

Medical Acupuncture Modality: Principles, Explanatory Model, and Scientific Developments During 2005-2012

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CLC Number: R245-3 Document Code: A

Abstract

Medical acupuncture is a term given to a pragmatic treatment approach used within the public health services in North Western Europe and other Western countries. Its rationale and methods are derived from, but distinct from, classical traditional Chinese medicine as it is practiced in China and in Europe. The article summarizes 9 principles of the medical acupuncture modality, offers an explanatory model, and reviews international research during 2005 to 2012.

Key Words

Acupuncture Therapy; Moxibustion Therapy; Acupuncture Effects; Acupuncture-moxibustion Mechanism

Medical acupuncture is a term given to a pragmatic treatment approach used within the public health services in North Western Europe and other Western countries. It is primarily used in primary health care units by trained general practitioners and physiotherapists, and in pain clinics within hospitals or in private practice. Its rationale and methods are derived from, but distinct from, classical TCM as it is practiced in China and in Europe.

1 Practitioners of Medical Acupuncture

There are several thousand practitioners in North Western Europe, primarily adhering to this mode of treatment and understanding of acupuncture. It could be of interest to the practitioners and to the readers of the *Journal of Acupuncture and Tuina Science*, to have a brief overview of the guiding principles and explanatory model of this form of acupuncture.

The age old system of treatment by percutaneous insertion of needles by the method and principles first outlined in the *Nei Jing (Internal Classic)* and *Nan Jing (Classic of Difficult Issues)* has entered mainstream medical treatment protocols among many health care professionals in the West.

Broadly speaking, acupuncture practitioners in North Western Europe are divided in two main groups.

The first group refers to those who work outside the public health systems, and adhere to the classic traditional Chinese medicine (TCM) understanding of the all-important vital energy qi, the balancing of the yin and yang, and the understanding of functions and pathology in the 5 element theory. Most of these practitioners use the modernized diagnostic and treatment principles in TCM of 8 principles and diagnosis and treatment according to syndrome differentiation.

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The second refers to those who work within the public health systems, and adhere to a pragmatic, neurophysiological oriented diagnostic and treatment approach, and where the explanatory model basically is a Western medical model.

2 Nine Principles of Medical Acupuncture Modality

The actual practice in both groups is based on the meridians and collaterals, and the standard acupuncture points are used as outlined in the public Chinese and WHO standards for point location. But the explanation and the priorities are different, as will be shown in the forthcoming 9 principles of medical acupuncture.

Firstly, medical acupuncture uses a neurophysiological basis for explaining acupuncture mechanisms and effects. The emphasis is on neurotransmitters and on peripheral and central nervous pathways, not on meridians and collaterals and the movement of qi.

Second, medical acupuncture adapts TCM diagnostic and treatment principles to a Western medical framework. We use TCM diagnostic and treatment procedures as an integral part of otherwise Western medical clinical setting.

Third, it prioritizes treatment indications based on scientific documentation, more than on recommendations from traditional textbooks. What is scientifically proven to have clinical relevant effects, in indexed and peer reviewed medical journals, and is neurophysiological sound, is recommended, and that which has not, or is not sound, is advised against. This is also the practice for traditional textbook indications or recommendations.

Fourth, it uses the meridian treatment principle, but also segmental needling approaches. We normally use the meridian points both distal and local on the localization principle of the affected area. But we also treat local and segmental pain without using the meridians or acupoints, for example in trigger point treatment, Ashi point treatment, or treatment of painful or inflamed areas with local non-specific needling.

Fifth, it views meridians more as descriptions of neuronal pathways, rather than physiological entities. We do not believe that meridians exist as anatomical structures, but are an ancient description of neurovascular signalling pathways that guide the insertion of needles in systematic patterns for improving of needle effects.

Sixth, broad point specificity on effects is unsure, as it has been difficult to scientifically verify. The idea that certain points can have very specific and peculiar effects, like Lieque (LU 7) for bent up sorrow, is doubted. We believe there are broad patterns, that needling can influence rebalancing of both psycho-somatic and physiological imbalance, but we are unconvinced of the

specificity of most of the acupoints, till further sound clinical evidence emerges.

