

# Different Acupuncture for Neurodynia and Skin Lesions with Acute Herpes Zoster

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## Abstract

**Objective:** To analyze the effectiveness of different acupuncture-moxibustion therapies for neurodynia and skin lesions of acute herpes zoster. **Patients and Methods:** From April 2007 to October 2009, 500 patients with clinical acute herpes zoster were included in the study. They were randomly divided into five groups as follow: electroacupuncture (E); electroacupuncture + cotton-pave moxibustion (EC); electroacupuncture + fire acupuncture (EF); electroacupuncture + tapping combined with cupping (ET); control group of western medicine (WM). **Results:** The time of staunch bleb, scab and scab-off had no obvious statistical difference in the five groups; however, five methods could obviously reduce symptoms of herpes zoster and improved general symptoms. Within five days of treatment, compared to control group, the other four methods could more quickly ameliorate the general symptom of herpes zoster, and EF was superior to EC. In addition to electroacupuncture group, the treatment groups could relieve neuralgia and shortened duration of pain, which was superior to control group treatment. In addition, within first 3 days of treatment, the efficacy of treatment with E, EF or ET was superior to that of EC, and EF was better to E. After five days or end-of-treatment, the efficiency of odynolysis by treatment with EF, ET or EC was no more than E. The incidence of neurodynia was reduced after treatment with EC, EF or ET at 30th, 60th and 90th day, and pain of postherpetic neuralgia was relived. **Conclusion:** It is a certain advantages for organism reparation, abatement of neurodynia, and reduction of postherpetic neuralgia by acupuncture treatment.

## Keywords

Herpes Zoster, Acute, Neurodynia, Acupuncture Treatment

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## 1. Introduction

Acute herpes zoster is caused by reactivation of latent varicella zoster virus (VZV or human herpesvirus 3). The virus can persist for years in the dorsal root ganglia of cranial or spinal nerves after resolution of original infection. As cellular immunity wanes with age or immunocompromise, the virus can be transported along peripheral nerves, producing an acute neuritis [1] [2]. Herpes zoster is characterized by a painful, unilateral vesicular eruption usually in a restricted dermatomal distribution [3].

Pain associated with herpes zoster infection can be classified as acute herpetic neuralgia, subacute herpetic neuralgia, and postherpetic neuralgia [4]. Pain is the most common symptom of acute herpes zoster and may precede skin changes by days or weeks [5] [6]. Moreover, pain is typically described as a sharp or stabbing sensation, burning sensation, or even “allodynia” (pain evoked by normally non-painful stimuli such as light touch) [6].

Pain associated with herpes zoster infection can cause significant suffering, particularly in elderly persons. Symptoms may be severe enough to interfere with sleep, appetite, or sexual function. In addition, symptoms may persist from months to years and cause profound psychosocial dysfunction, disability, and despair. The difficulty in treating herpes zoster means increased costs for individuals and health services [7] [8].

The treatment of herpes zoster is aimed primarily at earlier healing of lesions and prevention of complications. Randomized controlled trials and systematic reviews have found that oral antiviral agents (acyclovir, famciclovir and valaciclovir) are effective to relieve pain at 1 - 3 months and to reduce the prevalence of postherpetic neuralgia at 6 months, although the effect is moderate. These drugs must be administered within 3 days from the onset of symptoms and have a good safety profile. Netivudine has a similar effect [9]-[12]. Other drugs such as levodopa, amantadine, amitriptyline, and idoxuridine are of unknown effectiveness in preventing herpes zoster complications. Moreover, corticosteroids drug are considered to be ineffective or even harmful [12]. Drugs considered to have a moderate effect in treating established postherpetic neuralgia are gabapentin and tricyclic antidepressants [11] [13] [14].

