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Exploring the Regularity of Acupoint Selection in Acupuncture Treatment for Peripheral Facial Paralysis

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Abstract: ***Objective:*** *To explore the regularity of acupoint selection in acupuncture treatment for peripheral facial paralysis.* ***Methods:*** *Research was conducted on the etiology and pathogenesis of facial neuritis from both traditional Chinese and Western medicine perspectives, as well as on the acupoint selection based on TCM syndrome differentiation and Western anatomical aspects. The significance of acupoint selection in different stages of peripheral facial paralysis treatment and the timing of acupuncture were summarized.* ***Conclusion:*** *Peripheral facial paralysis is a common clinical disease and is one of the indications suitable for acupuncture treatment. The use of a staged treatment approach, combined with the selection of acupuncture prescriptions and reinforcing and reducing techniques, has a significant effect on improving the symptoms of peripheral facial paralysis, with a predominant focus on improving facial paralysis symptoms.*

Keywords: Peripheral facial paralysis, Etiology and pathogenesis, Principles of acupoint selection, Acupuncture treatment formula, Acupuncture tonifying and purging methods**.**

1. Introduction

Peripheral facial paralysis is a type of facial nerve paralysis, known as 'facial paralysis' or 'facial neuritis' [1]. The onset is usually acute, with clinical manifestations including inability to voluntarily raise or frown, air leakage at the corners of the mouth and reduced range of motion when showing teeth, unilateral or bilateral facial paralysis, shallowing or even disappearance of unilateral frontal lines and nasolabial folds, deviation of the mouth and eyes, incomplete eye closure or exposure, and widening of the palpebral fissure [2]. Initially, there may be mild pain in the mandibular angle or tenderness in the retroauricular mastoid. Staging criteria include the acute stage (within 1 week of onset), the recovery stage (1 week to 3 months of onset), and the sequelae stage (3 to 6 months of onset) [3]. Peripheral facial paralysis can occur at any age, but is more common in people aged 15-60 years, with an incidence rate typically ranging from 25-35 per 100,000 people. The factors contributing to the onset are not gender- or age-specific. Acupuncture therapy is the preferred treatment for peripheral facial paralysis in clinical practice. Therefore, analyzing the pattern of acupoint selection for acupuncture treatment of peripheral facial paralysis is an important and urgent topic in clinical practice.

2. Etiology and Pathogenesis

Western medicine posits that the onset of this disease is related to the lesions of the facial nerve itself and peripheral factors. The blood vessels supplying the facial nerve may spasm due to exposure to cold, viral infection, or autonomic nerve dysfunction, leading to ischemia and edema of the facial nerve, which can then be compressed by the facial nerve canal [4]. The occurrence of facial nerve palsy is directly related to the damage of the facial nerve. The facial nerve exits the skull through the stylomastoid foramen and enters the parotid gland. Its branches intertwine to form a plexus, and from this plexus, branches fan out over the facial expression muscles. Injuries to the facial nerve outside the skull can affect the somatic motor fibers, causing paralysis of the facial muscles on the affected side [5].

According to traditional Chinese medicine, the pathogenic factors of this disease are closely related to the deficiency of vital qi, lack of nourishment in the meridians, weakened defensive qi, and the invasion of facial meridians by pathogenic winds such as cold or heat, resulting in the obstruction of qi and blood circulation, loss of nourishment for the facial muscles, and the muscles becoming flaccid and fail to contract [6].

3. Acupoint Selection Criteria and Acupuncture Manipulations in Stages

3.1 Acute Period

The acute phase is about within a week after the onset of the disease, with a common occurrence of deviation of the face and eyes on one side, typically in the morning or after a lunch break, peaking within 5 to 7 days [7]. During this period, the symptoms of facial paralysis continue to worsen, and the facial nerve is in the active phase of inflammatory edema. Patients may experience pain in the mandibular angle or the mastoid behind the ear, and a few patients may show signs of eyelashes, eye tremor, positive blinking movement, and oblique oval mouth sign. The acute phase is mainly due to wind-pathogen invasion, which affects the facial meridians, and the disease pathogen is still superficial. Acupuncture treatment in the acute phase can improve neuroinflammatory edema, promote the absorption of inflammatory exudates, prevent facial nerve degeneration, and thus block the progression of the disease [8]. Acupuncture treatment is based on the method of "dispersing wind and expelling pathogens, dredging meridians and activating collaterals". Local acupoints should be selected together with acupoints along meridians. It is advisable to select fewer local acupoints. For

distant points, Fengchi, Quchi, and Hegu can be chosen. Acupoints can be selected based on symptoms. Acupuncture techniques should not be too heavy, but mainly light stimulation. Professor Sun Shentian believes that electroacupuncture can be used to treat peripheral facial paralysis in the acute phase, but the intensity of electrical stimulation should not be too high. Two groups of acupoints, Yangbai and Zanzhu, Yingxiang and Dicang, were selected to connect electroacupuncture (using intermittent waves for the waveform). The contraction amplitude of facial muscles on the affected side was observed, and the current intensity was slowly increased, so that the affected side's angular and frontal muscles slightly contracted and twitched, with the mouth corner being elevated as appropriate [9].

