

Application of acupuncture in ophthalmological affections

Aplicación de la acupuntura en afecciones oftalmológicas

Al. Amanda Piñeiro Linares^{1*}

Al. Gema Rodríguez Borges¹

Lic. Aneydis Carrión Chacón¹

¹Facultad de Medicina No. 1, Universidad de Ciencias Médicas. Santiago de Cuba, Cuba.

*Autor para la correspondencia: margarita.m@infomed.sld.cu

ABSTRACT

Acupuncture is the insertion of thin needles into the skin, more than four hundred acupuncture points have been described, with the majority located on one of the main meridians, pathways which runs throughout the body and according to Traditional Chinese Medicine (TCM) transports life energy. Chinese ophthalmology is part of the TCM, here diseases of the eyes are treated with Chinese herbs, acupuncture/moxibustion and others. A thorough review of several sources of information was carried out with the aim of describing the advantages of the use of acupuncture in the treatment of ophthalmological affections. An amount of 27 bibliographies were analyzed, concluding that the use of the acupuncture for the treatment of the ophthalmological affections has demonstrated to be an effective method and less invasive.

Key words: traditional medicine; acupuncture; ophthalmological affections.

RESUMEN

La acupuntura es la inserción de finas agujas en la piel se han descrito más de cuatrocientos puntos de acupuntura, la mayoría de ellos ubicados en uno de los meridianos principales que atraviesa todo el cuerpo y de acuerdo con la medicina

tradicional china (MTC) transporta energía para la vida. La oftalmología china es parte de la MTC, y en ella las enfermedades oculares se tratan con hierbas chinas, acupuntura/moxibustión y otras. Se realizó una revisión completa de varias fuentes de información, con el objetivo de describir las ventajas del uso de la acupuntura en el tratamiento de las afecciones oftalmológicas. Se revisó un total del 27 bibliografías, y se concluyó que el uso de la acupuntura en el tratamiento de las afecciones oftalmológicas ha demostrado ser un método eficaz y menos invasivo.

Palabras clave: medicina tradicional; acupuntura; afecciones oftalmológicas.

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Introduction

Traces of therapeutic activities in China date from the Shang dynasty (14th–11th centuries BCE). Though the Shang did not have a concept of "medicine" as distinct from other fields, their oracular inscriptions on bones and tortoise shells refer to illnesses that affected the Shang royal family: eye disorders, toothaches, bloated abdomen, etc., which Shang elites usually attributed to curses sent by their ancestors. There is no evidence that the Shang nobility used herbal remedies. According to a 2006 overview, the "Documentation of Chinese material medica (CMM) dates back to around 1,100 BCE when only dozens of drugs were first described. By the end of the 16th century, the number of drugs documented had reached close to 1,900, and by the end of the last century, published records of CMM had reached 12,800 drugs."⁽¹⁾

Stone and bone needles found in ancient tombs led Joseph Needham to speculate that acupuncture might have been carried out in the Shang dynasty. This being said, most historians now make a distinction between medical lancing (or bloodletting) and acupuncture in the narrower sense of using metal needles to treat illnesses by stimulating specific points along circulation channels ("meridians") in accordance

with theories related to the circulation of Qi. The earliest evidence for acupuncture in this sense dates to the second or first century BCE.

The *Yellow Emperor's Inner Canon (Huang Di Nei Jing)*, the oldest received work of Chinese medical theory, was compiled around the first century BCE on the basis of shorter texts from different medical lineages. Written in the form of dialogues between the legendary Yellow Emperor and his ministers, it offers explanations on the relation between humans, their environment, and the cosmos, on the contents of the body, on human vitality and pathology, on the symptoms of illness, and on how to make diagnostic and therapeutic decisions in light of all these factors. Unlike earlier texts like *Recipes for Fifty-Two Ailments*, which was excavated in the 1970s from a tomb that had been sealed in 168 BCE, the *Inner Canon* rejected the influence of spirits and the use of magic. It was also one of the first books in which the cosmological doctrines of Yinyang and the Five Phases were brought to a mature synthesis.⁽²⁾

