Conference Paper

Low Back Pain-Complex Approach of Treatment by Different CAM Modalities (Acupuncture and Other Types of Dry Needling, “Targeted RF Noninvasive Physiotherapy” for Low Back Pain)

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For at least 2,500 years, acupuncture has been an integral part of the traditional Chinese medicine. Recently, more people are diagnosed with chronic disease, and many of them are poorly treated with conventional therapies. Those frequently prefer other forms of complementary medical treatments. Based on the theory of homeostatic equilibrium being the basis of health, acupuncture focuses on restoring the homeostasis by manipulation of the complementary and opposing elements of *yin* and *yang*. It is possible that by affecting *afferent nerve signaling*, acupuncture may influence the release of endogenous opioids to promote pain relief. Our objective is giving western trained physicians clinical applications together with acupuncture and modern physiotherapeutic equipment (*booster*) to accommodate accelerating interests in acupuncture and related techniques in modern complex treatment of chronic low back pain. In recent prospective phase I/II study, statistical data verified the relevant end points of the study: the safety, the quality of life (QoL), the rest time, duration of painless state, and cost/benefit ratio.

1. Introduction

Thirty-five RCTs covering 2861 patients were included in a systematic review [1]. There was insufficient evidence to make any recommendations about acupuncture or dry needling for acute low back pain, but for chronic low back pain, results showed that acupuncture is more effective for pain relief than no treatment or sham treatment, in measurements taken up to three months. The results also showed that for chronic low back pain, acupuncture is more effective for improving function than no treatment, in the short term [2]. Acupuncture is not more effective than other conventional and “alternative” treatments. When different types of acupuncture were added to other conventional therapies, they relieved pain and improved function better than the conventional therapies alone with less intake pharmacologic substances and side effects of them.

We were going to apply in our randomized pilot study more complementary and alternative methods (CAMs) treatments for low back pain and evaluate their effect on visual analogue scale (VAS) and quality of life (QoL) of patients [3]. CAM modalities, including “dry needling,” lately improved noninvasive RF therapy appears to be a useful adjunct to other therapies for chronic low-back pain with life-style management individually developed. (“Personalized medicine”).

Although chronic low-back pain is usually a self-limiting and benign disease that tends to improve spontaneously over time, a large variety of therapeutic interventions are available for its treatment. Recovery time is different at each patient depending on his/her additional physical condition. Most of the patients are older due to developed degenerative soft-tissue damage which is a growing problem in all over the world and should be treated [4].

1.1. Definitions for Low Back Pains. Lumbar strain (acute/chronic) is a stretch injury to the ligaments, tendons, and/or muscles of the low back. The stretching incident results in microscopic tears of varying degrees in these tissues. Lumbar strain is considered one of the most common causes of low back pain. The injury can occur because of overuse, improper use, or trauma. Soft-tissue injury is commonly classified as “acute” if it has been present for days to weeks. If the strain lasts longer than three months, it is referred to as “chronic.” Lumbar strain most often occurs in people in their 40s, but it can happen at any age. The condition is characterized by localized discomfort in the low back area with onset after an event that mechanically stressed the lumbar tissues. The severity of the injury ranges from mild to severe, depending on the degree of strain and resulting spasm of the muscles of the low back.

1.2. What Are the Common Causes of Lower Back Pain?

- (i) Protruding, herniated, or ruptured disc (operation is questioned).
- (ii) Cauda equina syndrome (for urgent operation).
- (iii) Sciatica is a condition in which a herniated or ruptured disc presses on the sciatic nerve, the large nerve that extends down the spinal column to its exit point in the pelvis and carries nerve fibers to the leg.
- (iv) Spinal degeneration.
- (v) Spinal stenosis.
- (vi) Osteoporosis.
- (vii) Skeletal irregularities.
- (viii) Fibromyalgia.
- (ix) Spondylitis.

