

Efficacy & Therapeutic Strategies of Acupuncture Applied to Treat Pain due to Whiplash Injuries

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In our car-oriented society, whiplash injury cases are commonly seen in acupuncture practice. These patients typically have long-term physical and subjective symptoms for which acupuncture treatment is a useful modality.

1. Factors

According to 1994 estimates, upwards of 1 million people sustain whiplash-type injuries per year in United States. Of more than 11 million motor vehicle accidents that year, 2.6 million involved rear-end collisions in. Women (especially 20- to 40-year age group) have persistent neck pain more often than men, by a ratio of 7:3. ⁽¹⁾

Whiplash injury refers to neck injury, resulting from hyperextension followed by flexion that occurs when an occupant of a motor vehicle is hit from behind by another vehicle. Other terms have been used such as cervical sprain, cervical myofascial pain Syndrome, acceleration-deceleration injury, hyperextension injury and soft tissue cervical hyperextension injury. ⁽²⁾

One study ⁽³⁾ showed the ten most-reported symptoms with their estimated prevalence: neck pain (97%), headache (97%), TMJ (82%), Shoulder pain (65%), anxiety (55%), back pain (42%), depression (41%), visual symptoms (blurred vision) (35%), and dizziness (23%). The clinical features of whiplash injury include myofascial injury (cervical strain, muscle tears, and/or rupture of ligaments), cervical disc herniation, cervical spine fracture and cervical facet-joint injury. Acupuncture has demonstrated a significant therapeutic effect on myofascial injuries.

Long-term, positive outcomes of whiplash injury are elusive. One clinical trial ⁽⁴⁾ showed the percentage of patients with residual pain: 44% had pain at three months, 30% at six months, 24% at twelve months, and 18% at two years. But only 4% of the patients were considered disabled at two years. If the head was inclined or rotated at the time of collision, patients were more likely to have pain at a two-year follow-up. A history of pre-traumatic headache predicted a worse outcome. Patients with long-term symptoms were more likely to have radicular symptoms, anxiety, sleep disturbance, and blurred vision.

2. Therapeutic Effect of Acupuncture

Although whiplash injury patients are commonly seen in acupuncture clinics, only a few clinical trials and research projects has been conducted. Greenwood, et al, reported that 25 patients with whiplash injury, most of whom had twelve treatments at twice weekly intervals. Improvement was noted in 84% of patients. Observed phenomena included myoclonic jerking, emotional releases and regression. ⁽⁵⁾ Rabl V, et al, had a trial with 153 patients suffering from pain, edematous conditions, and impaired movement following traumas sustained in accidents who were treated or “after-treated” with acupuncture. With a standardized acupuncture program, the improvement was significant in all nine groups Acupuncture also proved itself to be an effective

form of therapy for after-treatment. ⁽⁶⁾ Ayuzawa S, et al, reported that the Bi-Digital O-Ring test successfully used in the diagnosis and treatment for patients with pain after whiplash injury. ⁽⁷⁾ Hertz H, et al, treated 30 whiplash injury patients with auricular acupuncture, demonstrating its effectiveness as a form of therapy for treatment of accident patients with whiplash. ⁽⁸⁾ Fattori B, et al, had a trial of 15 patients with a control group of balance disorders following whiplash injury, and observed a significant difference between the two groups regarding the reduction of the CER (closed eyes with retroflexed head) length of the statokenisigram. ⁽⁹⁾ Recently, Fattori, et al, ⁽¹⁰⁾ had a further study with 27 patients with a control group of 25 patients, who were treated with a non-steroidal anti-inflammatory drug and myorelaxation or with physiotherapy only. They evaluated by computerized static posturography the postural changes after acupuncture treatment. Acupuncture was performed on bilaterally Tianzhu (BL 10) and Fengchi (GB 20), twirled manually for 20 seconds. The study revealed a considerable difference between the two groups as regards the reduction of the CE (close eye) and CER length of the statokinesigram just before each session of acupuncture; the frequency oscillation on the sagittal plane in CER was reduced in the study group, with a progressive increase of its values in the control group. The high percentage of positive results in whiplash injury patients lead them to advocate acupuncture for balance disorders due to whiplash injury.