The *Treatise on Cold Damage Disorders and Miscellaneous Illnesses (Shang Han Lun)* was collated by Zhang Zhongjing sometime between 196 and 220 CE; at the end of the Han dynasty. Focusing on drug prescriptions rather than acupuncture, it was the first medical work to combine Yinyang and the Five Phases with drug therapy. This formulary was also the earliest public Chinese medical text to group symptoms into clinically useful "patterns" (*zheng 證*) that could serve as targets for therapy. Having gone through numerous changes over time, the formulary now circulates as two distinct books: the *Treatise on Cold Damage Disorders* and the *Essential Prescriptions of the Golden Casket*, which were edited separately in the eleventh century, under the Song dynasty.³

In the centuries that followed, several shorter books tried to summarize or systematize its contents of the book *Yellow Emperor's Inner Canon*. The *Canon of Problems* (probably second century CE) tried to reconcile divergent doctrines from the *Inner Canon* and developed a complete medical system centered on needling therapy. The *AB Canon of Acupuncture and Moxibustion (Zhenjiujiayijing 針灸甲乙經)*, compiled by HuangfuMi sometime between 256 and 282 CE) assembled a consistent body of doctrines concerning acupuncture; whereas the *Canon of the Pulse (Maijing 脈*

經; ca. 280) presented itself as a "comprehensive handbook of diagnostics and therapy."⁴

In 1950, Chairman Mao Zedong made a speech in support of traditional Chinese medicine (TCM) which was influenced by political necessity. Zedong believed he and the Chinese Communist Party should promote TCM but he did not personally believe in TCM and he did not use it. In 1952, the president of the Chinese Medical Association said that, "This One Medicine, will possess a basis in modern natural sciences, will have absorbed the ancient and the new, the Chinese and the foreign, all medical achievements—and will be China's New Medicine!"⁵ The objective of this paper is to describe the advantages of the use of acupuncture in the treatment of ophthalmologic affections.

Development

Chinese ophthalmology

Is part of the Traditional Chinese medicine (TCM). Here diseases of the eyes are treated with Chinese herbs, acupuncture/moxibustion, tuina, Chinese dietary therapy as well as qigong and taijiquan.

A particular feature of Chinese ophthalmology is the "five wheels" (五輪, wǔlún) and "eight boundaries" (八廓, bākuò). They characterize certain anatomical segments of the eyes and correspond to certain zang-fu organs. From changes of the five wheels and eight boundaries diseases and the necessary therapy may be deduced⁶.

In modern Chinese ophthalmology in China as well as in Western countries diagnostic methods of Western medicine (such as the slit lamp) are combined with the diagnostic methods of Chinese medicine (such as pulse diagnosis and tongue diagnosis). Then a disease pattern is stated based on the theories of Chinese medicine⁷.

Amongst others, the acupuncture points BL-1 (jingming 睛明, "Bright Eyes") and ST-1 (chengqi 承泣, "Container of Tears") are said to have a special relationship to eye diseases. Chinese herbs such as Chrysanthemiflos (菊花, júhuā) have a special relationship to the eyes.⁽⁸⁾

Throughout history, a number of qigong exercises for the better nourishing of the eyes have developed. They are said to prevent defective vision such as shortsightedness and are recommended in cases of eye fatigue (so-called "eye qigong"). These exercises are regularly practiced in Chinese schools.