According to recommendations of international guidelines in the modern diagnosis and treatment of low back pain, there are more modalities for treatment individually deciding. Regarding diagnosis, it is very important to differentiate between “specific” and “aspecific” or “nonspecific” low back pain. The term “*specific low back pain*” includes all diseases and pathologies with well-defined aetiology and pathological process, including bacterial spondylitis, rheumatic spondyloarthropathies, primary or secondary tumours, malignancies, myelon or cauda equine compression, paresis, metabolic base diseases, and pathological or nonpathological fractures that are suspected. The presence of so called “red flags” indicates “specific” low back pain. This type of low back pain requires quick and precise diagnosis and specific treatment. All other kinds of low back pain even those with very painful radiculopathy and without paresis, cauda or myelon compression can be considered as aspecific, even if caused by a herniated disc, because there is no absolute indication of discectomy. In case of aspecific low back pain, there is no need of any diagnostic imaging methods, because they would not influence treatment.

Investigation and flow chart of assessment have a rigorous algorithm (Figure 1).

Patient assessment should involve the following as basic guidelines for low back pain management:

- (i) algorithm for diagnose and treatment;
- (ii) identify low back diseases that place the patient at risk for pain;
- (iii) differentiate between chronic and acute pain and their treatment;
- (iv) identify pain assessment tools used;
- (v) the basic neurophysiologic pain response;
- (vi) pharmacological and nonpharmacological approaches to pain management;
- (vii) differentiate between addiction, tolerance and dependence;
- (viii) discuss commonly performed nerve blocks and associated nursing implications;
- (ix) apply pain management instruments to practice situations;
- (x) the management of pain in the patient with cancer (recognized).

The course consists of diagnostic triage, case history, and physical examination: Lasague test and spinal palpation and motion tests, Imaging (not first step), electromyography, and prognostic factors.

The main question raised was as follows what will be the best for the patients among the following mentioned therapies?

2. Our Methodical Considerations

In our recent trial, we turn to acupuncture (with application of a unique technic) and other noninvasive methods. Our objective is to choose the effective acupuncture points and techniques [4, 5]; we sort low back pain to the WEI syndromes in TCM (in western terms: polyneuritis, polyneuropathy, acute, chronic myelitis, periodical paralysis, hysteric paralysis, and paresis). See Figure 4.

2.1. WEI Syndromes Are Characterized with the Following Symptoms

- (i) Cause: pathogenous heat hurts lung, Yin fluid does not spread, nourish surface, and tendons muscles.
- (ii) Spleen stomach and heat in Yang-Ming function circle.
- (iii) Additionally: kidney essence, liver blood deficiency.
- (iv) Weakness of muscles improved gradually.
- (v) Excessive heat in lung, and stomach (acupoints for use: Lu 5, UB 13, and ST 44) (see “Abbreviations” section).
- (vi) Dampness-Heat Retention (acupoints for use: UB 20, Sp 9)

FIGURE 1: Flowchart of management for low back pain.

(vii) Yin deficiency in liver, kidney (acupoints for use: UB 18, UB 23, and KI 3)+ Huatuojiagi

Acupoints: St 31, St 34, St 36, GB 34, GB 30, GB 39, and St 41.

2.2. Damage and Inhibited Qi and Blood. Pataogenous dampness and cold in kidney channel have causes: For pattern “Kidney Qi Deficiency”: “Warming which is Cold, diminish Dampness and Weat” (Huang Di Neiting, “The Yellow Emperor”)

- (i) Kidney Yin-Yang Xue (long-term diseases, sexual abuses, etc.).
- (ii) Stagnation of Qi and blood.
- (iii) Lumbar region: this is the “Palast of kidney residence” Kidney-UB: both of them attacked.
- (iv) Other importance: Du Mai channel (stability, permanence, and “standing ability” in mental too).

2.3. Dampness and Cold in Kidney

- (i) Rapid start, lumbar rigidity, pain, and weakness.
- (ii) Warming collaterals, warming cold, and dissolving dampness, (UB-TaiYang).

(iii) Acupoints: UB 23, DU 3, UB 26, UB 32, and UB 40.

(iv) DU3 + UB 26 + UB32: regulation on kidney Qi, activating Yang Qi, and DU Mai.

2.4. Kidney Deficiency (Yin és Yang). Longer-time persisting pain, leading to legs, cold extremities, tiredness, and weak knees.

- (i) Basic aim is to strengthen kidney Qi, mainly with DuMai, UB, and kidney points.

Acupoints: UB 23, DU4, UB 52, KI3, UB 40.

Warming and strengthening kidney deficiency, UB52 + DU4 + KI3.

