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Treating Insomnia, Emotional Disorders and ADHD with Acupuncture

The authors of this article have had excellent results using acupuncture to treat patients presenting with some or all of the following complaints: insomnia, emotional disorders (i.e., anxiety, depression or stress) and ADHD (attention deficit hyperactivity disorder). This clinical study shows that acupuncture treats such conditions with fast results and few or no side-effects. During treatment, some patients were able to gradually stop using medications that they had used for years and return to a life free of both symptoms and medication. They felt good about their lives again.

Acupuncture was applied to two groups of points: body group points and scalp group points. Body group points were treated by stimulating local acupuncture points on the body surface, which in turn sent signals to ending nerves. The brain further directed the exchange of biochemical content and neurotransmitters, thus achieving treatment purposes. Scalp group points were treated by stimulating specific points on the scalp, thereby shifting the electromagnetic field surrounding the scalp, cranial bones, meninges and cerebrospinal fluid. This shift activates the neurons in the frontal lobe and allows them to communicate with the limbic system and thalamus. Our research shows that acupuncture is safe and effective, and that it deserves heightened research effort.

This clinical study also raised questions as to how acupuncture works, what is the key (or keys) to its functioning mechanism, how often and how long patients should receive the treatment, when patients can reduce or stop the medications they were taking, and the prognosis if acupuncture is the exclusive treatment patients will receive. We saw the results, but we do not know where the pathway for scalp acupuncture is. What would the nature of such a pathway be, given that there was no detectable movement that passed through the scalp skin?

The selection of these body and scalp points is consistent with both the theories of Chinese medicine and that of Western medicine. It also reflects theories in recent bioelectric and biochemical research reports.

General Information

The patients presented at our clinic with various conditions, but had asked the practitioner specifically to treat one or more of the following: insomnia, emotional disorders and ADHD. Patients all reported a history of these conditions, with durations ranging from a few days to several years; some had been inflicted with insomnia their whole life. The total number of patients was 55, with ages between 7-92 years old; the average age was 48.4; the average age for men was 20; and the average age for women was 35.

Patients with insomnia were grouped as follows : simple insomnia, n = 47; insomnia with emotional disorder, n = 33; insomnia with ADHD, n = 1. Patients without insomnia were grouped as follows: ADHD, n = 2 (one adult); emotional disorder, n =39 and emotional disorder without insomnia, n = 6. Of 55 patients, 23 took different medications. Patient information is shown below:

Patients with Insomnia and/or Emotional Disorders/ADHD

Patient Number	Age	Sex	Ins.	E.D.	Other health problem	Medications	Duration of complaint	Date treatment initiated	Report date	# sessions to obtain results
1	55	F	•	•		•	20 y	2/16/05	2/19/05	2
2	41	M	•		Tinnitus		w	1/6/05	1/13/05	1
3	37	M	•		Headache	•	w	12/11/04	12/13/04	1
4	55	M	•		Prostate		y	1/29/05	2/5/05	1
5	32	F	•	•	Hip pain		y	9/2/04	9/17/04	4
6	43	F	•	•	Hypertension		m	9/16/04	9/30/04	2
7	38	M	•	•			y	4/18/02	4/25/02	1
8	55	F	•		Menopause		i	1/10/05	1/17/05	1
9	55	F	•	•	Hip pain		i	1/15/02	2/20/02	1
10	47	F	•	•	Menopause		y	6/18/04	7/27/04	1
11	54	F	•	•	Allergy		i	10/24/03	12/08/04	1
12	50	F	•	•			y	8/24/04	10/14/04	2
13	50	F	•		Menopause Joint pain Palpitations		y	6/11/03	6/16/03	1
14	53	F	•	•	Reflux	•	y	12/9/04	12/21/04	2 sleep; >10 emoti
15	73	M		•	Reflux Allergy	•	y	1/4/05	1/11/05	1