In TCM, eye qigong and tuina are considered to be important additional therapies for consolidation of the therapy results following acupuncture in shortsightedness

Ophthalmologic affections that can be treated with acupuncture:

- **Ocular neuropathic pain:** is a spectrum of disorders of ocular pain which are caused by damage or disease affecting the nerves. Ocular neuropathic pain is frequently associated with damaged or dysfunctional corneal nerves, but the condition can also be caused by peripheral or centralized sensitization. The condition shares some characteristics with somatic neuropathic pain in that it is similarly associated with abnormal sensations (dysesthesia) or pain from normally non-painful stimuli (allodynia), but until recent years has been poorly understood by the medical community, and frequently dismissed by ophthalmologists who were not trained to identify neuropathic pain as a source of unexplained eye pain beyond objective findings noted on slit-lamp examination.⁽⁹⁾
- **Optic neuropathy:** is damage to the optic nerve from any cause. Damage and death of these nerve cells, or neurons, leads to characteristic features of optic neuropathy. The main symptom is loss of vision, with colors appearing subtly washed out in the affected eye. On medical examination, the optic nerve head can be visualized by an ophthalmoscope. A pale disc is characteristic of long-standing optic neuropathy. In many cases, only one eye is affected and patients may not be aware of the loss of color vision until the doctor asks them to cover the healthy eye.⁽¹⁰⁾
- **Sharp Glaucoma:** is an umbrella term for eye conditions which damage the optic nerve, and which can lead to a loss of vision. The main cause of damage to

the optic nerve is intraocular pressure (IOP), excessive fluid pressure within the eye, which can be due to various reasons including blockage of drainage ducts, and narrowing or closure of the angle between the iris and cornea. .

- **Myopia:** near-sightedness, also known as short-sightedness and myopia, is a condition of the eye where light focuses in front of, instead of on, the retina. This causes distant objects to be blurry while close objects appear normal. Other symptoms may include headaches and eye strain. Severe near-sightedness increases the risk of retinal detachment, cataracts, and glaucoma.
- **Stye:** also known as a hordeolum, is a bacterial infection of an oil gland in the eyelid. This results in a red tender bump at the edge of the eyelid. The outside or the inside of the eyelid can be affected.
- **Sharp conjunctivitis:** also known as pink eye, is inflammation of the outermost layer of the white part of the eye and the inner surface of the eyelid. It makes the eye appear pink or reddish. There may also be pain, burning, scratchiness, or itchiness. The affected eye may have increased tears or be "stuck shut" in the morning. Swelling of the white part of the eye, may also occur. Itching is more common in cases due to allergies. Conjunctivitis can affect one or both eyes.⁽¹¹⁾

Authors note: there other ophthalmologic affections that can be treated with acupuncture, but these were the ones that we considered the most important.

How is the treatment made?

Acupuncture is the insertion of thin needles into the skin, a typical session entails lying still while approximately five to twenty needles are inserted; for the majority of cases, the needles will be left in place for ten to twenty minutes. It can be associated with the application of heat, pressure, or laser light. Classically, acupuncture is individualized and based on philosophy and intuition, and not on scientific research. There is also a non-invasive therapy developed in early 20th century Japan using an elaborate set of "needles" for the treatment of children.⁽¹¹⁾

Clinical practice varies depending on the country. A comparison of the average number of patients treated per hour found significant differences between China (10) and the United States (1.2). Chinese herbs are often used. There is a diverse range of acupuncture approaches, involving different philosophies. Although various different techniques of acupuncture practice have emerged, the method used in traditional Chinese medicine (TCM) seems to be the most widely adopted in the US⁽¹³⁾. Traditional acupuncture involves needle insertion, moxibustion, and cupping therapy, and may be accompanied by other procedures such as feeling the pulse and other parts of the body and examining the tongue. Traditional acupuncture involves the belief that a "life force" (*qi*) circulates within the body in lines called meridians. The main methods practiced in the UK are TCM and Western medical acupuncture. The term Western medical acupuncture is used to indicate an adaptation of TCM-based acupuncture which focuses less on TCM. The Western medical acupuncture approach involves using acupuncture after a medical diagnosis. Limited research has compared the contrasting acupuncture systems used in various countries for determining different acupuncture points and thus there is no defined standard for acupuncture points.⁽¹²⁾