Despite these treatment options, many patients experience refractory pain and frequent adverse effects, especially elderly patients with cardiovascular disease. Therefore, pain associated with herpes zoster infection remains a challenge for effective management. Acupuncture and other methods from Traditional Chinese Medicine such as bloodletting and moxibustion have not been evaluated for this disorder. However, some Chinese case series report good treatment results but lack rigorous design [15]-[17]. We began a pain program at our primary care institution and collected cases with herpes zoster-associated pain to determine if these techniques could be helpful. This subject has been reviewed by the ethics committee of Chengdu University of Traditional Chinese Medicine.

## 2. Methods

### 2.1. Clinical Data

Diagnostic criteria: Traditional Chinese medicine diagnostic criteria has referred to diagnostic criteria of snake strand sore in “Diagnosis curative standard of tradition Chinese medicine disease”; Western medicine diagnosis standard has referred to diagnostic criteria of herpes zoster in *Cecil Textbook of Medicine*.

Inclusion criteria: Age range was from 18 to 70 years; the patients had herpes 1 to 7 days, and were not treated with antiviral or relieve pain drugs; all patients signed the information consent form, and agreed to accept the all therapeutic methods and obey arrangement.

Exclusion criteria: Special types of herpes zoster, including herpes zoster ophthalmicus (HZO), herpes zoster oticus (HZO), herpes zoster viscera, herpes zoster meninx, generalized herpes zoster, or no rash type herpes zoster; pregnant or lactating women; patients of anaphylaxis or drug allergy; scar diathesis; primary disease or systemic failure including cardiovascular, blood vessel of brain, liver, kidney and hematopoietic system, diabetes patients, cancer or mental patients, connective tissue disease and hemophilia, patients with bleeding tendency; patients with critical illness who were difficult to evaluate effectiveness and safety of treatment; patients who were treated with the corticosteroids or immunity inhibitor within one month.

### 2.2. General Information

All cases were come from the first affiliated hospital of Guangzhou university of Chinese traditional medicine,

Guangzhou hospital of traditional Chinese medicine, two Chinese medicine hospital in Guangdong Province, Chengdu Second People's Hospital, The affiliated hospital of Chengdu University of Traditional Chinese Medicine, traditional Chinese medicine research institute in Sichuan province and combining Chinese and Western Medicine Hospital of Wuhan at the time range from April 2007 to October 2009. A multicentric random trial (allocation concealment and central random) was done in GCP center of Chengdu University of Traditional Chinese Medicine) was adopted, the 500 conforming cases who equally divided into five groups as follow: electroacupuncture (E); electroacupuncture + cotton-pave moxibustion (EC); electroacupuncture + fire acupuncture (EF); electroacupuncture + tapping combined with cupping (ET); control group (WM) with conventional western medicine therapy.

In E group, there were 45 male and 53 female cases included 4 cases with scab falling off, other 2 cases were eliminated; in EC group, there were 44 male and 56 female cases included 6 cases with scab falling off; in EF group, there were 39 male and 58 female cases including 6 cases with scab falling off, and other 3 cases were eliminated; in ET group, there were 40 male and 56 female cases including only 1 case with scab falling off, and other 4 cases were rejected; in control group with conventional western medicine therapy group, there were 36 male and 62 female cases, including 3 dropping cases, and other 2 cases were eliminated. In five groups, the mean age was  $43.76 \pm 15.34$ ,  $46.98 \pm 13.61$ ,  $45.20 \pm 15.06$ ,  $44.33 \pm 15.07$  and  $46.51 \pm 15.30$  years, respectively. Besides these, the time between feeling uncomfortable and medical consultation were  $6.15 \pm 4.11$ ,  $5.56 \pm 3.14$ ,  $5.63 \pm 2.70$ ,  $5.77 \pm 3.05$  and  $5.24 \pm 2.52$  days, respectively. Meanwhile, the VAS scores of five groups were respectively  $59.23 \pm 25.71$ ,  $53.84 \pm 25.95$ ,  $52.45 \pm 28.11$ ,  $56.63 \pm 25.44$  and  $57.20 \pm 27.17$  before treatment.

All indicators between the two as described above had no significant differences ( $P > 0.05$ ), so, there was comparable between any two groups.

### 2.3. Treatment

All included patients kept the clean skin on parts of herpes zoster and protected skin lesions.