16	61	F	•	•	Asthma	•	y	16/2/04	1/18/05	> 10
17	41	F	•	•	Shoulder pain	•	y	3/10/04	3/12/04	1
18	21	F	•	•	Asthma	•	6 m	3/26/04	4/2/04	3
19	45	F	•	•	Sinusitis	•	2 y	2/16/04	2/20/04	1
20	39	M	•		Allergy		y	8/10/04	8/17/04	1
21	16	M	•	•	ADHD	•	1 y	6/24/04	7/28/04	4
22	76	F	•		Autoimmune hepatitis	•	y	11/5/03	11/12/03	1
23	41	F	•		Headache	•	2 w	5/3/02	9/21/02	5
24	67	F	•	•	Psoriasis	•	20 y	4/3/03	4/11/03	2
25	67	M	•	•	Arthritis	•	y	5/20/04	5/25/04	1, no REM
26	25	M	•	•			y	8/14/04	8/17/04	1
27	55	F	•	•	Parkinson's Hypertension Cancer	•	y	11/10/04	12/7/04	2
28	42	F		•	Cancer	•	y	3/8/03	3/15/03	1
29	42	F	•	•	Back pain Headache		y	7/1/03	7/19/03	1
30	48	M	•	•	Endocarditis		w	7/17/04	8/7/04	1
31	28	F	•	•	SLE	•	w	4/18/03	4/29/03	2
32	52	F	•	•	Cysts Fibroids		w	4/17/03	5/17/03	3
33	65	M	•		Prostate Tinnitus		y	1/29/05	2/5/05	1
34	28	F	•	•	Hashimoto's	•	20 y	10/24/01	2/5/02	*
35	59	F	•	•	Hypertension Cancer		w	1/23/03	1/28/03	1
36	39	F	•	•	Headache		y	1/12/04	4/6/04	1
37	53	F	•	•	Allergy		2 m	12/12/03	1/2/04	1
38	48	F	•	•	Hypertension Glaucoma	•	y	6/26/03	6/27/03	1
39	55	M	•	•			w	12/16/01	12/26/01	1
40	61	F	•		Reflux		w	11/15/02	11/22/02	1
41	49	F	•	•	Shoulder pain		y	7/18/04	7/24/04	1
42	74	M	•				y	8/17/04	9/21/04	8
43	54	F	•		Hepatitis B		w	7/24/04	9/18/04	1

44	45	F	•	•			w	2/26/05	2/27/05	1
45	7	M			ADHD Asthma		y	3/12/04	3/17/04	1
46	50	M			ADHD Hypertension Headache	•	y	6/2/04	6/12/04	3
47	30	M		•			y	12/20/02	12/27/02	1
48	78	F		•			m	1/21/05	2/1/05	n/a **
49	35	M		•		•	y	5/28/04	6/3/04	1
50	92	F	•	•	Alzheimer's Edema Cancer		y	11/17/03	11/28/03	1
51	47	M		•		•	40 y	2/27/05	3/2/05	1
52	49	F	•				3 y	8/23/02	8/26/02	1
53	49	M	•		Headache		3 w	10/12/02	10/19/02	2
54	51	F	•	•		•	8 y	3/21/05	3/23/05	1
55	43	M	•	•		•	25 y	3/18/05	3/22/05	1

Note: Ins. = insomnia; E.D. = emotional disorder; w = weeks; m = months; y = years; i = intermittent; emoti=emotion (anxiety/depression).

Diagnosis

Insomnia means the inability to sleep normally. Patients complained of difficulty falling sleep and/or frequent awakening during the night and/or early morning awakening, with or without anxiety, depression and stress. Three patients presented with ADHD, one of whom also complained of insomnia and emotional disorder.

Method of Practice

Patients lie on the treatment table facing up or down, depending on the presence of other conditions requiring treatment. With back pain, the patient needs to lie face-down; with headache, the patient needs to lie face-up. Generally speaking, patients are asked to take the most comfortable position before treatment starts, because the treatment requires patients to maintain that position for more than 30 minutes.

