

The Effect of Acupuncture on Blepharoptosis and Diplopia in Ocular Myasthenia Gravis: A Report of Three Cases

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ARTICLE INFO	ABSTRACT
<p>Article type: Case Report</p> <hr/> <p>Article history: Received: 11-Jan-2015 Accepted: 1-Feb-2015</p> <hr/> <p>Keywords: Myasthenia gravis Acupuncture Complementary & alternative medicine</p>	<p>Introduction: The aim of this study was to evaluate the efficacy of acupuncture therapy on relieving ocular symptoms in resistant Ocular Myasthenia Gravis (OMG).</p> <p>Case: In this pilot study, three patients with OMG were offered ten sessions of acupuncture therapy, twice weekly, while they received their routine medical treatment. Their symptoms included ptosis and diplopia. Subjective impression of changes was assessed based on Ocular-quantitative Myasthenia Gravis (QMG) scoring before and after treatment sessions.</p> <p>Conclusion: All three patients enrolled in this study showed resolution of diplopia. Their subjective impression of symptoms was improved. However, the score of ptosis did not improve considerably.</p> <p>Acupuncture is another choice for reducing ocular symptoms besides conventional treatment in resistant Ocular Myasthenia Gravis (OMG). However, future randomized controlled trial studies are needed to approve this issue.</p>

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Introduction

Ocular Myasthenia Gravis (OMG) is an autoimmune disorder with purely ocular manifestations, including blepharoptosis (drooping of the upper eyelid and diplopia (double vision). Approximately, 50% of these patients will develop generalized disease, mostly within two years (1). Two main goals in treatment of ocular MG are improving ocular symptoms and reducing the risk of developing generalized myasthenia gravis (2).

There are various options to treat OMG including corticosteroids, immunosuppressives, cholinesterase inhibitors, blepharoplasty, and thymectomy can reduce the risk of developing generalized myasthenia (2, 3) level of disease activity and patient disability determine the treatment options (4). However, corticosteroids and azathioprine may have important roles in the management of symptoms (5). Among adverse side effects of steroid therapy weight gain, impaired glucose tolerance and reduced bone mineral density are more common ones. So, most patients nowadays are seeking less invasive treatment options.

Acupuncture has more than five thousand years history and was a treatment option for some diseases in ancient medicine. It was a very popular alternative

subject for many clinical studies in western countries.

There are some evidences about its efficacy in the management of immune-related diseases (6).

According to traditional Chinese medicine theory, OMG occurs due to the loss of Qi (vital energy) current in meridians, mostly in spleen, bladder, and stomach along with Qi stagnation in some other meridian pathways. Meridians make a circle network all over the body and all of them are connected to the eyes both in direct and indirect pathways; therefore, by manipulation of specific acupoints in local and distal areas from the eye, we can tonify the vital energy and open the meridians, which are connected into the eyes.

Only few reports have indicated successful outcomes of acupuncture treatment in OMG (7, 8). The aim of this study was to evaluate the efficacy of acupuncture therapy on relieving ocular symptoms in resistant ocular myasthenia gravis.

Cases

This pilot study was conducted on patients with OMG who were resistant to current treatment methods. Four patients were referred to Khatam-al-Anbia eye

hospital from January to October 2010, for special further evaluations of their ocular symptoms. Written informed consent was taken by the participants. One of them left the study before beginning of the acupuncture therapy because of her personal desire. They were offered trials of ten sessions of acupuncture therapy twice weekly; while taking their routine treatments including steroids as the main therapy. One professional acupuncturist conducted the acupuncture therapy. The therapy was performed on selective points locally in BL2, GB14, GB1, and ST2. Distal points were LI4, DU20, SJ5, LI11, ST36, SP6, GB37, KI3, LIV3, GB20, DU14, BL23, BL21, and BL20. These points were manipulated with special and standard (0.25 X 40 mm) needles. Each session lasted half an hour.

All three patients were evaluated based on Bhanushali study and the scores were documented (2).

According to the scoring system in the aforementioned study, attaining the score of zero was defined as the presence of symptom remission (Table 1). Patient's subjective impressions of changes were determined utilizing the following question: "regarding the overall impression of your eyes status, did they improve, worsen or remain stable?" All data were documented before and after ten sessions of acupuncture treatment and were followed up three months later. The study strictly adhered to the tenets of the declaration of Helsinki and the protocol was approved by the Ethical Committee of Mashhad University of Medical Sciences.