2.5. Pain due to Traumatic Injury

- (i) Basic: helping better blood circulation and block removing from channels and collaterals;
- (ii) pain-killing UB-Tai Yang and Ah-hi points;
- (iii) acupoints: Ah-hi: “where is pain,” UB 17, UB32, UB 40, SI3;
- (iv) In case of “strong pain”: Du26.

In the literature, each of the acupuncture (dry needling) modalities (true, sham, and placebo) associated with conventional treatment achieved a clinical improvement after 3 weeks that was greater than that achieved by conventional treatment alone in patients with acute/chronic low back pain, although there were no significant differences among the different forms of stimulus [6]. Which techniques should be chosen among CAM facilities listed below?

- (i) Acupuncture (permanent technique/ short-time needling), trigger point AP, etc.
- (ii) Acupuncture microsystem (ear [7], ECIWO, scalp-chinese, and YNSA-Japanese).
- (iii) IMS (intramuscular stimulation).
- (iv) Neural therapy (according to Hunecke, Germany: small dosage of analgetics).
- (v) Mesotherapy-Guna (inj. "lumbal," "ischias," "matrix"), Milano University Italy.
- (vi) Moving-massage therapy (manual medicine, Tuina, and Qi-gong).
- (vii) Electrotherapy, TENS.
- (viii) Additional, targeted RF stimulation with, booster [8].

Our target was to assess the effects of acupuncture and other CAM therapies for the treatment of nonspecific low-back pain and dry-needling combined targeted RF stimulation (Booster) for myofascial, musculoskeletal pain syndrome in the low-back region with randomized controlled trial [9, 10].

Intradiscal radiofrequency thermocoagulation (IRFT) and intradiscal electrothermal therapy (IDET) are known as invasive forms of thermotherapy. Radiofrequency (RF) lesions not only target the rami dorsales to relieve facet pain but also aim to reduce the nociceptive input from painful intervertebral discs [11]. Percutaneous intradiscal radiofrequency thermocoagulation (IRFT) has been used for this purpose. In this procedure, an RF cannula is placed in the center of the disc, and a lesion is then made here. Intradiscal electrothermal therapy (IDET) consists of heating the outer annulus of the intervertebral disc. A flexible intradiscal catheter with a temperature-controlled thermal resistive coil is passed through a trocar into the annulus of the disc and is heated to a temperature of 70 degrees centigrade. This procedure has been developed as an alternate treatment to spinal fusion for patients with unremitting pain hypothesized to be caused by internal disc disruption (IDD).

Our aim was to introduce additive and noninvasive heat therapy for chronic low back pain. The purpose of the "booster" equipment is to increase the blood flow in the treatment area. Selection at cellular level does not occur; only a heating of the deep layers of tissue in the region where the electrode is positioned superficially (no invasive). The deep-heating effect is a result of Joule-loss and leads to vascular dilatation in the treatment area that, in turn, improves blood perfusion, and thus the drugs (and more oxygen) are transported to the treatment area. The temperature in this area is 37–39°C (moderate, so called classic "hyperthermia"), and

this is the optimum temperature for the Booster's effect. The Booster must be adjusted to the pharmacokinetic parameters of the drugs used to achieve maximum effect. The deep moderated "hyperthermia" activates the microcirculation to and in the capillaries (capillary filtration capillary pressure, etc.), increases microvascular perfusion, the local oxygen content in the tissue, and the nutrients and phagocytes in the treatment area. The increased temperature also regulates the cell cycle by changing the calcium ion binding. In addition, the following effects in the blood and tissue can also be achieved [12].

- (i) Increased fibroblast activity and increased capillary growth.
- (ii) Increased nutrient concentration and metabolic activity.
- (iii) Synergetic increase in the field-dependent effects (optimization of membrane stimulation and).
- (iv) Activation of signal channels.
- (v) Increased reactions to heat and field exposure (mainly the development of heat shock proteins, HSP 70).
- (vi) Increased venous and lymphatic flow.
- (vii) Changes in the physical properties of the tissue.

