

Progress in Clinical Studies on Acupuncture Therapy in China: A Summary of Research in the Last Ten Years

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ABSTRACT

In the present paper, the authors review recent progress in clinical acupuncture treatment of (1) apoplectic sequelae, (2) facial palsy, (3) diabetes mellitus and diabetic peripheral neuropathy, (4) depressive disorder, (5) digestive system conditions, (6) gynaecological disorders and (7) trigeminal neuralgia. Studies have shown that the best indications for acupuncture therapy are disorders of the nervous system and the musculoskeletal system, Bi syndrome (arthralgia), surgery-related disorders and digestive system disorders. However, systematic research on acupuncture indications is necessary.

KEYWORDS review, acupuncture therapy, acupuncture indications, clinical studies

INTRODUCTION

Chinese acupuncture therapy, including acupuncture and moxibustion, has been used for the treatment of many types of disorders. In 1980, the World Health Organization (WHO) recommended 43 indications for acupuncture therapy.¹ Recently, a Chinese research group² reported that the spectrum of diseases that can be treated with acupuncture therapy comprises 16 major categories, such as conditions of the musculoskeletal system, nervous system, digestive system, cardiovascular system and genito-urinary system; and 461 disorders, such as pain of different origins, hypertension, chronic colitis, facial palsy, apoplectic sequelae, acute and chronic strain, cervical spondylotic syndrome, lumbar muscle strain, scapulohumeral periarthritis, osteoarthritis, rheumatoid arthritis, sciatica, herniated lumbar disc, tennis elbow, peritendonitis, fasciitis and synovitis. This group of researchers

introduced a three-tier system to identify the effectiveness of acupuncture. The first class of disease spectrum refers to the conditions that can be greatly improved by acupuncture alone, such as facial palsy. The second class refers to those conditions for which the symptoms and/or signs can be improved rather than being eliminated completely by acupuncture, such as mild and moderate gastroparesis, hypertension and hyperglycaemia. The third class is those in which acupuncture is an adjunct therapy and can improve some of the symptoms. These conditions include atrophic gastritis and acute appendicitis.

To better assess the efficacy of acupuncture therapy in the treatment of common disorders, in recent years researchers^{3,4} have introduced strict approaches and internationally accepted methodologies of evidence-based medicine to acupuncture clinical research. We have

selected a few common conditions and summarised the research results of the last ten years in China.

1. APOPLECTIC SEQUELAE

Apoplectic sequelae are commonly treated with acupuncture in China.⁵⁻⁸ Randomised controlled trials (RCTs)^{9,10} show that acupuncture in combination with comprehensive rehabilitation training, such as limb-movement exercise and speech training, is effective in accelerating the improvement of stroke patients' functions, such as slurred speech, dyskinesia, urine retention, daily-life activity, nerve defect score and spasticity. The frequently used needling techniques are body acupuncture, scalp acupuncture and electroacupuncture (EA) in combination with functional exercises.

Acupuncture therapy needs to be applied as soon as the patient's condition is

stable. Stronger needling manipulation is preferred. Body acupoints used are GV 20 *Baihui*, GV 24 *Shenting*, LI 4 *Hegu*, PC 6 *Neiguan*, TE 5 *Waiguan*, GB 30 *Huantiao*, ST 36 *Zusanli*. Scalp acupuncture areas are MS 5 *Dingzhongxian*, MS 6 *Dingnie Qianxiexian*, MS 7 *Dingnie Houxixian* and Speech Areas II and III. Animal studies have shown^{11,12} that acupuncture could effectively improve microcirculation, lower blood viscosity and peripheral vascular resistance and cAMP/cGMP, reduce serum nitric oxide (NO), nitric oxide synthase (NOS), lipoperoxides (LPO) and malonaldehyde (MDA) contents, and raise serum superoxide dismutase (SOD) and glutathione peroxidase (GSH-Px), as well as blood perfusion in the regional locus of the brain in stroke patients.

2. FACIAL PARALYSIS

RCTs¹³ have shown that acupuncture was superior to medications, including prednisone, vitamin B1, vitamin B12 and dibazol, local muscular injection of vitamin B1 and vitamin B12 or oral administration of oryzanol, in restoring facial muscular function in patients with facial paralysis. A literature review¹³ indicated that in the early period of facial palsy, the effect of filiform needle stimulation was superior to that of EA, whereas at the medium and late stages, the effect of EA was superior to that of filiform needling, or ginger-separated moxibustion. However, acupoint-injection of compound *Salvia miltiorrhiza* or compound *Folium Isatidis* and *Angelica* root injections were superior to filiform needling.