3.2 Recovery Period

This period is approximately within one month after the onset, and the condition tends to stabilize. During this time, there is a struggle between vital qi and pathogenic qi. With time, the vital qi is depleted, and the pathogenic qi moves from the superficial to the deep layers, resulting in slow blood flow, blockage of meridians, and the tendons and muscles becoming loose and fail to contract. Patients may experience paralysis and weakness of the affected side muscles, food pinching, and air leakage when puffing their cheeks. The treatment principle is 'promoting blood circulation and removing blood stasis, nourishing the stomach and spleen, and nourishing the tendons and muscles'. It mainly involves local acupoints on the face combined with acupoints along the meridians. Local acupoints should be deeply and thoroughly punctured, and the technique should be gentle and balanced. Professor Hu Kaming believes that penetrating needling can effectively increase the strength of dredging meridians, open the blocked meridians, and achieve the recovery of meridian function. On the basis of acupuncture, it can be combined with acupoint injection, moxibustion, plum blossom needle percussion, and other methods. The technique should be gentle and balanced, which can enhance the stimulation of the facial nerve, promote the recovery of the facial nerve, and effectively relieve the symptoms of facial muscle weakness [10].

3.3 Sequelae Period

Generally, those with a duration of illness exceeding 45 days or even lasting for several months are in the sequelae period. These are often due to inadequate or incorrect treatment, which can lead to facial muscle synkinesis and other symptoms. During this period, the main treatment approach is "soothing the liver and relieving spasms, replenishing qi and activating collaterals". Acupuncture involves selecting acupoints along meridians and in combination with local peripheral facial acupoints. The technique used is reinforcing, combined with moxibustion and facial flash cupping. Acupoints can be selected based on the patient's specific condition. Patients with severe sequelae may receive injections of mecobalamin or vitamin B1 or B12 at the corresponding acupoints once a day to nourish the damaged facial nerve and promote the recovery of sequelae.

4. Distinctive Acupuncture Therapy for Peripheral Facial Paralysis

Penetration needling is very common in the clinical treatment of peripheral facial paralysis. That is, during the treatment of a disease, the needle tip of an acupoint selected clinically faces another prescription acupoint nearby. This has the effect of enhancing the stimulation of local muscles and stimulating the meridian effect to improve the clinical therapeutic effect. Professor Wang Zhaohui used filiform needle penetration needling (Dichang (ST 35) through Jia Che (GB 29)) to treat peripheral facial paralysis. And on the basis of point penetration needling, he used the "retention" needling method, that is, after the penetration needling was completed, the needle would be rotated approximately 180 degrees in one direction. Once rotated to the appropriate angle, it creates a retention effect, followed by a gentle twitching motion. This method could improve the elasticity of facial muscles and aids in the recovery of muscle tone [11]. Professor Gu Shizhe has developed a set of empirical penetration needling techniques through many years of clinical practice. This involves inserting two 1.5-inch silver needles obliquely into the Jia Che and Di Cang acupoints, with the needle tips pointing towards each other. The needles are rapidly lifted and inserted in the same direction for 3 to 5 times, maintaining a constant distance between them during the lifting and insertion process. The degree of upward sensation is determined by the patient's mouth corner [12]. This method is only suitable for patients whose condition is relatively stable after treatment. This technique is also a form of penetration needling, and like the "stagnation needling" method, it can increase the stimulation to acupoints and stimulate the effect of sensory transmission along meridians. Guotianci, a renowned elderly TCM practitioner from Shaanxi Province, has developed a therapy called "the 'Five Acupoints on the Face' therapy" through many years of clinical experience. This involves selecting five acupoints: Yangbai (affected side), Taiyang (affected side), Dicang (affected side), Jia Che (affected side), and Shuigou. The treatment employs the rotating-twirling reducing technique in the acute stage and the rotating-twirling reinforcing technique in the recovery stage, combined with conventional western medicine treatment. This approach has achieved excellent clinical efficacy [13].

5. Exploring Acupoint Selection in Acupuncture from an Anatomical Perspective

5.1 Facial Nerve Anatomy

In the facial nerve canal, the facial nerve first extends a distance (about 4mm) forward and outward, then bends sharply, passing through the inner wall of the tympanic cavity and above the vestibular window, to reach the posterior wall of the tympanic cavity (this section is the horizontal part of the facial nerve, about 10mm long). It then bends downward into the stylomastoid foramen (this section is the vertical part of the facial nerve, about 16mm long), with a total length of about 3cm within the canal [14]. After exiting the stylomastoid foramen, the outer segment of the facial nerve in the temporal bone emits upper and lower branches. These two branches can generally give rise to about 9-12 branches,

collectively forming five groups of nerves: the temporal branch, zygomatic branch, buccal branch, mandibular marginal branch, and cervical branch of the facial nerve. There are communicating branches between each branch [15]. These five groups of nerve branches innervate the muscles of the entire face from top to bottom in the head.