Recruitment commenced between 2011-2012, after 499 patients had been enrolled (249 to receive acupuncture + Booster treatment and 250 for control). 249 consecutive patients admitted to the rehabilitation unit were included in the study after informed consent. See Figure 3. Other 250 patients received conventional pain killer pills and physiotherapy (Galvanic, ultrasound treatment, and infrared soft laser). See Figure 2. Inclusion criteria were the following: (1) diagnostic triage, (2) case history, (3) physical examination: the Lasegue test and spinal palpation and motion tests, (4) imaging, CT, and MRI, (5) b) prognostic factors, age: 25–85; excluding criteria are ruptured disc and Caudal-syndrome which needs urgent operation. All patients gave informed consent to participate in the study, which was performed according to the guidelines of the local ethics committee. The participants were not informed of the possibility of being assigned to either acupuncture or no acupuncture group. Ethics committee approval was granted, and the trial was performed in accordance with the Declaration of Helsinki. All the recruited patients went under rheumatic rehabilitation program using the Hungarian standard rehabilitation protocol. 249 of the patients received additional acupuncture therapy using the permanent dry needling method plus locoregional heat therapy, and these patients were regarded as the "acupuncture-Booster" group.

3. Procedure

A prospective assessor-blinded randomized controlled trial was carried out in an outpatient rehabilitation unit with day hospital service in Yamamoto Centre [13], Budapest, Hungary. After inclusion, patients were stratified into a control group and an acupuncture + Booster group. A

FIGURE 2: Distribution of patients (gender, age) treated and untreated.

FIGURE 3: Distribution of patients (gender, age) untreated.

simple randomization method was performed to create an acupuncture group and a control group (embedding acupuncture with MAXON-M monofilament implantation) [14] and Booster equipment (Main features of Booster: Radio-Frequency 13,56 MHz control unit, continuously adjustable starting power of 1 Watt up to 60 Watt, RF tuning about impedance (self focusing), portable, (Oncotherm GmbH, Germany, <http://www.oncotherm.de/>)).

FIGURE 4: Diagnose in western medicine.

After 3 months, all of the patients went for a control to the same rheumatologist specialists as before starting the procedure in Physiotherapy Department of Yamamoto Institute.

3.1. Patients in the Acupuncture + Booster Group. This group of patients had been treated once in each month during the whole period of the clinical trial using the permanent dry needling method according to the correct TCM pattern. The period was 3 months of trial. The “time release” dry needling system with the inserted and permanently entered insertion with the help of a special needle was applied. The length of the special stainless-steel needle is 10.8 cm, and the diameter of the lumen is 0.7 mm. The threads (MAXOL-M Monofilamentum, USA) were cut into 0.7–1 cm pieces and then applied with the needle. The threads were placed into this needle, and the material was applied to the “acupoints.” Locoregional heat (Booster) was applied 2 times a week during the treating course. Twelve needles were inserted into every subject per session. The depth of thread insertion was 0.7–0.9 mm. There was no other needle manipulation performed. The insertions of monofilament were applied once a month based on the total absorption time of the previous threads being 4 weeks.

3.2. Patients in Control Group. Physiotherapy in our department (Institute of Complementary and Alternative Medicine, University of Pecs), as in many rehabilitation centers in Hungary, involves chronic backache rehabilitation which was mainly based on the rheumatic protocol method in an attempt to restore normal movement and improve strength, alleviate pain condition, and achieve less rest from work in younger patients. Each patient received certain modalities of treatment (3 times a week: UV, infrared soft laser irradiation, and massage) as decided by the supervising senior physiotherapist according to the patient’s need at different stages of recovery.

FIGURE 5: VAS result in different diagnose in treated group.

4. Results

4.1. Data Collection and Analysis. Two authors independently assessed methodical quality and extracted data. The trial was combined using analyses method or levels of evidence. Categorical variables were analyzed using the χ^2 test or Fisher's exact test for small samples. Measurement data were analyzed using two-tailed t -tests. All recorded data were input using Epi Info software (CDC, Atlanta, GA) and statistically analyzed using SPSS 11.5 statistical software (SPSS, Chicago, IL). For all analyses, $P < 0.05$ was considered to be statistically significant. Chi square analysis of the *acupuncture + Booster* group and control group was also performed to determine homogeneity between both groups in terms of age, gender, and pretreatment measurement outcomes.