E: The main points included Ashi, Jiaji (on one side of sick), Zhigou and Houxi acupoints. The clients were adopted left and side-lying position, after routine disinfection, the Ashi acupoint was treated with acupuncture round pain; Jiaji point were treated with oblique insertion toward the spinal column; Zhigou and Houxi acupoints were dealt with coup droit. All points were inserted with needles at depths range from 0.8 to 1.0 cm, after result that patients suffered needling sensation response, the all cases were stimulated with Hans acupoint nerve stimulator (HANS; LH202H, China) which was operated in a standard method that adopted alternating current with frequency of 2/100 HZ and current of 2 ~ 5 mA, and a strength that all patients could bear.

EC: The cases were treated with cotton-pave moxibustion based on the E as described above. The clients were adopted lying position, then Ashi point was completely exposed to medical workers, after sterilization with iodine, the cotton wool that was tore into thin slices as cicada's wings (without a hole,  $3 \times 3 \text{ cm}^2$ ), was covered on the part of Ashi point, lit and burnt out rapidly. The acupuncture treatment was applied every 3 times.

EF: The patients were treated with fire acupuncture based on the E as described above. The clients were adopted lying position, then Ashi point was sterilized with iodine. Herpes central was penetrated with needle of moderate thickness that was heated until red and white, at depths range from 0.2 to 0.3 cm. Based on the number of herpes, early onset of herpes which selected numbers range from 3 to 5 were first pierced, and each was done 2 times. Postoperation, liquid of herpes zoster was drained then, the location was pressed for 30 s and coated with a flower oils.

ET: The cases were treated by combination tapping with cupping and E as described above. The clients were adopted sitting and side-lying position, after routine disinfection, the Ashi point was treated with plum blossom-needle tapping with slightly bleeding. Cupping was pressed on the both ends of parts of collateral puncture and impairment. After bleeding by 3 to 5 ml and leaving the cupping for 5 to 10 min, the cupping was taken away and routinely sterilized.

Control: Valaciclovir and vitamin B1 were used through taken orally by 300 mg each with 2 times per day and 10 mg each with 2 times per day, respectively. The course of treatment consulted the E as described above.

### 2.4. Outcomes

Pain intensity (PI, VAS marking; mm): the tender spot was observed and noted in the 24 hours before the treatment. The interval range from 0 to 100 mm presented a level of pain intensity from indolence (0 mm) to maxi-

mum pain (100 mm) that patients could feel. We noted the pain intensity at first 10 days before treatment and at 11<sup>th</sup> day, respectively.

Duration of pain: we noted the time from pain presented to pain completely went away.

Incidence of postherpetic neuralgia PHN: we noted the postherpetic neuralgia PHN at 30<sup>th</sup> day.

## 2.5. Statistics

Values were shown mean  $\pm$  SEM. The significance of differences between all groups was evaluated using one-way ANOVA with a post-hoc Student-Newman-Keuls multiple comparisons test. Chi-square test was used in enumeration data. Duration of pain analyses was adopted Log Rank test. Statistical analyses were performed using SPSS Software (V18.0, SPSS, USA), and a P-value  $< 0.05$  was considered to be statistically significant.

## 3. Results

### 3.1. The Time of Staunch Bleb, Scab and Scab-Off

As shown in **Table 1**, the time of staunch bleb, scab and scab falling off had no statistical significance between any two groups ( $P > 0.05$ ). So, five treatment methods showed a similar efficacy in time of staunch bleb, scab and scab falling off.

