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Acupuncture: A History

By Stephen Basser

Introduction

Acupuncture is a therapy based on ancient Chinese philosophy.^[1] The practice of acupuncture is fairly widespread and is used by both medically and non-medically trained persons. The technique involves the puncturing of the skin with needles to achieve therapeutic benefit and is based upon the belief that the human body is subject to disease when there are imbalances in the level of invisible life forces.

The needles are used to stimulate various points located over the body, and by this means the body's balance can be restored. The needles are usually inserted and twirled and may be left in for short periods. The points chosen for stimulation depend upon the patient's symptoms, the season, the weather, and the result of taking the pulse at the wrist. Some modern practitioners use low-level laser light instead of needles.

Beginnings

In the early 1970s manuscripts dating from 168 B.C.E. were discovered at the Ma-wang-tui graves.^[2,3,4] These provide a picture of Chinese medicine as it existed during the third to second century B.C.E. and describe all the therapeutic procedures in use during this period.^[5] Acupuncture is not mentioned in these texts. As a therapeutic technique, acupuncture was first described in the Shi-chi text in the year 90 B.C.E. No known Chinese source prior to this time refers to the technique, though earlier texts do describe the use of objects such as sharp stones to drain blood or infection.^[6]

The Ma-wang-tui texts describe 11 mo, or vessels, that were believed to contain in addition to blood a life force known as *ch'i* or *pneuma*.^[7] There was no distinction made at this time between vessels on the basis of content, and no information was provided on how the blood and *ch'i* circulated in the vessels, which did not

make up a connected system.^[8] By the end of the first century B.C.E., it was believed that there were 12 vessels, and that these were connected in a network. In addition, a picture had developed of the ch'i flowing through vessels separate from blood.^[9,10,11]

The most important text of this time -- the Huang-ti nei-ching -- mentions 12 connected vessels with different courses to the 11 described earlier.^[12] These were called "conduits" (*ching*) or "conduit vessels" (*ching-mo*). It also records a large number of holes which are located over the body on these vessels. Many modern writers refer to these vessels as "meridians."^[13,14]

In early times the Chinese thought disease was closely related to the vascular system and, as noted above, treatment often involved bleeding with sharp stones.^[15] Later the concept of a disease-causing agent -- the *hsieh* -- was developed. It was believed that this could lodge in the vessels and interfere with the flow in them. The concept of ch'i (represented in some texts as qi) came from the term *hsieh-chi*, or evil influences, which in turn developed from an earlier time in Chinese history when the agents of illness were thought to be demons (*hsieh-kuei*).^[16]

The wind was originally regarded as a demon and therefore an agent of illness. As a spirit or demon the wind resided, it was believed, in caves or tunnels. The term for "caves" is used in acupuncture literature to designate the holes in the skin through which the ch'i is able to flow into and out of the body -- *hsueh*. It was believed that through the insertion of different kinds of needles into these holes the flow of ch'i could be increased or decreased to achieve a more normal state of health.

Ch'i was considered to float through the air, and flow with blood. Each body organ was thought to send its own ch'i through the body, giving rise to the belief that the state of each organ can be determined through proper evaluation of the pulse. The Chinese character used to represent ch'i is literally read as "vapors rising from food."^[17]

Supporters of acupuncture like to use the word "energy" in association with the term ch'i, but it is clear that: "the core concept of ch'i bears no resemblance to the western concept of energy (regardless of whether the latter is borrowed from the physical sciences or from colloquial use)."^[18]

Over time the connection between needling and ch'i, which formed the basis of acupuncture, was described in the context of an emerging cosmological view of the world, not evident in the earlier descriptions of medical bleeding. Organic medicine was subsumed under this emerging system of cosmological

correspondences.^[19,20]

When the system of openings or holes along the vessels was first described, there were 365, not because this number had been anatomically identified, but because this corresponded to the days in one year. Early texts make no reference to the openings -- they are just suddenly described, and there are 365 of them. The absence of any objective basis for the openings is shown by the fact that many texts describe a different total number of them.^[21]

The vessels, and not the openings, were the central feature of "ancient" acupuncture, whereas in modern practice the points appear to be of prime importance. The vessels have, over time, lost their association with the vascular system^[22] and in the West are now viewed primarily as functional pathways linking the openings. The use of the term "meridian" rather than "vessel" merely serves to aid in clouding the issue.