In traditional acupuncture, the acupuncturist decides which points to treat by observing and questioning the patient to make a diagnosis according to the tradition used. In TCM, the four diagnostic methods are: inspection, auscultation and olfaction, inquiring, and palpation. Inspection focuses on the face and particularly on the tongue, including analysis of the tongue size, shape, tension, color and coating, and the absence or presence of teeth marks around the edge. Auscultation and olfaction involve listening for particular sounds such as wheezing, and observing body odor. Inquiring involves focusing on the "seven inquiries": chills and fever; perspiration; appetite, thirst and taste; defecation and urination; pain; sleep; and menses and leukorrhea. Palpation is focusing on feeling the body for tender "*A-shi*" points and feeling the pulse.⁽¹³⁾

More than four hundred acupuncture points have been described, with the majority located on one of the main meridians, pathways which run throughout the body and according to Traditional Chinese Medicine (TCM) transport life energy (*qi*, 氣). TCM

recognizes twenty meridians, cutaneous and subcutaneous in nature, which have branching sub-meridians believed to affect surrounding tissues. Twelve of these major meridians, commonly referred to as "the primary meridians", are bilateral and are associated with internal organs. The remaining eight meridians are designated as "extraordinary", and are also bilateral except for three, one that encircles the body near the waist, and two that run along the midline of the body. Only those two extraordinary meridians that run along the midline contain their own points, the remaining six comprise points from the aforementioned twelve primary meridians. There are also points that are not located on the fourteen major meridians but do lie in the complete nexus referred to as *jingluo* (經絡). Such outliers are often referred to as "extra points".⁽¹³⁾

Although many hypotheses have been proposed, the anatomical and physiological basis for acupuncture points and meridians remains elusive. Hypotheses include neural signaling, with possible involvement of opioid peptides, glutamate, and adenosine, and correspondence to responsive parts in the central nervous system; or mechanical signaling, with involvement of connective tissue (fascia), and mechanical wave activation of the calcium ion channel to beta-endorphin secretion. In practice, acupuncture points are located by a combination of anatomical landmarks, palpation, and feedback from the patient¹⁴.

Acupunture points to treatophthalmologic affections

LU = Lung meridian

LI, CO = Large Intestine meridian

ST = Stomach meridian

SP = Spleen meridian

HT, HE = Heart meridian

SI = Small Intestine meridian

BL, UB = Bladder meridian

KI = Kidney meridian

P, PC, HC = Pericardium, Heart Constrictor meridian

TW, TH, SJ = Triple Warmer, Tri-Heater, Triple Burner, San Jiao meridian

GB = Gallbladder meridian

LV, LI, LIV = Liver meridian

CV, VC, Ren = Conception Vessel meridian

GV, VG, Du = Governing Vessel meridian

Some older text use LI for Liver and CO for Large Intestine.

Tsun or cun is the measurement of one “body inch” used locate acupuncture points. Measurement is always taken from the patient’s hand. The width of the thumb is 1 cun, width of two fingers is 1.5 cun, four fingers is 3 cun.

Ocular neuropathic pain

TW5 Waiguan - On the dorsum of the forearm, 2 cun above TW4 between the radius and the ulna.

ST8 Touwei - At the corner of the forehead, 0.5 cun within the hairline at the corner of the forehead, 4.5 cun lateral to the midline at GV24.

LV3 Taichong - On dorsum of the foot in a depression distal to the junction of the 1st and 2nd metatarsal bones.

GB40 Qiuxu - Anterior and inferior to the lateral malleolus in a depression on the lateral side of the extensor digitorum longus tendon.

BL67 Zhiyin - 0.1 cun posterior to the corner of the nail on the lateral side of the small toe. Contraindicated to needle during pregnancy.

BL62 Shenmai - In a depression directly below the lateral malleolus.

LI4 Hegu - On the dorsum of the hand, between the 1st and 2nd metacarpal bones.