### 3.2. Aggregate Score of Herpes Zoster before and after Treatment

Before treatment, there were no statistical significance between five groups ( $P > 0.05$ ), so it was comparability between the groups. However, at 5th days, the result ( $P < 0.01$ ) was opposite compared to the pre-treatment, as described above. Compared to control group, the other four groups had statistical significance ( $P < 0.01$ ), moreover, cotton-pave moxibustion group was superior to fire acupuncture group ( $P < 0.05$ ). End-of-treatment, compared to control group, the other four groups had statistical significance ( $P < 0.01$ ), the result as like as it as described above ( $P < 0.01$  or  $P > 0.05$ ), and there were statistical significance between pre-treatment and after 5 days treatment ( $P < 0.01$ ). However, there was a difference between before and after treatment ( $P > 0.05$ ). In summary, the five methods could reduce obviously the symptom of acute herpes zoster, and ameliorated the general symptoms. Within the first five days of treatment, compared to control, the other four methods could ameliorated more quickly the general symptom of herpes zoster, and fire acupuncture was superior to cotton-pave moxibustion (**Table 2**).

**Table 1.** The time of staunch bleb, scab and scab-off.

Group	Cases	Staunch vesicle (days)	Scab (days)	Scab-off (days)
E	94	5.02 $\pm$ 2.48	9.13 $\pm$ 3.90	21.49 $\pm$ 8.98
EC	94	4.54 $\pm$ 1.95	8.49 $\pm$ 3.47	20.87 $\pm$ 8.14
EF	91	4.87 $\pm$ 2.03	9.04 $\pm$ 4.57	20.13 $\pm$ 8.86
ET	95	5.05 $\pm$ 2.32	9.45 $\pm$ 4.90	21.06 $\pm$ 9.45
WM	95	4.83 $\pm$ 2.30	9.91 $\pm$ 3.63	24.27 $\pm$ 12.67

**Table 2.** Aggregate score of herpes zoster before and after treatment.

Group	Case (n)	pre-treatment	Treatment (within 5 days)	After treatment	Difference between treatment (5 days) and pre-treatment	Difference between before and after treatment
E	94	13.97 $\pm$ 3.31	8.27 $\pm$ 3.55	3.50 $\pm$ 2.79	5.70 $\pm$ 4.02	10.47 $\pm$ 3.79
EC	94	13.62 $\pm$ 3.50	8.77 $\pm$ 3.27	3.76 $\pm$ 2.56	4.85 $\pm$ 3.61	9.86 $\pm$ 3.82
EF	91	13.86 $\pm$ 3.69	7.44 $\pm$ 3.83	3.41 $\pm$ 2.80	6.42 $\pm$ 4.48	10.45 $\pm$ 4.44
ET	95	13.52 $\pm$ 3.94	8.11 $\pm$ 4.34	3.59 $\pm$ 3.03	5.41 $\pm$ 5.10	9.93 $\pm$ 4.51
WM	95	14.77 $\pm$ 3.30	10.23 $\pm$ 3.88	4.59 $\pm$ 3.02	4.54 $\pm$ 3.45	10.18 $\pm$ 3.36

### 3.3. Duration of Pain

As shown in **Table 3**, the pain lasting time had statistical significance between control and other four groups ( $P < 0.01$ ). In addition, there was statistical significance between other three groups and ET group ( $P < 0.01$  or  $P < 0.05$ ). However, the pain lasting time had no statistical significance between any two groups for E, EC and EF groups as described above ( $P > 0.05$ ). Therefore, the former four groups could obviously reduce the pain lasting time compared to western medicine group. However, the effects in three groups, including the E group, EC and EF group, were better compared to ET group.

### 3.4. VAS of Treatment

As shown in **Table 4**, there was no statistical significance between any two groups ( $P > 0.05$ ). In addition, there was statistical significance between prior to the treatment and end-of-treatment between any two groups ( $P < 0.01$ ). Meanwhile, at day 3, 5, 7 of their hospitalisation and end-of-treatment, there were significant difference between any two groups ( $P < 0.01$ ). Besides that, there were statistical significance between former four groups and control group ( $P < 0.01$ ). However, there were no statistical significance between any two groups of four groups included E, EC, EF and ET ( $P > 0.05$ ). In summary, the five methods could reduce gradually the pain of nerve, the effects of former four methods was better compare to western medicine method. Moreover, at first 3 days of treatment, both the E, ET and EF had better therapeutical efficiency compared to EC, and the EF was superior to alone electroacupuncture.