A further problem is an apparent contradiction in that the modern practice of acupuncture seems to be based on the pre- and postcirculation concepts. That is, the vessels are needled as if they constitute separate units, while at the same time most practitioners of Traditional Chinese Medicine also rely on wrist pulse palpation, which makes sense only if the flow through the vessels is continuous.

If the flow was not continuous (i.e., the vessels not connected), then each vessel would need to be palpated for its own pulse. This is, in fact, what was originally described, and it seems that this basic contradiction has arisen from a partial acceptance and a partial rejection of history.^[23] It is unclear why this occurred and how it was decided what to retain and what to discard.

Most people have heard of the terms "yin" and "yang," which describe concepts that form an important part of the history of Chinese medicine and acupuncture. An ill person was considered to be out of balance with nature and these two opposing forces. Originally the terms meant shady (yin) and sunny (yang) side of a hill.^[24]

The belief in these forces was based on the view that most of the natural world consisted of events that were cyclical and therefore caused by the rise and fall of opposite, but complementary, forces. There was also an element of the ancient belief in a particular form of magic -- that like corresponds to like. In other words, it was believed that hurting a picture of a person would result in real harm to the person, or eating food that looked like a particular body organ would be beneficial to that organ.

Another important natural philosophy in the history of Chinese medicine was the doctrine of the Five Phases or Elements (*wu-hsing*), which involved the categorizing of natural phenomena, in particular water, fire, metal, wood, and soil into five separate lines of correspondence.^[25]

The initial application of these philosophies to medicine was characterized by a number of different schools with different theories, many of them apparently contradicting each other (e.g., supporters of the Five Phases doctrine rejected the yin/yang concept).^[26] Even in the one book, virtually side by side, there could be guidelines based on seemingly mutually exclusive (as seen through Western eyes) patterns of knowledge. For example, do the terms *hsin* (heart), *kan* (liver), and *p'i* (spleen) refer to anatomical structures or abstract functional systems? In the Chinese medical literature there is reference to both, and so neither is "correct."

These problems arose because there was primarily a reliance on subjective perceptions and no system for acquiring and recording information objectively.

The early understanding of health and illness in China was derived almost entirely from analogical conclusions and not anatomical evidence.^[27,28,29] It was not until the eighteenth century that it began to be acknowledged that a conception of function is of no use without an understanding of actual structure. Surgery was prohibited for a long time in China since it was regarded as unacceptable to open the body in this way.^[30]

It is important to remember that acupuncture arose at a time when there was no understanding of modern physiology, biochemistry, or healing mechanisms. If a person was sick and treated with acupuncture, and he improved, it was assumed that the treatment had caused the improvement. There was no formal study of diseases and their natural history, and no attempt was made to determine whether the person would have improved without the treatment.

Without having a scientific basis for determining the success or failure of treatment the two events -- giving a treatment and symptom improvement -- were causally related, and in this way many specific treatments, including acupuncture, have been passed on untested to this day.

The Early 1900s

By the early twentieth century Western science came to be

regarded as fundamental to China's future development, but in the eyes of many this created a conflict with the desire to preserve what was considered uniquely Chinese.^[31]

The dominant reformist view was that to retain Traditional Chinese Medicine (TCM) "as is" was equivalent to saying that modern scientific medicine was only for foreigners and must be denied to the Chinese.^[32] Science, it was argued, was universal and belonged to China as much as the rest of the world. The distinction was not between Chinese and Western medicine, but rather between scientific and unscientific medicine. TCM was not to be rejected outright, but should be examined using the methods of science.^[33]

The early Chinese Communist Party, in particular, expressed considerable antipathy toward TCM, ridiculing it as superstitious, irrational, and backward:^[34]