A subjective index (VAS from painful condition (1–10) treated and control group, respectively, $P < 0.05$ at 3 months, and later too was also determined during the follow-up period. The VAS scale was also enhanced in all cases, but the members of the *acupuncture + locoregional heat by Booster* group had more efficient function than the control group in painless condition. In summary, according to the above-mentioned results, changes of the index are better in the *acupuncture* group than in the control group. The intervention was well tolerated by patients. Any “throw-out reaction” of monofilament and side effect were not observed under the treatment. See Figure 5.

According to our experience, the holistic treatment of low back pain needs a complex approach; important points are summarized as follows to take into consideration in daily practice:

- (i) orthostatic correction, no “bed-rest”!
- (ii) postural position improvement;
- (iii) development of muscle balance;
- (iv) motility habilitation;

FIGURE 6: Pain Feeling after course.

- (v) sitting, standing, walking, moving daily exercises performed;
- (vi) isometrical exercises;
- (vii) yoga, Tai-Qi, Qi-Gong, and swimming (on back only!);
- (viii) diet properly (if weight loosing is necessary...);
- (ix) etic treatment choosing, performing with skillfulness;
- (x) neural therapy (using less dosage of anaesthetics) [15, 16];
- (xi) acupuncture and proper physio-physical therapy (“boosting effect”).

There is evidence for chronic low-back pain for pain relief and functional improvement for acupuncture, compared to no treatment or sham therapy. See Figure 6. These effects were observed immediately after the end of the sessions and at longer-term follow-up. There is evidence that acupuncture, added to other conventional therapies, relieves pain and improves function better than the conventional therapies alone. However, “dry needling” (special embedded form) and RF noninvasive physiotherapy treatment appear to be useful adjuncts to other (pharmacological substance) therapies for chronic low back pain, decreasing their dosage avoiding unnecessary side effects. We recognized after trial period during controls the decrease the number of medical visits of treated patients and also oral analgesic's intake (less cost in 35%). In age 35–60, it was a significant improvement to have smaller sick list.

Clear recommendations should be made about the most effective acupuncture technique and exact, correct application of RF non-invasive treatment for shortening the time of

convalescence avoiding improvement of worsening or long-term pain development (important are the energy dosage and technique).

We find that according to our protocol for “Booster” loco-regional deep heat applied for low back pain group, the time of 20–25 minutes is enough with 25-Watt power. The positive and negative electrodes cannot be connected avoiding burning effect on skin. There are some contraindications to apply Booster: pacemaker, missing heat feeling, large implantatum, and pregnancy significant big size of Ascites in abdomen (changing conductance of electricity).

5. Conclusions

The recent data allow firm conclusions about the effectiveness of acupuncture for subacute and chronic low back pain. For chronic low back pain, acupuncture is more effective for pain relief and has more functional improvement than no treatment or sham treatment immediately after treatment and in the longer term. Simple acupuncture is not more effective than other conventional and “alternative” treatments. The data suggest that permanent acupunctures so-called “dry-needling,” with combination of RF targeted therapy (heat “boosting”) may be useful adjuncts to other therapies for chronic low back pain instead of invasive RF method [14, 17].

The most important duty is to enhance the quality of life of patients suffering any longer-term pain. We should consider applying any treatment taking into account less necessary intervention, taking longer time by patients for giving result because most of the studies were of lower methodological quality; there certainly is a further need for higher quality trials in this area. Our results with non-invasive special heat “boosting” application are the following it was easy to work with instrument, it was well tolerated by all patients, and we noticed additionally positive effects due to treatment (according to reports of patients in other accompanying “cold-dampness symptoms” diseases (COPD, asthma!)). The Booster equipment is a product of innovation in the field mainly of complementary cancer treatment [18]; its use enhances the effect of both chemotherapy and other drugs. This “boosting function” is developed and used mainly for oncology but nevertheless can also be successfully used for other medical fields such as *rheumatology*, neurosurgery, dermatology, and analgesic pain-killer therapy.

Abbreviations

LU: Lung
 UB: Urine Bladder
 St: Stomach
 Sp: Spleenpancreas
 K: Kidney
 GB: Gallbladder
 Du: Governor channel.