5.2 Comparison Table of Muscles, Their Functions, and Corresponding Acupoints Controlled by Each Branch of the Facial Nerve.

Facial nerve branch	Muscle	Function	Corresponding acupoints and their associated meridians
Temporal branch, Zygomatic nerve branch	Orbicularis oculi muscle	close the eyes	Tongziliao (Gallbladder meridian), Sibai (Stomach meridian)
Temporal branch	Frontal muscle	raise eyebrows	Yangbai (Gallbladder meridian)
Zygomatic nerve branch, Buccal branch	Zygomaticus	pull the corners of the mouth outward and upward.	Juliao, Xiaguan (Stomach meridian), Quanliao (Small intestine meridian), Shangguan (Gallbladder meridian)
Temporal branch	Corrugator muscle	frown	Cuanzhu (Bladder meridian), Yuyao (extra nerve points), Sizhukong (Pericardial meridian)
Buccal branch	Orbicularis oris muscle	close lips, assist in chewing and pronunciation	Shuigou, Chengjiang (Governing Vessel), Dicang (Stomach meridian), Jiachengjiang (extra nerve points)
Buccal branch, lateral mandibular branch	Levator oris muscle, Depressor anguli oris muscle	pull the corners of the mouth outward and upward.	Dicang, Jiache (Stomach meridian)
Buccal branch	Levator labii superioris muscle	pull the upper lip up	Juliao (Stomach meridian), Yingxiang (Large intestine meridian)

6. Summary

6.1 Analyze the Law of Acupoint Selection in Terms of Traditional Chinese Medicine

Traditional Chinese medicine practitioners believe that acupoint selection for peripheral facial paralysis can be divided into acupoint selection along meridian lines, acupoint selection based on syndrome differentiation, and local acupoint selection.

6.1.1 selecting acupoints along meridians

Select points according to "where the meridians pass, where the indications reach". Symptoms of peripheral facial palsy include the forehead, eyes, face, nose, lips, and ears. The frontal striae on the side of the lesion disappeared; The ocular manifestations were incomplete eyelid closure and tears. The facial manifestations were paralysis of facial expression muscle, tightness of facial muscle and pain of mandibular Angle. In the nose, the nasolabial sulci became shallow or even disappeared, and the middle nasal sulci was skewed. Lip Angle skew, leakage, etc.; The ear presents with pain in the mastoid process behind the ear. The meridians related to the eyes include bladder, stomach, liver, gallbladder and so on. There are three jiao channel, small intestine channel, gallbladder channel and so on. Related to the nose are large intestine channel, stomach channel, Dao pulse and so on; Ring mouth lips have stomach channel, Duren chong pulse and so on. According to the specific symptoms of the patient, the local points of the meridians belonging to the corresponding region and the distal points of the meridian can be selected, and the points of the meridian can include local points.

6.1.2 selecting acupoints according to differentiation

Syndrome differentiation-based acupoint selection involves selecting acupoints that correspond to the specific syndrome of peripheral facial paralysis for use as matching points. Peripheral facial paralysis is usually divided into four types: wind-cold invading the meridians syndrome, wind-heat invading the meridians syndrome, wind-phlegm obstructing the meridians syndrome, and qi deficiency and blood stasis syndrome [16]. For wind-cold invading the meridians, one can choose acupoints that dispel wind and cold. For wind-heat invading the meridians, Jing and Xing acupoints along the corresponding meridian can be selected. For wind-phlegm obstructing the meridians, acupoints that dispel phlegm, such as Fenglong, Zhongwan, and Lieque, can be combined with wind-dispelling acupoints like Fengchi and Fengfu. For qi deficiency and blood stasis syndrome, Qihai and Zusanli acupoints that nourish qi can be chosen, along with Xuehai and Geshu acupoints for removing blood stasis.

6.2 Analysis of Acupoint Selection Patterns from the Perspective of Western Medicine

According to modern clinical medical research, acupuncture administered at different acupoints can activate certain nuclei in related functional areas of the brain, thereby stimulating the release of relevant neurotransmitters or active peptides, thus achieving regulatory effects [17]. Based on the course of the facial nerve and the corresponding muscles it controls, relevant acupoints are selected on the affected area to stimulate the muscles and nerves, so that the stimulation can be transmitted to the relevant areas of the cerebral cortex. Upon receiving the stimulation, the cerebral cortex will issue instructions to promote the release of neurotransmitters, which then act on the facial nervous system to achieve therapeutic effects.

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