"Our men of learning do not understand science; thus they make use of yin-yang signs and beliefs in the five elements to confuse the world....Our doctors do not understand science: they not only know nothing of human anatomy, but also know nothing of the analysis of medicines; as for bacterial poisoning and infections they have not even heard of them....We will never comprehend the ch'i even if we were to search everywhere in the universe. All of these fanciful notions and irrational beliefs can be corrected at their roots by science."^[35]

In practice this meant that TCM techniques, such as acupuncture, became marginalized and were mostly restricted to the rural areas.^[36,37,38] Medical journals made little mention of TCM at this time - - during the period 1927-36 there was not a single paper on acupuncture published in the *Chinese Journal of Physiology*.

Mao Tse-Tung and the Cultural Revolution

It was left to Mao Tse-tung to save TCM, including acupuncture, by casting it into the political arena.^[39-42] The era of Mao Tse-tung saw a resurgence of interest in TCM as a result of:

1. Mao's personal involvement. (Interestingly, though, Mao is reported to have rejected TCM when he was sick: "even though I believe we should promote Chinese medicine, I personally do not believe in it. I don't take Chinese medicine...."^[43])
2. The need to provide medical care to a large rural population. When the People's Republic of China was formed in 1949, China was an unhealthy place, and the

rural areas were particularly poorly serviced. There were few Western doctors, and most of these were caring for the wealthy or foreigners.

3. The Party's desire for increased power and control. By 1968 the Ministry of Public Health had become largely irrelevant, and most of the pre-Cultural Revolution leaders had been removed and replaced with army representatives. Decision-making power resided almost entirely with Party leaders.

Acupuncture and other traditional therapies such as herbal medicine were powerful political tools and were used to judge support for the Cultural Revolution.^[44,45] At one stage, the head of the North-East Public Health Board was publicly denounced for expressing opposition to TCM, and the First Vice Minister who had been the Health Care leader since the 1930s "confessed" in the *People's Daily* to having also opposed it. The reason for his opposition was because he was "divorced from Party leadership."^[46]

Doctors and patients came under considerable political pressure to use traditional techniques, and critics were harshly treated. This pressure also impacted upon the medical literature, with the *Chinese Medical Journal* being replaced in October 1966 by a frankly political journal -- *China's Medicine* -- whose banner included the words "official organ of the Chinese Medical Association."^[47] The editorial of the first edition proclaimed: "We will hold still higher the great red banner of Mao Tse-tung's thought, creatively study and apply Chairman Mao's works and continuously advance the revolutionization of our ideology and work so that we may better serve the Chinese people and the revolutionary people of the world."^[48]

After the *Chinese Medical Journal* was recommenced in 1973, this policy of publishing material of a political nature continued.^[49,50] It was only after the demise of the "Gang of Four" in 1976 that this emphasis was discarded and there appeared for the first time revelations about the impact that the political climate had had on medical practice.

In 1987, in a paper on the history of the *Chinese Medical Journal*, this period was reviewed: "It is sad to recollect the gloomy days of the 'Cultural Revolution,' which lasted 10 years starting in 1966. What happened to the *Journal*? *CMJ* was replaced by *China's Medicine*, which appeared from 1966 to 1968, filled with political documents, but very few medical papers....Although our *Journal* resumed publication in 1975, many authors still started their scientific articles with superfluous political sloganeering....Low quality papers were also accepted. Fortunately, normalcy was

gradually restored in the *Journal* after 1979."^[51]

In China today, Western medicine and biomedical science predominates, but there are still many clinics offering purely TCM, and an increasing number offering both Western and Chinese medicine. As was the case in the early part of the twentieth century, there are calls for objective scientific evaluation of past claims.^[52,53] Interestingly this is consistent with Mao's teaching, as he called for the modernization of Traditional Chinese Medicine^[54] and urged the Chinese to "uncover the treasure house and raise its standards."^[55]

Assessing Acupuncture

Assessing acupuncture within the Western scientific framework is a difficult task. As noted earlier, there are a number of different streams of thought in the historical literature, and these came to coexist even though they may appear to us today to be "contradictory."^[56] In setting out to scientifically evaluate acupuncture, which approach is to be selected for study, and why?