1. Sterile, stainless steel acupuncture needles of 13-25 mm in length and 0.25 mm in diameter are used.
2. Acupoints are cleaned with 70% alcohol.

3. Points are needled until a "*de qi*" sensation is obtained (i.e., a characteristic, slightly painful or distending sensation). Needles are kept in place for at least 30-45 minutes, longer if the patient falls asleep.
4. During the treatment, needles are manipulated by hand every 5-10 minutes unless the patient falls asleep.
5. Before needles are removed, they are manipulated once again to obtain the "*de qi*" sensation.
6. Needles are removed using a clean, dry cotton ball to close the hole, unless the "reducing method" is used.
7. Choice of points:
 1. Body group points: Heart, Stomach, Spleen, Kidney, and Liver meridians.
 2. Scalp group points: Du, Bladder and Gallbladder meridians
8. Chinese herbal medicine: herbal medicine was given to patients whenever applicable. Herbal medicine enhances treatment between sessions of acupuncture.

Result Measuring Standard

There is a lack of a measuring standard in the world of insomnia, emotional disorders and ADHD. Many clinicians depend entirely on how patients complain and how patients behave. In this clinical trial, we use a standard wherein results are grouped into three levels of effectiveness:

Standard 1, remarkable result: patient fell asleep during the treatment or the same night after treatment; emotion was stable, without depression, anxiety and/or stress after 1-3 sessions of acupuncture treatment.

Standard 2, effective result: patient responded to acupuncture within 4-10 sessions; patient felt more relaxed after each session, but couldn't sleep through the night; emotional disorder persisted for two days after treatment; other factors were present that prevented patients from responding to treatment more favorably.

Standard 3, no improvement: after 10 sessions of acupuncture treatment, patient did not show any improvement; patient continued to have insomnia, emotional disorder and/or lack of attention in the classroom or work space; or had a bad reaction to treatment.

Results

Among the 55 patients with insomnia, emotion disorder and/or ADHD, 46 (83.64%) showed remarkable results; 7 (12.73%) showed effective results; and 2 (3.64%) showed no improvement. Thus the effective cases totaled 53 (96.36%). Among them, 37 (67.27%) showed a good response in the first treatment session.

Among the 47 patients with insomnia, 40 (85.11%) showed remarkable results; 5 (10.64%) showed effective results; and 2 (4.26%) showed no improvement. Thus the effective cases totaled 45 (95.74%). Among them, 29 (61.70%) showed a good response in the first treatment session.

Among the 39 patients with emotional disorder, 32 (82.05%) showed remarkable results; 3 (7.69%) showed effective results; and 4 (10.26%) showed no improvement. Thus the effective cases totaled 35 (89.74%). Among them, 24 (61.54%) showed a good response in the first treatment session.

Of the 3 patients with ADHD, all 3 showed remarkable results.

Discussion

With an understanding of Chinese and Western medical theories, we applied treatment to two groups of acupuncture points (body group points and scalp group points) depending on pattern differentiation of patients presenting with insomnia and/or emotional disorders and/or ADHD. Although Chinese medical theory is different from Western medicine, both are grounded in research and treatment of the human body. Chinese medicine uses unadorned and abstract words to explain and describe physiology and pathology, and then treats according to Chinese medical theory; Western biomedicine is grounded in the scientific method and the accumulation of empirical data.

This clinical study uses both medical theories in deriving the treatment for insomnia, emotional disorders and ADHD, and examines the relationship between Chinese and Western medical theories in order to further a better understanding of the application of Chinese medicine in practice.

1. Chinese medicine consists of the practice of acupuncture and the prescription of Chinese herbal medicine. It has been in practice for over 1,000 years, which has seen the accumulation of abundant clinical experience. Our clinical research for treating insomnia, emotional disorders and ADHD is based on Chinese medical principles and also tallies with Western medical theory. Chinese medicine states that yin and yang imbalance is the root cause of these complaints. Thus, all three complaints share a common root and can mutually exacerbate one another; this prediction is borne out in clinical practice.