References

- [1] A. Streng, K. Linde, A. Hoppe, D. Melchart, and W. Weidenhammer, “Acupuncture for chronic pain within the research program of 10 German Health Insurance Funds-Basic results from an observational study,” *Complementary Therapies in Medicine*, vol. 15, no. 4, pp. 238–246, 2007.
- [2] P. T. Dorsher, “Acupuncture for chronic pain,” *Techniques in Regional Anesthesia and Pain Management*, vol. 15, no. 2, pp. 55–63, 2011.
- [3] K. J. Thomas, M. Fitter, J. Brazier et al., “Longer term clinical and economic benefits of offering acupuncture to patients with chronic low back pain assessed as suitable for primary care management,” *Complementary Therapies in Medicine*, vol. 7, no. 2, pp. 91–100, 1999.
- [4] C. Ammendolia, A. D. Furlan, M. Imamura, E. Irvin, and M. van Tulder, “Evidence-informed management of chronic low back pain with needle acupuncture—review Article,” *The Spine Journal*, vol. 8, no. 1, pp. 160–172, 2008.
- [5] N. J. Stomski, S. Mackintosh, and M. Stanley, “Acupuncturists’ perspectives on outcome measures to evaluate acupuncture care for chronic low back pain,” *Complementary Therapies in Medicine*, vol. 18, no. 1, pp. 28–41, 2010.
- [6] J. Vas, J. M. Aranda, M. Modesto et al., “Acupuncture in patients with acute low back pain: a multicentre randomised controlled clinical trial, original research article,” *Pain*, vol. 153, no. 9, pp. 1883–1889, 2012.
- [7] Classic ear points according to P.Nogiere/“Battlefield” ear points: Omega2, Shen-Men, Zero, Thalamus, Gyrus Cinguli—according to R. Niemtzw (USA, 2004).
- [8] “Feisskohl et al. History of Oncothermia and their devices,” Volume 3. pp. 64, <http://www.oncothermia-journal.com/>.
- [9] C. C. Ee, E. Manheimer, M. V. Pirotta, and A. R. White, “Acupuncture for pelvic and back pain in pregnancy: a systematic review,” *American Journal of Obstetrics and Gynecology*, vol. 198, no. 3, pp. 254–259, 2008.
- [10] D. J. Grant, J. Bishop-Miller, D. M. Winchester, M. Anderson, and S. Faulkner, “A randomized comparative trial of acupuncture versus transcutaneous electrical nerve stimulation for chronic back pain in the elderly,” *Pain*, vol. 82, no. 1, pp. 9–13, 1999.
- [11] K. Itoh, S. Itoh, Y. Katsumi, and H. Kitakoji, “A pilot study on using acupuncture and transcutaneous electrical nerve stimulation to treat chronic non-specific low back pain,” *Complementary Therapies in Clinical Practice*, vol. 15, no. 1, pp. 22–25, 2009.
- [12] N. Meggyeshazi et al., “Clinical studies and evidences of modulated RF-conductive heating (oncothermia) methods-review,” *Oncothermia Journal*, vol. 3, p. 57, 2011.
- [13] “Pecs University outpatient CAM Department in Budapest”.
- [14] G. Hegyi, *Mechanic and electromagnetic biostimulation [M.S. thesis]*, St. Istvan University, Biotechnics Department, Budapest, Hungary, 2000.
- [15] A. Di Cesare, A. Giombini, M. Di Cesare, M. Ripani, M. C. Vulpiani, and V. M. Saraceni, “Comparison between the effects of trigger point mesotherapy versus acupuncture points mesotherapy in the treatment of chronic low back pain: a short term randomized controlled trial,” *Complementary Therapies in Medicine*, vol. 19, no. 1, pp. 19–26, 2011.
- [16] R. M. Benjamin, L. Manchikanti, A. T. Parr et al., “The effectiveness of lumbar interlaminar epidural injections in managing chronic low back and lower extremity pain,” *Pain Physician*, vol. 15, no. 4, pp. E363–E404, 2012.

- [17] G. Hegyi and G. P. Szigeti, "Rehabilitation of stroke patients using yamamoto new scalp acupuncture: a pilot study," *The Journal of Alternative and Complementary Medicine*, vol. 18, no. 10, pp. 971–977, 2012.
- [18] <http://www.oncotherm.org/>.