Seventh, it bases indications on Western medical diagnosis. We always diagnose the patient's clinical conditions by the Western medical classification system, and justify acupuncture therapy in lieu of documented acupuncture effect on this classification system.

Eighth, it favours standardized treatment formulas. For simplicity, and because we consider that it is so far little real documented evidence of the superiority of individualized treatment protocols, we tend to prefer pragmatic standardized or semi-standardized formulas for the different medical conditions.

Last but not least, it has a pragmatic approach to the challenges of conflicting theoretical systems. Truth is what works. The significance of this is that the practitioners of medical acupuncture have parallel and varied belief systems that they are comfortable with. Using seemingly contradictory models of understanding and modes of treatment is contained in a pragmatic clinical orientation.

3 Main Indications for Medical Acupuncture

3.1 Obstruction of qi (pain syndromes)

Both acute and chronic pain, all subdivisions of nociceptive, inflammatory and neurophatic origin. Pain, and first and foremost musculo-skeletal pain is by far the most common complaint being treated with acupuncture in any setting with medical acupuncture health personnel.

3.2 Bi-Impediment syndrome (arthritic and arthritic pain and inflammation)

Bi-Impediment syndrome includes gonarthrosis, coxarthrosis, arthritic shoulder pain and morbus bechterew, etc. They are all common indications for medical acupuncture.

3.3 Yin/yang imbalances (neurohormonal autonomous disturbances in stress and sleep disorders)

Hypothalamic-pituitary-adrenal (HPA) axis disturbances, stress, insomnia and chronic fatigue have fewer documented treatment effects to point to, but is much sought after and commonly offered in medical acupuncture settings.

3.4 Wind-stroke (motor and sensory paresis after ischemic cerebral events and nerve damage)

After initial very positive project results showing substantial benefits of adjuvant acupuncture therapy in stroke rehabilitation, further studies have not so far been able to reproduce the initial results, and the tendency now is to offer acupuncture treatment in primary health care settings on more sporadic indications. There are little systematic acupuncture treatment programs in hospital stroke ward settings.

4 Possible Mechanism of Medical Acupuncture in Pain Syndromes

As pain-obstruction of qi is the main indication for treatment protocols in medical acupuncture, we would like to present a 6-level explanation of how we think acupuncture works to reduce pain. We regard pain as a neurophysiological multidimensional experience, involving distal neuronal pathways, ascending and descending modulating networks in the medulla and spinal cord and integrative cerebral systems influenced by fear, stress and learning.

4.1 Local effects

The local effects refer to direct vasoactive, pain-reducing (by migration of local opioid substances) and anti-inflammatory local and segmental effects.

4.2 Spinal effects

By a direct inhibiting signal transfer effect, and possible influence on N-Methyl-D-Aspartate (NMDA)-receptor activity in the spinal dorsal area.

4.3 Spinal and brain stem effects

By activating the descending pain-inhibiting nuclei and pathways from the brain stem to the spinal area, this is the classic gate-control regulation.

4.4 Hypothalamic effects

By increasing secretion of endorphins to the cerebrospinal fluid and blood vessels causes the general analgesic effects.

4.5 Limbic effects

Acupuncture stimulation transfers a cortical stimulus that reduces signal intensity in structures that are central in maintaining and strengthening the cognitive-emotional experience of chronic pain: acupuncture possibly reduces signal intensity in the limbic and paralimbic systems

4.6 Higher cortical effects-the placebo effect

Activation of cortical expectation/reward systems and the conditioning of Pavlovian reflexes around the needle ritual. This is the last effect, a hindrance in clinical research, but a blessing in clinical work, is by far the most important effect of acupuncture. This is not a feature solely associated with acupuncture. The best placebo effect is seen in surgery. But it is shown to be stronger than pills, and other physical treatments. This is therefore a very good reason to use acupuncture in various clinical syndromes, especially concerning pain.