Symptoms may have different causes and involve damage to different organ systems within Chinese medicine. Chinese medical theory states that deficiency of *qi* (which belongs to yang) and deficiency of blood (which belongs to yin), or prolonged illness, causes the kidney to be unable to nourish the heart. Additionally, deficient fire combines with dampness, flaring upward to disturb the function and obstruct the orifices of the heart, thereby causing insomnia at night and palpitation, anxiety or depression in the daytime.

Depression and anxiety are due to liver *qi* stagnation or liver fire flaring upward. In normal physiology, liver *qi* flows smoothly in the body, helping the heart circulate blood to the whole body and assisting the function of the digestive system and the proper circulation of body fluids. Liver *qi* deficiency or liver *qi* stagnation therefore cause *qi* disturbance in the body, resulting in emotional depression. *Qi* stagnation for a prolonged period of time can cause fire, which, flaring upward, causes symptoms of anxiety and/or ADHD. Further, should the fire impair the kidney yin, the disease will become chronic.

The spleen in Chinese medical theory belongs to Western medicine's digestive system, among other functions. When spleen deficiency causes *qi* and blood deficiency (the spleen is the source of *qi* and blood), *qi* and Blood fail to nourish the heart, causing insomnia. When spleen *qi* deficiency results in impairment of digestion and assimilation, stagnation of dampness in the Middle Jiao ensues, causing phlegm-heat or damp-heat, again resulting in insomnia, emotional disorders and/or ADHD.

Thus, insomnia, emotional disorders and ADHD, in Chinese medical theory, are basically due to the dysfunction of the liver, heart and spleen, with chronic symptoms belonging to kidney deficiency. According to Chinese medical Five Element relations, the liver belongs to wood that controls emotion; in other words, the liver is the most important organ in Chinese medical theory for these complaints. Liver *qi* stagnation is very close to the Western medical description of depression; when liver *qi* can't move well and the stagnated *qi* converts to liver fire, symptoms of anxiety may ensue. However, liver energy comes from both the spleen and kidney. The spleen is the source of growth and development that is the source of the *qi* of the liver, and the liver and kidney are in an interdependent relationship. Thus, when patients experience chronic disease, it will affect the kidney and cause kidney deficiency, thereby simultaneously causing liver deficiency.

The heart belongs to fire, and controls sleep at nighttime and happiness during the daytime. When the spleen is deficient, vital *qi* and blood are insufficient to nourish the heart, thereby causing insomnia. If liver *qi* stagnation or liver fire flares up, yin is consumed, thereby resulting in a relative excess of yang, which

causes insomnia as well.

Since insomnia, emotional disorders and ADHD belong to the Chinese medical theory's descriptions of heart, liver and spleen disorders, as well as the kidney (if the conditions are chronic), acupuncture treatment consists of: 1. Body group points at the Heart, Liver, Spleen and Kidney meridians; 2. Scalp points at the Du (governor of the yang of the whole body), Bladder (governor of the viscera of the whole body, and the equilibrium deficiency and excess) and Gallbladder (which is in an exterior-interior relationship to the liver). Both groups of acupuncture points used together insure treatment success.

2. Moreover, the effects of treatment are not only well-documented in past Chinese medical research, but also are detected with modern Western medical equipment, namely EEG (electroencephalogram).

The cerebral cortex is a 6-mm thick layer composed by neuronal tissue producing an EEG signal. The cortical layer is subdivided into six layers which are stratified according to neuronal cell type, classified chiefly by cell density, interconnections with other cortical cells, and connections to other areas of the brain. In general, sleep studies use EEG as the primary measure for the detection of different sleep stages, because intrinsic electrophysiological properties of neurons have an important role in the production of various EEG oscillations (Idzikowski C. *Journal of Psychosomatic Research*.1994; 38:27-40).