A multi-modality management plan¹⁴⁻¹⁷ including filiform needle therapy, thermal needling, plum blossom needle tapping, infrared therapy TDP irradiation and cupping is often used in clinics. In addition, research shows that thread needling from ST 4 *Dicang* to ST 6 *Jiache*, from Ex-HN 17 *Qianzheng* to ST 7 *Xiaguan*, from LI 20 *Yingxiang* to SI 18 *Quanliao* plus bilateral LI 4 *Hegu* and moxibustion¹⁸ or shallow needling¹⁹

were better than routine needling at the facial points.

In summary, in the early period of attack, mild needling stimulation and shallow needling are highly recommended. Animal studies^{20,21} demonstrated that acupuncture or EA induced an increase in local blood circulation, neurotrophin 3 (NT3), brain natriuretic factor (BNDF), nerve growth factor (NGF) levels, tyrosine kinase C (TrkC) mRNA and NGF mRNA expression, local receptor density and axon counter transport rate. All of these may contribute to the effect of acupuncture on the recovery of facial paralysis.

3. DIABETES MELLITUS AND DIABETIC PERIPHERAL NEUROPATHY

There have been many research reports on acupuncture treatment of diabetes mellitus (DM) and diabetic peripheral neuropathy (DPN) in recent years in China.^{22,23} Acupuncture as an adjunct therapy is effective in lowering fasting blood sugar levels, improving DM patients' retinopathy, haemoglobin A1c (HbA1c), post-meal blood glucose 2h, diarrhoea, and diabetic neurogenic bladder. Among them, research on DPN is most commonly seen.²⁴ DPN is characterised by symmetrical sensory disturbance and dyskinesia in the four limbs, particularly the lower limbs. In the treatment of DPN,²⁵ approaches such as acupuncture, moxibustion, EA, point injection, scalp acupuncture, cutaneous needling and auricular acupressure are often used. Common acupoints used are LI 11 *Quchi*, PC 6 *Neiguan*, TE 5 *Waiguan*, ST 36 *Zusanli*, SP 6 *Sanyinjiao*, BL 40 *Weizhong*, KI 3 *Taixi*, *Ashi* points, BL 20 *Pishu*, BL 23 *Shenshu*, Ex-B 2 *Jiaji*, CV 4 *Guanyuan*, and *Yishu* (the pancreas *Shu*). After acupuncture, the indexes of blood rheology such as erythrocyte aggregation index (ηr) and haematocrit, erythrocyte index of rigidity (IR), triglycerides, total cholesterol (TC), whole blood viscosity, whole blood

reduced viscosity, fibrinogen (FIB) and fasting blood glucose levels decrease; whereas the insulin secretion, glucose utilisation, and NO increase. These may contribute to its effect in improving DPN in diabetes mellitus patients.²⁵⁻²⁷

4. DEPRESSIVE DISORDER

Acupuncture therapy is effective for post-stroke depression²⁸ and major depression.²⁹ A systematic review of ancient and modern literature indicated that the commonly used acupoints were, in the order of frequency, those of the Heart meridian, Pericardium meridian, Bladder meridian, Governor Vessel, Conception Vessel, Spleen meridian and Stomach meridian, such as HT 7 *Shenmen*, HT 5 *Tongli*, HT 9 *Shaochong*, PC 7 *Daling*, PC 8 *Laogong*, PC 5 *Jianshi*, BL 15 *Xinshu*, GV 20 *Baihui*, GV 26 *Shuigou*, GV 11 *Shendao*, CV 12 *Zhongwan*, SP 4 *Gongsun*, KI 1 *Yongquan* and KI 2 *Rangu*. Body and auricular acupuncture, acupuncture combined with psychological therapy, EA combined with Western medicines, or EA alone have been studied.³⁰ In general, the effectiveness of acupuncture therapy is comparable to Western medication such as Deanxit and Amitriptyline, or Chinese medicines^{31,32} in relieving symptoms of neurosis and increasing Hamilton Depression Rating Scale (HAMD) score. It has been reported³³ that scalp acupuncture could correct depression-induced increase of glucose metabolism level in the temporal lobe, occipital lobe and thalamus, and reverse its decrease in the parietal lobe of the patients with depression. After acupuncture plus antidepressants, IL21 β , IL26, tumor necrosis factor (TNF) 2 α , free thyroxine (FT4) levels decreased in comparison to patients without acupuncture treatment.³⁰ Acupuncture could also regulate the abnormal hypothalamus-pituitary axis, lowering plasma adrenocorticotrophic hormone (ACTH) and cortisol levels.^{34,35}