So there is an anatomy of pain, and during the last fifteen years, the focus of acupuncture effects on pain has shifted from the periphery and spinal modulatory effects, to the effects on the higher cortical and subcortical structures.

5 Clinical Research Milestones During 2005-2012

Essential and to a large extent governing treatment policies and indications in medical acupuncture is the publications of well-designed singular clinical trials, reviews and meta-analysis. The evidence base and the clarification of effect size in several important musculoskeletal pain conditions has seen tremendous advances in the last 10 years, much thanks to the increasing standardization and quality improvement in project protocols and reporting, now defined by revised Consolidated Standards of Reporting Trials (CONSORT)^[1] and Standards for Reporting Interventions in Clinical Trials of Acupuncture (STRICTA)^[2].

The most important contribution to clinical research concerning randomized controlled trials (RCTs) for acupuncture clinical trials was published in 2010 (revised CONSORT), a standard set of reporting and thereby conducting criteria for RCTs^[1], and later the same year, the adjusted CONSORT-criteria applied to acupuncture treatment trials^[2].

The most important clinical trials being executed after the turn of the millennium are the large and extremely well conducted multi-center German acupuncture trials. Several thousand patients participated in a series of well designed clinical trials concerning common chronic pain conditions. This resulted in a long series of publications from 2005 to 2008 in all the most prestigious medical journals, with only some of them mentioned here in the reference list^[3-13]. The results were clearly positive, but conflicting. There were medium effects (effect size 0.4-0.6) in relation to the no-acupuncture control groups, but little or no difference between sham acupuncture (superficial acupuncture at non-acupuncture point sites) and true acupuncture. There were reasonable cost-effect results.

These results led to a large debate whether or not there were any acupuncture point-specific effects at all. Acupuncture treatment is effective, but does it matter where you insert the needle?

'How large are the nonspecific effects of acupuncture?' A meta-analysis of RCTs' by Linde K, et al^[4], offered an explanation and their conclusions were very important in solving the perplexities created by the large German trials. Basically it is simple. Needle specific effect sizes are small, in the area of 0.2, and in order to be able to show statistical significant effects with 80% power, sham-controlled clinical acupuncture studies in pain would have to recruit 800 patients.

There was a specific needle effect, but it was small. Most of the acupuncture trials before the large German trials had been too small to show the statistically significant differences.

Then, also in 2010, the Acupuncture Trialist Collaboration published its protocol^[15]. This group was an international network of many of the best Western clinical acupuncture researchers, and its research funded by a grant from the National Institutes of Health in the USA.

They collected individual patient data from a series of the largest clinical acupuncture trials and performed a massive meta-analysis of the available data on almost 18 000 patients. 'Acupuncture for chronic pain: individual patient data meta-analysis' by Vickers AJ, et al^[16].

The analyses showed defining results and reached sound conclusions. They found that the effect sizes were similar across pain conditions. Patients receiving acupuncture had less pain, with effect size of 0.15 for chronic headache, 0.16 for osteoarthritis, and 0.23 for back and neck pain, relative to sham-acupuncture controls. Comparing with no acupuncture-controls, the effect sizes were 0.42, 0.57, and 0.55. They concluded that acupuncture is effective for chronic pain. There is a significant difference between true and sham acupuncture. Acupuncture is more than a placebo treatment. But the specific needles effects are small and other factors than the needle effect on the acupoint are important factors in results of acupuncture treatment.

And as we write May 2013, this is the state of the art. This meta-analysis will probably for a long period defines the Western medical acupuncturist's understanding of the effect sizes of acupuncture treatment and how it can be understood.

Some will find the last ten years disturbing in the sense that acupuncture has not been able to show that it is a wonder cure for all ills. But more will find comfort in the fact that acupuncture is a clinical treatment modality with moderate effects in some important clinical conditions, especially concerning chronic pain. This is the way we see medicine and medical acupuncture. No miracle pill and no miracle needle, there are only good therapeutic skills, sound clinical judgments and hard work, and moderate effects.

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Received Date: May 15, 2013