From 1998 – 2000, I had a retrospective observation on the effectiveness of acupuncture treatment in 75 whiplash injury cases with acupuncture treatment. This group includes 46 females and 29 males, age 21 – 65 years old, averaging 42 years old. Among these patients, there were 23 Caucasians, 15 African-Americans, 30 Hispanic and 7 Asians. The length of time after accident ranged from 3 weeks to 8 years. 25 patients were confirmed by MRI as cervical herniated discs and 4 patients had undergone cervical surgery. After three months of treatment, there were 18 patients reported significant improvement (disappearance of pain, general feeling of wellness, significant relief of symptoms like headache, depression and fatigue), 47 reported improvement (pain obviously diminished but still having occasional recurrent attack, general symptoms improved) and 10 cases reported no improvement (no obvious change before and after treatment), the rate of improvement was 86.7%. ⁽¹¹⁾

3. Classifying Whiplash Injury according to Traditional Chinese Medicine Theory

Whiplash injuries are related to the symptom of cervical strain and sprain as described in the ancient literature. It is also related to the following tendon problems like “Jing Wai (tendon deviated)”, “Jing Zhou (tendon in abnormal position)” and “Jing Jie (tendon knotted)”. Considered in the light of the theory of musculo-tendino channels lesions, it was divided as three types: Yangming Type (Unable to turn the neck), Shaoyang type (Uncomfortably holding the neck with pulling sensation when turning the neck) and Taiyang type (tightness and spasm of the muscles in the neck) which is very important for choosing acupoints during the treatment.

According to TCM pathogenesis analysis, during the strain and sprain, Qi is first shocked, then moves fast, causing congestion and stagnation (Qi Stagnation). And when Qi stagnates, blood circulation will be impeded and blood will coagulate (Blood Stasis).

When Qi and blood are impaired, body fluid is also involved so the body fluid metabolism becomes disordered. Gradually, the body produces Turbid Phlegm which then blocks the meridian circulation. This is why the patient complains of pain and numbness of the neck and extremities.

In the other circumstance after sprain and injury, blood clots are in retention in the body which also impedes the blood circulation. Gradually, it will impair the liver. Sprain lasting for a long

time also impairs the kidney, leading to Liver and kidney Insufficiency that will cause neck soreness, weakness, blurred vision and vertigo.

Severe soft tissue injury causes Qi and blood stagnation. The disarrangement spreads from exterior to interior so both Qi and blood impaired. Gradually, the Qi and Blood are both Deficiency situation. So the symptoms such as fatigue, tiredness and lingering pain and soreness developed.

4. Treatment Strategies for Whiplash Injury

In my personal experiences, the following principles of acupoint selection enhance the therapeutic effect of treatment for whiplash injuries.

- 1) Acupoint selection considering of the relationship of meridian system, especially the musculo- tendino meridian system
- 2) Acupoint selection considering of the pattern differentiation
- 3) Acupoint selection considering of the local symptoms
- 4) Acupoint selection combined with the distal and local points
- 5) Acupoint selection combined with body acupuncture and auricular acupuncture
- 6) Acupuncture combined with passive movement and Tui Na therapy

What follows is an elaboration of these strategies. I discuss Strategies 1 – 3 in detail, including within each section recommendations for Strategies 4 – 6.

1) Acupuncture treatment related to musculo-tendino meridian system

This method is especially useful for patients who complain of limited motion during the acute stage. If the patient is unable to turn the neck aside, it is counted as the Yangming Type lesion so Luozhen (Ex.) should be selected. If the patient is unable to bend the neck to the side, is uncomfortable holding the neck, or experiences a pulling sensation when turning the neck, it is counted as the Shaoyang type lesion so Waiguan (SJ 5) should be selected. And if the patient is unable to extend and flex the head and feels tightness and spasm of the muscles in the neck, it is counted as the Taiyang type lesion so Houxi (SI 3) should be selected. It is usually important to ask patient to cooperate with passive neck motion while stimulating these points.

2) Acupuncture treatment related to differentiation of patterns

Acute Stage

a. Qi Stagnation Type

Manifestations: Moving pain around neck, shoulder and upper back; soreness and heaviness in the upper extremities, aggravated from cold and alleviated from the heat; neck rigidity and muscle in tension; limited range of motion; feelings of by anxiety and panic. Patients usually present a slight purple tongue with wiry pulse.

Acupoints selection: Corresponding cervical Jiaji (especially on C₅₋₆ and C₆₋₇ Jiaji because of whiplash pivoting at the C5 to C6 level during accident), Fengchi (GB 20), Tianzhu (BL 10), Bingfeng (SI 12), Jianwaishu (SI 14), Jianzhongshu (SI 15), Hegu (LI 4), Lieque (LU 7). After needle insertion with Qi arrival, hold an ignited moxa stick toward needle's tail for 1 minute each or apply the TDP lamp. Add Yingtang (Ex.) and Shenmen (HT 7) for anxiety and panic, and Wangu (GB 12) for dizziness.

b. Blood Stasis Type

Manifestations: Stabbing and burning pain in the neck and upper extremity; pain in a fixed location, aggravated at night, intense pain upon pressure; numbness or tingling sensation in the fingers; headache and vertigo. Patients usually present a dark and purple tongue with blue ecchymosis at the side, with a wiry or choppy pulse.