Regardless of the number of points or "vessels" accepted, the consistent belief underlying most forms of acupuncture is that specific needling results in a specific effect. Thus, evidence supporting acupuncture must support the view that it is a separate and distinct entity -- that it does in fact exert an effect as a result of needling specific points on the body.

There must be evidence that insertion of needles at random points on the body does not exert the same effect as specific needling. This matter is crucial. Proponents of traditional Chinese acupuncture claim that it takes many years of specialized training to be able to identify the specific acupuncture needling sites. If an equivalent effect is seen when a needle is inserted in the same way anywhere away from the specific site that the theory requires, this refutes the theory.

It would also be useful for authors of papers on acupuncture to describe their preferred approach. Which description of the vessels is being used -- 11 or 12, connected or not connected -- and how many points are there? Why has this particular model been chosen in preference to the alternatives? What additional information, such as weather conditions, season, time of day, patient pulse (all required according to the *Huang-ti nei-ching*) has been included or excluded? The scientific assessment of acupuncture can proceed only when this information is provided and its source is declared.

Modern pain research has demonstrated it is possible to achieve

an analgesic effect by stimulating the body in certain ways -- such as by the use of cold, heat, or electrical current.^[57] One use of the latter is the technique of transelectrical nerve stimulation (TENS). These forms of stimulation are referred to as "counterirritant" techniques, or alternatively "hyperstimulation analgesia."^[58] The analgesic effect of these techniques is felt to be a physiological phenomenon in which the transmission of pain signals from one site or area is inhibited by the application of another noxious stimulus at a separate site, which may be remotely situated.^[59-64] If acupuncture is a distinct entity it should be possible to demonstrate a distinction between its effect and that of other counterirritants.

Early Days in the West

The early 1970s were a period during which visits to China were popular, and these usually involved demonstrations of the almost miraculous effectiveness of acupuncture (such as major operations supposedly performed with only acupuncture anesthesia). These visits were then written up in Western medical journals more as journalistic pieces than as critical scientific reviews.^[65,66,67]

The rapid increase in popularity of acupuncture in the West followed on from the reports of these visits, and it had captured the public's imagination long before scientific studies began to question the validity of the anecdotes.

An excellent example of this phenomenon, and a reminder of the importance of objective testing, is a published review of the use of acupuncture in sensorineural hearing loss.^[68] This paper describes well how easily an unproven remedy may be unquestioningly promoted and how scientific assessment usually occurs as an afterthought. It describes the following process:

- (a) A visit to China by a well-known, and respected, ear-nose-and-throat specialist.
- (b) Demonstrations for this person of apparent cures effected by acupuncture. No inquiry made as to whether the patients "cured" had had pre- and posttreatment audiometric testing.
- (c) Return to the U.S., whereupon reports of cures began to reach the public via the media, particularly popular newspapers and magazines.
- (d) Public demand for the treatment to be made available as a result of the media reports of these cures, and the apparently high success rates being achieved by trained local practitioners.

(e) The lack of objective scientific evidence for the reported cures is noted with concern, and research is conducted.

(f) Formal studies show that acupuncture has no effect upon hearing levels of individuals with sensorineural hearing loss.

The specialist who originally traveled to China, and wrote of the remarkable demonstrations he saw there, wrote the following just three years later:

"...it is a tragic mistake to take a child -- or an adult for that matter -- for acupuncture treatment for neurosensory deafness to any of the so-called acupuncture centers. There has not been one case of improvement demonstrated audiometrically, when a child or any deaf patient was tested before undergoing treatment and then afterwards by any reputable otologist. There have only been unreliable and perhaps planted testimonials."^[69]

Acupuncture Research

Carefully designed and conducted scientific studies have so far failed to demonstrate that the use of traditional Chinese acupuncture is associated with more effective pain relief than either placebo or counterirritant stimulation such as TENS.^[70-93]

Many of these trials have compared "real" acupuncture (needles inserted according to one of the traditional theories) and "sham" acupuncture (needles inserted at other sites which, in some cases, were sites that the traditional theory said were least likely to reduce pain) -- with no difference in effectiveness found.^[94-99] Since many of the studies were conducted with the cooperation and participation of professionals trained in that particular method of traditional acupuncture, it is insufficient to dismiss them as a part of some imaginary anti-alternative conspiracy.