### 3.5. Different VAS of Pre-treatment and Post-Treatment

After treatment for 5 days, there were statistical significance between the four groups and control group ( $P < 0.01$ ). In addition, E, ET and EF were superior to EC ( $P < 0.01$ ). Besides, E was better to ET and EF ( $P < 0.01$ ). However, there was no statistical significance between pre-treatment and post-treatment. In short, the five methods could reduce gradually the pain of nerve, and former four methods had a better efficiency than control group. Furthermore, the three groups, including the E, ET and EF, which had better analgesic effect compared to EC, and E was superior to the EF and ET (**Table 5**).

### 3.6. VAS of during Follow-Up Period

As shown in **Table 6**, follow-up tests were applied at 22<sup>th</sup>, 30<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> day after treatments, respectively.

**Table 3.** Duration of pain.

Group	Case (n)	Duration of pain (days)
E	94	15.87 ± 11.86
EC	94	16.66 ± 8.80
EF	91	15.89 ± 12.00
ET	95	17.65 ± 13.53
WM	95	28.26 ± 19.69

**Table 4.** VAS of treatment.

Group	Case (n)	Pre-treatment	Treatment (3 days)	Treatment (5 days)	Treatment (7 days)	After treatment
E	94	58.88 ± 25.89	36.60 ± 24.18	22.88 ± 19.68	13.30 ± 17.52	4.03 ± 9.27
EC	94	54.09 ± 26.35	41.19 ± 24.61	27.30 ± 22.21	14.46 ± 16.76	6.05 ± 12.46
EF	91	52.67 ± 27.82	34.95 ± 23.98	23.63 ± 21.79	14.60 ± 16.65	5.01 ± 10.12
ET	95	56.17 ± 25.17	36.13 ± 23.17	25.96 ± 22.51	17.26 ± 19.49	5.16 ± 10.98
WM	95	58.01 ± 26.97	47.59 ± 23.96	34.73 ± 21.54	25.89 ± 19.43	14.30 ± 16.15

**Table 5.** Different VAS of pre-treatment and post-treatment.

Group	Case (n)	Difference between treatment (5 days) and pre-treatment	Difference between before and after treatment
E	94	36.00 ± 28.63	54.86 ± 25.84
EC	94	26.79 ± 23.26	48.03 ± 28.72
EF	91	29.04 ± 29.93	47.66 ± 27.73
ET	95	30.21 ± 25.18	51.01 ± 25.41
WM	95	23.28 ± 23.24	43.71 ± 27.55

**Table 6.** VAS of during follow-up period.

Group	Case (n)	22 <sup>th</sup> day	39 <sup>th</sup> day	60 <sup>th</sup> day	90 <sup>th</sup> day
E	94	1.44 ± 5.32	0.60 ± 3.52	0.27 ± 1.85	0.11 ± 1.03
EC	94	2.05 ± 7.03	1.04 ± 5.03	0.59 ± 4.01	0.53 ± 3.70
EF	91	2.33 ± 9.32	1.36 ± 7.40	0.22 ± 2.10	0 ± 0
ET	95	1.80 ± 8.22	1.13 ± 6.11	0.32 ± 2.28	0 ± 0
WM	95	8.18 ± 12.97	5.47 ± 10.72	2.21 ± 7.80	1.16 ± 6.03

There were statistical significance between the other four groups and control group ( $P < 0.01$  or  $P < 0.05$ ). Meanwhile, the E was superior to EF at 22<sup>th</sup> and 30<sup>th</sup> day ( $P < 0.01$  or  $P < 0.05$ ). In brief, levels of pain in E, ET, EF and EC groups were lighter compared to that in control group, and E was superior to EF group.

### 3.7. Incidence of Postherpetic Neuralgia

As shown in **Table 7**, Follow-up test were performed at 30<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> day after treatment, respectively ( $P < 0.01$  or  $P < 0.05$ ), in addition, postherpetic incidences in neuralgia E, ET, EF and EC groups were less compared to that in control ( $P < 0.01$  or  $P < 0.05$ ).