Acupoints selection: Corresponding Cervical Jiaji (especially C₅₋₆, C₆₋₇ Jiaji), Fengchi (GB 20), Tianzhu (BL 10), Dazhui (GV 14), Jianjin (GB 21), Geshu (BL 17), Hegu (LI 4), Houxi (SI 3), Baxie (Ex.). For the patient with severe pain, use Tui Na manipulation for few minutes in advance or apply correspondent auricular points first. After acupuncture treatment, we can also apply seven-star needles plus cupping in the local area.

Chronic Stage

a. Turbid Phlegm Blockage Type

Manifestations: History of whiplash injury, nape and neck stiffness and pulling sensation, accompanied by upper extremity heaviness; numbness in the finger tips; limited range of motion in the neck, aggravated with humidity and raining days, dizziness and nausea. Patients usually present a thick and sticky coating on the tongue with a slippery pulse.

Acupoint selections: Corresponding cervical Jiaji, Jianyu (LI 15), Shousanli (LI 10), Hegu (LI 4), Neiguan (PC 6), Zhongwan (CV 12), Pishu (BL 20), Sanjiaoshu (BL 22), Fenglong (ST 40), Sanyinjiao (SP 6) plus local moving cupping after needling treatment.

b. Liver & Kidney Insufficiency Type

Manifestations: History of whiplash injury; soreness and weakness in the neck; tinnitus, vertigo, blurring vision; hot flashing, dry throat, insomnia, dream-disturbed sleeping, irritability, inability to sit or stand for long time; soreness in the waist and in the knee joint; finger numbness; and spasm and tightness in the extremities. Patients usually present a small tongue that is red or crimson proper, less coating; and a wiry and thready or wiry and rapid pulse.

Acupoints selection: Corresponding cervical Jiaji (Ex.), Jianjin (GB 21), Tianzong (SI 11), Sidu (SJ 9), Zhigou (SJ 6), Baxie (Ex.), Geshu (BL 17), Ganshu (BL 18), Shenshu (BL 23), Shenmai (BL 62), Xuanzhong (GB 39), Sanyinjiao (SP 6). Add Sishencong (Ex.) for vertigo and Yanglingquan (GB 34) for spasm and tightness of extremities.

c. Qi & Blood Deficiency Type

Manifestations: History of whiplash injury; soreness and achiness in the neck region, lingering for long time, accompanied by tiredness and fatigue; pale complexion; soft or inaudible speech; poor appetite; loose stool. Patients usually present a pale tongue color with thin coating, and a deep and thready pulse.

Acupoints selection: Corresponding Cervical Jiaji (Ex.), Jianyu (LI 15), Jianliao (SJ 14), Quchi (LI 11), Shousanli (LI 10), Hegu (LI 4), Guanyuan (CV 4), Qihai (CV 6), Zusanli (ST 36), Sanyinjiao (SP 6) with moxibustion.

3) Acupuncture treatment related to local symptoms

a. Neck pain:

- Pain of the lateral part of vertebra: Tianzhu (BL 10)
- Pain due to the injuries of the supraspinous and interspinous ligament: Shuigou (GV 26) or Houxi (SI 3) (usually combined with patient passive movement while applying needle techniques on these points)
- Pain due to spasm of levator scapular: Jianwaishu (SI 15) and Quyuan (SI 13)
- Pain due to spasm of the trapezes: Jianjin (GB 21), Tianliao (SJ 15) and Xinshu (BL 15)
- Pain due to spasm of SCM: Fengchi (GB 20), Futu (LI 18) and Hegu (LI 4)
- Resistance to cervical extension/flexion: Dazhu (BL 11) and Houxi (SI 3)
- General stiffness: Fengchi (GB 20) and Jianwaishu (SI 15)

b. Shoulder pain:

- Referred pain in the scapular area: Jugu (LI 16)
- Pain in the anterior part: Jianyu (LI 15)
- Pain in the lateral part: Jianliao (SJ 14)
- Pain in the posterior part: Naoshu (SI 10)
- Difficulty in raising the arm: Binao (LI 14)

c. Headache:

- Occipital headache: Select Yuzhen (BL 9), Kunlun (BL 60)
- Temporal or migraine headache: Shuigu (GB 8), Zulinqi (GB 41)
- Frontal headache: Yangbai (GB 14), Hegu (LI 4)

d. **TMJ:** If a patient complains uncomforted or pain around the temporo-mandibular joint, Xiaguan (ST 7) and Ermen (SJ 21) should be added.

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