It is accepted that there are modern theories that go part of the way to explaining the analgesic action of counterirritant techniques such as TENS^[100-109] though it must be noted that not all studies confirm that these have an effect over and above placebo.^[110,111,112] What is becoming clear is that it is the stimulation itself that is important, and the available evidence fails to support the view that acupuncture has an action or effect that is separate to that seen with these other techniques.

Some modern practitioners, in view of such evidence, have abandoned the ancient theories, including the vessels/meridians and even the acupuncture points. The British practitioner Felix Mann has been noted to observe wryly that if the modern texts are

to be believed there is "no skin left which is not an acupuncture point."^[113]

This is one response to the scientific examination of acupuncture, but the technique is not without its risks,^[114-120] and one could justifiably ask why, if equally effective techniques are available that do not involve puncturing the skin, do we continue to use this procedure?

"Viewed in this way acupuncture is an elaborate but unnecessarily complicated means of achieving analgesia when a clinically safer and easier method is available."^[121]

Low-level laser acupuncture is used by an increasing number of practitioners and, if effective, would be a useful noninvasive alternative. Unfortunately for users (and recipients) of this technique, the evidence supporting its use is pretty much nonexistent.^[122,123,124] There is also no evidence to support the view that acupuncture is of use in various systemic disorders (e.g., asthma,^[125,126] arthritis,^[127-130] psoriasis^[131]), and its use in such situations should be halted until such time as evidence is available.

Animal Acupuncture

Supporters of acupuncture sometimes refer to studies in animals claiming that these clearly demonstrate an analgesic effect, and since animals are not suggestible, the placebo effect is excluded.

It is not the intention of this paper to review this area in detail, but animals having acupuncture are often restrained in some way, and it is well described that when animals are restrained, they can develop anaesthesia due to fear and catalepsy -- the so-called still reaction.^[132,133] In addition, many of the animal studies do not compare "real" and "sham" acupuncture and provide no details as to the source of the acupuncture points used. Some animal species may have a physiological response to counterirritant stimulation similar to that of humans. As is the case for studies in humans, no useful information can be gleaned from research in animals that does not control for this possibility.

Conclusion

We have a more detailed knowledge of the human body than when acupuncture was first being described, and since that time many of its beliefs have been examined closely. From a Western scientific viewpoint we can now confidently state that:

(a) The concept of ch'i has no basis in human physiology.

(b) The vessels, or meridians, along which the needling points are supposedly located, have not been shown to exist and do not relate to our current knowledge of human anatomy.

(c) Specific acupuncture points have not been shown to exist -- as noted earlier, different acupuncture charts give different numbers and locations of points.

Scientific research has failed to confirm traditional Chinese acupuncture as a separate entity, and it appears to be just one of many "counterirritant" techniques demonstrated to have a mild analgesic effect. As it is an invasive technique, and safer means are available to achieve the same effect, how is its ongoing use to be justified? Further research may shed a different light on acupuncture, but until then:

(a) The public should have access to accurate information about acupuncture's current scientific status. There is a marked difference between the claims of some practitioners of acupuncture and the findings of the clinical research.

(b) Those who are claiming that traditional acupuncture is a distinct entity need to demonstrate this by conducting well-controlled trials and submitting the results for peer review.

(c) There is a need for scientifically rigorous studies of the effectiveness of acupuncture in a range of "systemic" conditions. Until these are performed, acupuncture should not be used in these conditions.

(d) Acupuncture should not be offered without full informed consent -- patients must be advised of acupuncture's scientific status, the availability of less invasive alternatives, and its possible adverse effects.

The need for more research, and research of a higher standard, has been stressed by authors of previous reviews of acupuncture.^[134-142]

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