## 4. Discussion

Traditional Chinese medicine techniques such as acupuncture and moxibustion could be integrated with orthodox Western medicine therapies to fill the effectiveness gap in some pain problems included herpes zoster-associated pain to prevent or reduce pain with minimal adverse effects of treatment. The acute herpes zoster research is the first clinical study to investigate the effectiveness of an acupuncture treatment for acute herpes zoster pain in direct comparison to a standard analgesic treatment with gabapentine and to a sham laser acupuncture treatment in a three-armed, randomized controlled clinical trial. Compared to previous studies of acupuncture in the treatment of herpes zoster, this study has a more rigorous methodology and will include more patients.

In our study, for the time of staunch bleb, scab and scab falling off, there were no obvious statistical difference in E, EC, EF, ET and control groups, however, five methods could obviously reduce symptoms of herpes zoster and improved the general symptoms. At first five days of treatment, compared to control method, the other four methods could more quickly ameliorate the general symptoms of herpes zoster, and EF was superior to EC.

Acute herpes zoster is relieved during treatment; moreover, EC, EF and ET methods could reduce the neuralgia and shortened the duration of pain, which were superior to that treating with western medicine. In addition, at first 3 days of treatment, the efficacy of treatment with E, EF or ET was superior to that of EC, and EF method was better than E. After the fifth day of treatment or end-of-treatment, the efficiency of relieve pain by treatment with EF, ET or EC was no more than alone E. The incidence of neurodynia was reduced after EC, EF or ET treatment at 30<sup>th</sup>, 60<sup>th</sup> and 90<sup>th</sup> day, and pain of postherpetic neuralgia was relieved.

In my paper, base line of all cases in electro-acupuncture group was basically in compliance with the control



**Table 7.** Incidence of postherpetic neuralgia.

group	Case (n)	Follow-up (30 <sup>th</sup> day)		Follow-up (60 <sup>th</sup> day)		Follow-up (90 <sup>th</sup> day)	
		No	Yes	No	Yes	No	Yes
E	94	90 (95.74)	4 (4.26)	92 (97.87)	2 (2.13)	93 (98.94)	1 (1.06)
EC	94	89 (94.68)	5 (5.32)	92 (97.87)	2 (2.13)	92 (97.87)	2 (2.13)
EF	91	87 (95.60)	4 (4.40)	90 (98.90)	1 (1.10)	91 (100.00)	0 (0.00)
ET	95	90 (94.74)	5 (5.26)	93 (97.89)	2 (2.11)	95 (100.00)	0 (0.00)
WM	95	63 (66.32)	32 (33.68)	86 (90.53)	9 (9.47)	90 (94.74)	5 (5.26)

group. Valaciclovir [18] was used in here, which had a bioavailability with 54.5%. So, it had a gender certainly as control.

In fact, the efficiency that local Ashi point was treated with stimulation of acupuncture which worked through a conducting system of cortex-meridians and collaterals-viscera. Varicella zoster viruses are almost lurked in spinal nerve root, namely locate in Du meridian and Jiaji points. In here, the partial skin lesions, painful place and relevant Jiaji points of ganglion are where pathogenic factors exist in, which could be thought as an Ashi point storing herpes zoster [19]. Jiaji point locates in between Du meridian and Sun meridians of foot, we can regulate the Yang-Heavy of Du meridian, Sun meridians of foot and the whole body, which makes it to reach the objective of regulation of meridians and collaterals and viscera.

## 5. Conclusion

In conclusion, it is a certain advantage for repairation of organism, abatement of neurodynia, and reduction of postherpetic neuralgia by acupuncture treatment, and the efficiency of combination electroacupuncture and fire acupuncture is better to that of the only electroacupuncture in the early days. However, at the end of the treatment period, the efficiency of electroacupuncture + cotton-pave moxibustion, electroacupuncture + fire acupuncture or electroacupuncture + tapping is no more than that of the only electroacupuncture. Further studies are required to determine the pre-clinical utility of this method.

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