured on MNRead Eye Charts or Optec Vision Screen Machine. There was no degradation of acuity during follow-up, even up to 6 months later. The only reported complication was an occasional ecchymosis, and recovery was uneventful.

**Conclusion** Visual acuity attenuation in ARMD may be significantly improved by acupuncture. The mechanism is unknown.

### KEY WORDS

Acupuncture, Auriculotherapy, Age-Related Macular Degeneration, Visual Impairment

### INTRODUCTION

Age-related macular degeneration (ARMD) is the most common cause of severe central vision loss in people older than 50 years.<sup>1,2</sup> The etiology and pathogenesis of ARMD are unknown. There are 2 subtypes: dry and wet (neovascular). The dry type is the most common and has no proven treatment.<sup>3</sup> Vitamin supplementation (particularly antioxidants) and zinc have been proposed, but benefits have not been proven and morbidity has not been excluded.<sup>4,5</sup>

Wet or neovascular ARMD is less common but can lead to rapid and severe visual losses. Laser photocoagulation has proved to be of benefit by slowing progression in

10%-15% of neovascular ARMD with well-defined choroidal neovascularization. Treatment itself, however, causes an immediate loss of about 3 lines in visual acuity.<sup>6-8</sup>

More recently, interest has focused on treatment through injection of verteporfin and cold laser. This approach yields better results than thermal photocoagulation.<sup>9</sup> However, it only benefits a fraction of those patients with neovascular ARMD. In 2 years, for example, 47% of verteporfin-treated eyes vs 62% of placebo-treated eyes lost more than 3 lines of vision.<sup>9</sup>

The author has used a combination of acupuncture and auriculotherapy points, which appears to significantly enhance the visual acuity of ARMD patients.

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## **METHODS**

### ***Patients***

All patients gave informed consent after discussion of the risks and unknown benefits of this protocol. Ten ambulatory patients (3 men, 7 women), ranging in age from 52-90 years, were enrolled and had visual acuity in individual eyes ranging from 20/50 to 20/1205 on the Snellen scale. They each reported vision loss due to macular degeneration.

### **Visual Acuity Measurements**

Visual acuity was measured using MNRead charts, developed by the University of Minnesota for patients with attenuated vision.<sup>10</sup> Standard vision screening equipment does not measure very low visual acuities. Two MNRead charts with different text (to minimize patient familiarity) were available and used interchangeably to measure visual acuity, adjusting for distance between eye and chart. Snellen equivalent values are reported in this article.

In the later part of this ongoing study, a Stereo Optec 2000 Vision Tester (Stereo Optical Co, Chicago, Ill), specially outfitted with low vision test slides, was used in parallel with the MNRead charts. It tested distant vision as well as near vision in those patients with relatively good acuity. The results confirmed those from the MNRead charts.

## **ACUPUNCTURE TREATMENT**

An auricular medicine evaluation was performed at each visit using the vascular autonomic signal (VAS) to determine important areas to treat.<sup>11</sup> The goal was to bring ear electromagnetic fields within 2 cm of the ear. Without removing the ear's natural coating of wax, the most electrically active ear points within the identified areas were treated using A NET 2000 device (Auri-Stim Medical, Denver, Colo). Treatment

continued using the device's proprietary combination of electrical frequencies until the patient began experiencing increasing discomfort.

The correct determination of the most electrically active point within the indicated electrically active area is crucial. These points are typically only ½ mm in diameter. Precision in their location is critically important; treatment even 1 mm away from the most electrically active point may not be satisfactory.

After the patient experienced increasing sensation (never more than 30 seconds of electrical stimulation), a sterile, semipermanent, gold Sedetec ASP needle (Bios Overseas, Hidalgo Tex) was placed at the exact same site on the unprepared ear. The gold needle was not covered with adhesive tape. Usually 4 gold needles were needed to bring the auricular electromagnetic field (EMF) to within 2 cm of the ear. Patients were counseled to communicate with the author if the areas around the needles appeared to become infected.

Typically, the corpus callosum (Phase 2-3) and the adrenal (Phase 2-3) points were treated to bring the EMF to within 2 cm of the ear (**Figure 1**).

Sequentially, the optic nerve was directly stimulated by placing a sterilized disposable 0.12-mm diameter stainless steel needle (Acuglide needles, Helio Medical Supplies, San Jose, Calif) as an electrode directly below the globe of the eye (*caution*: this should be performed only by a trained physician). The needle was inserted between 30 and 60 mm in depth either at the infraorbital notch directly caudal to the midline pupil (ST 1) or 1 cm laterally at another infraorbital notch ([Qi Hou] **Figure 2**). The 0.12-mm needle may curve to follow tissue planes along the path of least resistance.