Sleep patterns have five stages: 1, 2, 3, 4 and *REM* (rapid eye movement) sleep. These stages progress in a cycle from stage 1 to REM sleep, then the cycle starts over again with stage 1. We spend almost 50 percent of our total sleep time in stage 2 sleep, about 20 percent in REM sleep, and the remaining 30 percent in the other stages. Also, scientists believe that biochemical changes affect different parts of the brain through nervous fibers, and that bioelectric changes affect connections among cells of the brain. EEG is capable of showing the bioelectric changes, and shows distinct patterns depending on the subject's stage of sleep.

This clinical study shows that acupuncture has likely altered the brain's bioelectric and biochemical patterns by changing the release pattern of neurotransmitters and neurohormones through conductive acupuncture needles from two different group points in the body.

3. The brain can be conceived of as an input-output system. The input is the sensory system that inputs sensations from the environment to the brain; the output is the motor system that controls motion. The frontal lobe is the central part of the higher mammal. The two frontal lobes, right and left, communicate with each other through the corpus callosum. The function of the frontal lobe is mainly dedicated to

planning and to the motor-related higher functions where action, movement and related decisions are made. It is the output function of the brain that we know as motor.

Scientists have found that ADHD patients often show frontal cortex atrophy. According to research on ADHD conducted by the NIMH's Child Psychiatry Branch in 2002, children with ADHD showed 3-4 percent smaller brain volumes in the frontal lobes, temporal gray matter, caudate nucleus and cerebellum. Several studies in recent years estimated that between 30 percent and 70 percent of children with ADHD continue to exhibit symptoms in their adult years.

Scientists also found that the frontal cortex controls emotion, including the subjective capability of feeling pleasant and unpleasant. Neuroscientists at Stanford University and the University of California used functional magnetic resonance imaging (fMRI) to examine how two types of scents - an appealing, citrus-smelling scent and a repulsive, rancid-smelling scent - in mild and heavy doses would affect brain activity. The researchers found that the orbitofrontal cortex (located in the front of the brain) determines whether a scent is perceived as pleasant or unpleasant, while the amygdala determines the degree of pleasantness or unpleasantness. (The amygdala has connections with diverse regions of the forebrain, the brainstem and the hypothalamus. Scientists believe the amygdala is responsible for emotion.) A person's emotional response to visual, auditory and other sensory stimuli is determined via the input system and subsequent sensory processing by the central nervous system.

There have been a number of studies showing that insomnia may be related to melatonin, which is secreted from the limbic and thalamic systems. Both of these systems are hidden deep within the brain mass. Hence, acupuncture is unable to stimulate them directly. However, they can be stimulated indirectly by treating acupuncture points external to the frontal cortical surface, which in turn is connected to the corpus callosum.

The Thalamic Neuron Theory (TNT) postulates that the central nervous system (CNS) is involved in all disease processes, as the CNS not only processes incoming physical and chemical information from the periphery, but also sends out physiological commands to the periphery in order to maintain homeostasis of the entire body. It regulates behavior such as sleep, wakefulness, feeding and sexual activity.

In short, insomnia, emotional disorders and ADHD have their roots deep in the central nervous system, specifically the frontal cortex, which via the corpus callosum is connected to the limbic and thalamic systems and to the cerebellum. Keeping this in mind, and the fact that the needles used in acupuncture are made of metal, we postulate that acupuncture can stimulate areas of the central nervous system affected by

insomnia through conductive tissues consisting of skin, scalp, skull bone, ectocinerea, periosteum and cerebrospinal fluid (CSF) in the front cortex. Acupuncture thus counters the effect on the central nervous system caused by insomnia, and re-establishes equilibrium in the patient's physiological system.