Table1: Ocular-quantitative myasthenia gravis (QMG) score items

Ocular symptoms	Grade			
	3	2	1	0
Ptosis	In the primary position	Within 1to 10 seconds	Within 11to 60 seconds	> 60 seconds
Diplopia	In the primary position	Within 1to 10 seconds	Within 11to 60 seconds	> 60 seconds
Strength of the Orbicularis Oculi	Incompl ete eye closure	Complete closure without resistance	Complete closure against resistance but weak	Normal

Discussion

Three patients were enrolled in this study (one 64 year old man and two 27 and 46 year old female) with OMG diagnosis. They were referred to Khatam-al-Anbia eye hospital, by the same neurologist for further specific evaluation of their ocular symptoms. One patient had bilateral ptosis and the two other had unilateral ptosis. Reducing the diplopia for all three patients was evident and their subjective impression of change improved as well as the duration of diplopia per day decreased. No adverse event related to acupuncture was reported. After three months of therapy, they were re-evaluated and their conditions were stable. The ocular findings in patients before and after ten therapy sessions are summarized in table 2

Table 2: Overview of three patients with OMG before and after ten sessions of acupuncture treatment

Patient (No./Sex)	Lid twitch		PFH (mm)		MRD (mm)		LF(mm)		Lid Crease (mm)		Ptosis		Strength of Oculi		Deviation	Limitation of abduction		Diplopia		Morning Diplopia		Duration of diplopia (hrs./day)		Functional blemish of diplopia	Impression of change
	B	A	B	A	B	A	B	A	B	A	B	A	B	A		Far/Near	B	A	B	A	B	A	B		
1/F	R		10	10	4	5	15	15	9	9	0	0	0	0	Ortho/ Exophoria	N	N	3	0	N	N	10	4	Mild	Improved
	L		9	9	3	3	14	14	9	9	3	3	0	0											
2/M	R		8	8	2	4	5	8	8	3	2	1	1	Ortho/Ortho	Y	Y	3	0	Y	N	8	4	Moderate	Improved	
	L		8	8	2	4	6	8	8	3	2	1	1												
3/F	R		11	11	4	4	14	14	9	9	0	0	2	2	Exotropia/ Exotropia	N	N	3	0	Y	N	4	2	Mild	Improved
	L	Y	Y	7	7	2	4	13	14	8	8	3	2	1		1									

F=Female; M=Male; R=Right eye; L=Left eye; B=before; A=after; N=No; Y=Yes; PFH=Palpebral fissure height; MRD=Marginal Reflex Distance; LF=Levator function; Ortho=Orthophoria; hrs=hours

We report an improvement of ocular symptoms with acupuncture in three Ocular Myasthenia Gravis (OMG) patients who were resistant to the conventional treatment, based on ocular-quantitative myasthenia gravis score. Myasthenia Gravis, as an autoimmune disorder characterized by neuromuscular transmission involvement, frequently targets the ocular muscles and leads to ptosis and diplopia. OMG may lead to daily life disability and generalized myasthenia, and then decrease in the quality of life (9); therefore, early management of these patients should be taken into account. Although pharmacological treatment, including pyridostigmine, prednisolone, and immunosuppressive drugs has been suggested for management of ocular symptoms in MG patients (10), possible adverse effects of long term administration of drugs is an important issue in clinical decision making.

Therefore, complementary and alternative medicines have been intensely considered in scientific studies because of their less invasive entity. Acupuncture, as one of the most popular alternative therapies in Chinese medicine (11), is a subject of studies, which has proposed its benefits in management of diseases.

Scientific studies have been shown the roles of catecholamine and serotonin systems in the immunomodulatory effects of acupuncture (12, 13). However, the efficacy of acupuncture in the management of OMG has been investigated in limited reports. One of them is Donoyama and Ohkoshi study, which reported improvement of diplopia and ptosis in a 59-year-old male after acupuncture application. They referred it to the possible role of "acupuncture on transmission of acetylcholine at the neuromuscular junctions" (7). In another study by Crestati, a case of 31 year old woman with OMG was reported; who treated her ocular symptoms with auricular acupuncture; in which the preferred treatment points were considered "control endocrine apparatus"(8). In accordance, based on these aforementioned reports, we have noticed the resolution of diplopia in all three patients. Subjective impression of changes was assessed based on Ocular-quantitative Myasthenia Gravis (QMG) scoring before and after treatment sessions. However, the score of ptosis did not change considerably. The utilized scoring system in our

study, as an advantage of this study, has suggested a beneficial tool for evaluation of ocular symptoms` severity of MG (2). In another study by Wang, the effect of Electro-acupuncture warming therapy on serum Interleukin-4 (IL-4) levels on 60 patients with MG was evaluated.

The observation group that used acupuncture treatment besides taking medication showed more decrease in serum Interleukin-4 levels, which was possibly due to "restrain specific immune reaction by regulating the level of IL-4" (14). Although alternative and complementary therapies could be possibly influenced by potential factors, including demographic variables (income, gender, age, education), the severity of neurological deficits, doctor- patient interaction, medications side effects, psychologically associated variables, social environment, and economic interests (15) their benefits in management of several medical conditions have been known (16).

This study had many limitations. Among which the lack of patients enrolled in has the most importance. Our study was a before/ after trail and its level of evidence was lower than randomized control trials. Thus, randomized control trials in this field are highly recommended. On the other hand, the point of strength in this study is applying ocular-quantitative myasthenia gravis score to evaluate patients' ocular symptoms.

Conclusion

Although there are few reports of using acupuncture in treatment of ocular myasthenia gravis, to the best of our knowledge, this is the first report of using scoring system for evaluation of ocular symptoms improvement in myasthenia gravis with acupuncture treatment. Further large-scale controlled studies and longer follow-up periods should be conducted to determine the effectiveness of acupuncture in the treatment of OMG.

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