A 0.20-diameter stainless steel needle was then inserted in soft tissue, LR 14, no more than 15 mm in depth in the mid-clavicular line at the lowest intercostal space (deep insertion must be avoided at risk of causing pneumothorax). This needle gives access to the anterior parasympathetic area of the celiac plexus.<sup>12</sup>

A French Energetics approach was used to stimulate bilaterally the Liver Cerebral Circulation.<sup>13</sup> A 0.20-mm needle was inserted 15-30 mm deep between the 1st and 2nd metatarsals (LR 3) to stimulate the deep peroneal nerve.<sup>14</sup> Another 0.27-mm needle was placed in LR 8, 75-100 mm deep, to contact the tibial nerve on the medial side of the knee joint, posterior to the medial tibial condyle.<sup>14</sup>

Electric stimulation was then started using a Pantheon 4-C milliamp stimulator (Pantheon Research, Venice, Calif). A negative lead was placed at LR 3 with its paired positive on the ipsilateral LR 8. Another negative lead was placed at LR 14 with its positive clip on Qi Hou. The circuits were stimulated at 2 Hz for 20 minutes at an intensity felt by the patient, but not uncomfortable. It was apparently important to start stimulating with the leg circuit first because patients sometimes reported a headache, which cleared when the leg circuit was activated.

Most patients were treated 2 times weekly until no further improvement in visual acuity was noted. Then, the interval between treatments was doubled each visit.

## **RESULTS**

Effects of acupuncture on visual acuity in the 10 patients are presented in the **Table**. Eight of 10 successive patients (13/18 eyes) had improvement of 1 to 7 lines on the eye chart. Improvement was recognizable after treatment 1 or 2. Immediately after treatment, most patients expressed a feeling of “fuzziness,” but vision was either unchanged or 1 line worse. The “fuzziness” cleared shortly, usually within 10-20 minutes, and never later than the next morning.

There has been no degradation of visual acuity during the follow-up period. Two patients followed up longest did not demonstrate a loss of visual acuity over 6 months.

The only complication from the acupuncture treatment was an occasional ecchymosis, usually in the very vascular infraorbital region, when a small blood vessel was inadvertently perforated. Recovery was uneventful.

## **DISCUSSION**

Acupuncture produced largely successful results in this consecutive sample of patients with ARMD. Patients with visual impairment other than ARMD have also been successfully treated in the same manner and will be reported in a future publication.

Research is needed to further explore direct stimulation of the optic nerve. Optimum depth of electrode placement, frequency, current, and stimulation duration need to be optimized. The mechanism of acupuncture in improving visual acuity in ARMD is not known.

## **CONCLUSION**

Acupuncture using this protocol may contribute to the improvement of vision in ARMD patients. This technique does not produce any untoward effects. Longer observations in a larger number of patients to optimize the technique and obtain objective measurements of visual acuity prospectively should be included in further research. Alternatives to no treatment or the limited benefits of thermal or cold photocoagulation make acupuncture an attractive therapeutic consideration.

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**Figure 1.** The Corpus Callosum and Adrenal Points

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**Figure 2.** Intraorbital Needle Insertion

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Table. Patient Outcomes

Patient No.	Sex/Age, y	Involved Eye	Pretreatment Acuity	Most Recent Acuity	No. of Treatments	Stable at Treatment Interval	Change in Lines
1	M/57	OD	20/126	20/30	10	3 mo	6
		OS	20/50	20/20			4
2	F/52	OD	20/458	20/182	20	2 mo	4
3	F/74	OS	>20/400	20/100	18	2 wk	7
		OD	20/160	20/63			4
4	F/85	OD	20/230	20/210	6	NA	0
5	F/54	OD	>20/400	20/400	3	No follow-up	0+
		OS	20/50	20/40			1
6	M/90	OD	20/428	20/219	5	2 wk	3
		OS	20/448	20/317			2
7	F/72	OD	20/191	20/110	3		2
		OS	20/63	20/76			<1>
8	F/83	OS	20/1205	20/632	5	2 wk	3
		OD	20/1178	20/632			3
9*	M/74	OS	20/112	20/125	2		<1>
		OD	20/195	20/235			<1>
10	F/85	OS	20/50	20/42	2		1
		OD	20/102	20/63			2

\* This patient showed visual improvement of 2 lines each eye for distant vision and 3 lines each eye for near vision immediately after his 1st treatment. That improvement lasted only 1 day, and he elected to discontinue therapy after his 2nd visit because of a non-acupuncture-related cardiac arrhythmia.