Optic neuropathy

GB20 Fengchi - In the depression created between the origins of the Sternocleidomastoid and Trapezius muscles, at the junction of the occipital and nuchal regions. Lateral and level with GV16.

GB1 Tongziliao - 0.5 cun lateral to the outer canthus of the eye in a depression on the lateral side of the orbit.

BL2 Zanzhu - In the supraorbital notch at the medial end of the eyebrow.

BL18 Gan Shu - 1.5 cun lateral to GV8 level with the spinous process of T9.

BL11 Dazhu - 1.5 cun lateral to GV13 level with the spinous process of T1. (from the midline to the medial border of the scapula is considered 3 cun)

LI4 Hegu - On the dorsum of the hand, between the 1st and 2nd metacarpal bones.

GB37 Guangming - 5 cun above the tip of the lateral malleolus on the anterior border of the fibula.

BL23 Shenshu - 1.5 cun lateral to GV4 level with the spinous process of L2.

Sharp Glaucoma

BL2 Zanzhu - In the supraorbital notch at the medial end of the eyebrow.

GB14 Yangbai - On the forehead directly above the pupil, 1 cun above the midpoint of the eyebrow.

LI4 Hegu - On the dorsum of the hand, between the 1st and 2nd metacarpal bones.

LV3 Taichong - On dorsum of the foot in a depression distal to the junction of the 1st and 2nd metatarsal bones.

SI3 Houxi - With a loose fist made, in the depression proximal to the head of the fifth metacarpal bone, at the junction of the red and white skin.

Myopia

BL18 Gan Shu - 1.5 cun lateral to GV8 level with the spinous process of T9

TW5 Waiguan - On the dorsum of the forearm, 2 cun above TW4 between the radius and the ulna.

LI4 Hegu - On the dorsum of the hand, between the 1st and 2nd metacarpal bones.

GB34 Yanglingquan - In a depression anterior and inferior to the head of the fibula.

ST36 Zusanli - 3 cun below ST35 one finger width lateral from the anterior crest of the tibia, in the tibialis anterior muscle.

TW17 Yifeng - Posterior to the lobule of the ear in a depression between the mandible and the mastoid process.

GB31 Fengshi - 7 cun above the transverse popliteal crease on the lateral midline of thigh, where the tip of the middle finger touches when the patient is standing and hands are at their sides.

ST1 Chengqi - Directly below the pupil between the eyeball and the infraorbital ridge.

BL62 Shenmai - In a depression directly below the lateral malleolus.

SI3 Houxi - With a loose fist made, in the depression proximal to the head of the fifth metacarpal bone, at the junction of the red and white skin.

Stye

TW5 Waiguan - On the dorsum of the forearm, 2 cun above TW4 between the radius and the ulna.

SI3 Houxi - With a loose fist made, in the depression proximal to the head of the fifth metacarpal bone, at the junction of the red and white skin.

LV2 Xingjian - On dorsum of the foot between the 1st and 2nd toes, proximal to the margin of the web at the junction of the red and white skin.

LI4 Hegu - On the dorsum of the hand, between the 1st and 2nd metacarpal bones.

Sharp conjunctivitis

BL1 Jingming - 0.1 cun superior to the inner canthus of the eye in a depression.

GB1 Tongziliao - 0.5 cun lateral to the outer canthus of the eye in a depression on the lateral side of the orbit.

BL2 Zanzhu - In the supraorbital notch at the medial end of the eyebrow.

BL62 Shenmai - In a depression directly below the lateral malleolus.

GB14 Yangbai - On the forehead directly above the pupil, 1 cun above the midpoint of the eyebrow.

TW5 Waiguan - On the dorsum of the forearm, 2 cun above TW4 between the radius and the ulna.

LV3 Taichong - On dorsum of the foot in a depression distal to the junction of the 1st and 2nd metatarsal bones.

Conclusions

The use of the acupuncture for the treatment of the ophthalmologic affections has demonstrated to be an effective method and less invasive.

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