4. The human brain is a product of genetic instructions, cellular interactions and influences of innate activity and external stimulation. Treatment of body group acupoints with needles may cause local irritation of the skin or microscopic damage to cells, causing them to produce or release an umber of chemicals such as bradykinin, substance P and prostaglandins. These chemicals then sensitize or activate the cellular membrane potentials. When sufficient potentials are built up, an action potential is triggered or generated that will be transmitted to the spinal cord, and then to the upper part of the brain via nerve axons (Z.H. Cho, etc. *Neuro-Acupuncture*, 100).

5. Acupuncture treatment is a superb choice for healing insomnia, emotional disorders and ADHD. In this clinical trial, we have presented two systems for it: body group points and scalp group acupuncture points, respectively reflecting the input and output systems in Western medicine. Body group acupuncture points aim to influence the input system in the brain; scalp group acupuncture points aim to regulate the output system, e.g. via the frontal cortex through regulating the corpus callosum and cell conduct in order to balance the neuron circuitry. The two systems work together to enhance the natural treatment successes.

In this clinical study, we administered both sets of points to patients with conditions of insomnia, emotional disorders or ADHD and further limiting the frequency of manipulating the needles during treatment. In other words, patients with any of the abovementioned conditions received both sets of points. Data were subsequently collected from each patient. Among the 55 patients that received treatment, the total effectiveness rate is 96.36%. Among these 55 patients, 47 of them came with insomnia, and their total effectiveness rate is 95.74%; those 39 patients who came with emotion disorder had a total effectiveness rate of 98.74%. Finally, all 3 ADHD patients reported complete healing or a 100% total effective rate.

Some patients with insomnia had been taking prescription drug for a long time. As a result, they were totally dependent on and addicted to sleeping pills. Interestingly they fell asleep naturally, without their sleeping pills, while receiving acupuncture treatment. One can draw the conclusion that for these patients there is a more effective way to treat insomnia. There were still other patients who did not sleep during treatment but nevertheless reported that they were relaxed during treatment. A few patients did not respond at all for the first 10 treatment sessions and yet were able to sleep at night if they continued their treatment for a few

more sessions, e.g. case number 16 in the above chart. Some patients receiving the treatment felt their sleep patterns normalizing and then reduced medication, and some of them cut it off altogether, such as numbers 1 and 24 above.

5. Although insomnia, emotional disorders and ADHD are different diseases or conditions, we prescribed the same acupuncture points for treatment according to the Chinese medical aphorism reflecting common etiologies: "different diseases, same treatment." Insomnia can be a disease in its own right, and can also be a symptom accompanying another diseases or surrounding abnormal sensory stimulation. Emotional disorders may be caused by genetic deregulation of brain neurotransmitters or, like insomnia, may be caused by or associated with another disease process. The cause or causes of ADHD are as yet unknown, but it may be determined by genes, diet, or unknown events occurring during growth and development that affect the thickness of the cerebral cortex. These are different diseases, but in Western medical theory their pathogenesis is similar: imbalance of neurotransmitters causes an abnormality in the brain's bioelectric patterns. How to regulate the abnormal brain bioelectric circuit is the key of treatment for these three diseases.

This clinical study designed two acupuncture group points: body group points and scalp group points. The body group points correspond to the input system; the scalp group points correspond to the output system. The treatment mechanism is not completely understood, but both group points may, through metal needles, cause local irritation and/or stimulate the local tissues or cells that release substances such as bradykinin, substance P and prostaglandin. These biochemicals then sensitize or activate the cellular membrane potentials. When sufficient potentials are built up, an action potential is triggered or generated that will be through two systems: 1. Input system: from nerve ending transmit signals via axons to the spinal cord, and then to the upper part of the brain. 2. Output system: responds appropriately through conductive tissues to the front cortex and/or sensory neuron.

Acupuncture application is straightforward and safe. The results are satisfactory and without side-effects. Acupuncture deserves a closer look by the scientific community.



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