5. DIGESTIVE SYSTEM

Frequently reported acupuncture

treatment for disorders of the digestive system include peptic gastric ulcer,³⁶ chronic superficial gastritis,³⁶ gastroparesis,³⁷ gastroduodenal ulcer,³⁸ functional dyspepsia,³⁹ chronic non-specific ulcerative colitis,⁴⁰ and vomiting and nausea induced by radiotherapy, chemotherapy and fibroscopy.⁴¹ The commonly used therapies are auricular acupuncture, body acupuncture, point-injection, cupping and fire needle therapy. Acupoints used are CV12 *Zhongwan*, BL21 *Weishu*, BL17 *Geshu*, ST36 *Zusanli*, CV13 *Shangwan*, and BL20 *Pishu*. Most of these clinical studies are RCTs. Results displayed that acupuncture could effectively relieve epigastric pain, distension, fullness and poor appetite, and suppress secretion of gastric acid. Gastroscopic examination⁴² showed that after acupuncture treatment, the area of ulcer surface in the stomach reduced. A combined therapy of acupuncture and TDP significantly increased plasma gastrin and substance P levels as well as the frequency and amplitude of post-meal electrogastrogram in peptic gastric ulcer patients.⁴³ In cancer patients receiving radio- and chemo-therapy, acupuncture worked well in relieving gastrointestinal reactions such as vomiting, nausea and poor appetite.⁴⁴

6. GYNAECOLOGICAL DISORDERS

In the treatment of gynaecological disorders such as primary dysmenorrhoea,⁴⁵ chronic pelvic inflammation,⁴⁶ chronic inflammation in the appendage of the uterus,⁴⁷ functional uterine bleeding⁴⁸ and menopause syndrome,⁴⁹ the commonly used acupoints are CV4 *Guanyuan*, ST36 *Zusanli*, ST29 *Guilai*, CV3 *Zhongji*, SP6 *Sanyinjiao*, Ex-CA1 *Zigong*, SP10 *Xuehai*, LR3 *Taichong*, BL18 *Ganshu* and BL23 *Shenshu*. Some reports involved foot massage,⁵⁰ body acupuncture combined with ultrashort wave therapy⁴⁷ and oral administration of Chinese medical herbs.^{48,51} Acupuncture therapy has been found to regulate the

hypothalamic-pituitary-ovary axis, normalise secretion of follicle-stimulating hormone (FSH), luteotropic hormone (LH), estradiol (E2) and progesterone levels; and improve ovary function and raise the vaginal epithelial cell maturation index.^{52,53} Hence, the resultant improvement of endocrine function may be responsible for the effects of acupuncture for gynaecological conditions.

7. TRIGEMINAL NEURALGIA

In the treatment of trigeminal neuralgia,^{54,55} the local acupoints such as ST7 *Xiaguan*, SI19 *Tinggong*, TE17 *Yifeng*, Ex-HN5 *Taiyang* and GB14 *Yangbai* are often selected in combination with distant acupoints including LI4 *Hegu*, LI11 *Quchi* and ST36 *Zusanli*. BL2 *Cuanzhu*, Ex-HN4 *Yuyao* and ST7 *Xiaguan* are used for the first branch of the trigeminal nerve; ST2 *Sibai*, LI20 *Yingxiang* and GB29 *Juliao* for the second branch involved; and ST6 *Jiache*, ST4 *Dicang* and CV24 *Chengjiang* for the third branch.

Direct stimulation of the nerve trunk can often produce satisfactory immediate pain relief. It was reported that, after insertion of the needle, it was necessary to induce an electrical shock-like sensation. Most patients may have their pain relieved within about ten treatment sessions and the pain has usually disappeared in about one month. In addition, point-injection of lidocaine and the combined treatment of acupuncture and drugs are often used for chronic conditions.⁵⁶⁻⁵⁸

CONCLUDING REMARKS

Although many types of disorders are treated by acupuncture therapy, a bibliometric study⁵⁹ has shown that acupuncture therapy is more effective for disorders of the nervous system and musculoskeletal system, including traumatic injury, atrophic syndrome, Bi syndrome (arthralgia), digestive system (not including liver and gallbladder disorders) and post-operative conditions.

In recent years, the application of acupuncture therapy to the treatment of psychological diseases, endocrine-metabolic disorders and dermatological diseases presents a rising tendency. The application of acupuncture in the treatment of otorhinolaryngological disorders and gynaecological diseases is in a stable state in its use in China. The optimal protocol of acupuncture therapy needs to be assessed and identified for these conditions.

In addition, future clinical studies of acupuncture in China need to address current defects,^{60,61} including (1) a lack of a long-term follow-up after treatment, (2) poor description of randomisation scheme, (3) lack of 'intention-to-treat' analysis, (4) lack of reliable and standard outcome assessments, and (5) small sample sizes in many RCTs.

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