Meridian and Acupoint

Discovery and clinical application of Neimáidiān (内麻点) point

内麻点的发现及其临床应用

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ARTICLE INFO

Objective To introduce a new acupoint that has a good analgesic effect clinically. Methods According to the discovery, clinical exploration and clinical practice of Neimáidiān point, local anatomy, positioning, manipulation, clinical application, precautions for manipulation and handling of adverse reactions of Neimáidiān point were summarized. Results After acupuncture at Neimáidiān point with continuous stimulation, it was shown that the level of serum β-endorphin increased significantly, while the level of angiotensin II was unchanged, indicating that acupuncture at Neimáidiān point has a good analgesic effect. Conclusion Acupuncture at Neimáidiān point can be used for clinical treatment of acute and chronic pain.

KEY WORDS: Neimáidiān-point; manipulation of acupuncture; pain treatment

Neimáidiān point is a new point discovered in recent years. In the 1960s, KANG Chuan-ming, a military doctor, through long-term exploration and clinical practice, discovered that there are 2 points located on the medial and lateral sides of lower leg, which can be punctured and stimulated using filiform needle for relieving all types of pain, so these two points were named Neimáidiān (内麻点) point and Wáimáidiān (外麻点) point accordingly. In practice, doctor Kang recognized that the analgesic efficacy of Neimáidiān point was superior to that of Wáimáidiān point. Therefore, he often used Neimáidiān point for the treatment of all types of pain disease. In 1977, Ministry of Health organized a study on acupuncture anesthesia in extremities and appointed Luoyang Orthopedic-Traumatological Hospital and Tianjin Orthopaedic Hospital as leader units of National Cooperative Group. Doctor Kang successfully performed 10 cases of surgery under acupuncture anesthesia in extremities. Fortunately, the authors learned from doctor Kang about the positioning of Neimáidiān-point, manipulation, acupuncture indications, efficacy evaluation and so on. In addition, based on long practice and exploration, the positioning of Neimáidiān point and manipulation were summarized. The clinical application of Neimáidiān-point is described below.

POSITIONING

Neimáidiān point is located on the medial side of lower leg near to foot-taiyín spleen meridian (Figure 1) [1]. On the basis of diagram of acupoints, lots of practice and exploration, local anatomy and bone landmark of human lower limb, it is concluded that Neimáidiān point is located on the medial side of lower leg, 7 cun above the medial malleolus (proportional unit of the body) and about 0.5 cun from post edge of tibia [2].

LOCAL ANATOMY

Amputation of left mid-distal femur with electro-acupuncture at bilateral Neimáidiān points for anesthesia was applied in a 55-year-old male patient with osteosarcoma in left proximal tibia. Satisfactory
The principles of acupuncture indications and needling sensation after acupuncture can be confirmed by local anatomy of Neimadian point. Neimadian point is close to the foot-taiyin spleen meridian and needle tip is next to posterior tibial nerve, which is also one of the causes of paresthesia radiating to feet after acupuncture. Needle body passes through flexor digitorum longus and muscle belly of flexor hallucis longus, which is the cause that five digits simultaneously conducting a regular flexion along with the frequency of therapeutic apparatus.

**MANIPULATION**

The patient was asked in supine position with feet in natural extorsion and body parts below the knee exposed. After routine disinfection on local skin around bilateral Neimadian points, a disposable sterile needle in right hand of the operator was perpendicularly punctured in depth of 1.5 cun. The level of stimulation was based on the characteristic of pain. For chronic pain, a mild and moderate manual stimulation would be adopted, while for acute pain, a severe manual stimulation or continuous electroacupuncture stimulation would be adopted.

**Needling sensation**

After acupuncture, there was a sensation of numbness radiating to the feet, or five digits were simultaneously in a mild flexion.

**Stimulation**

After needling sensation was caused by acupuncture at Neimadian point, the lifting, thrusting and twisting were performed in left and right sides, respectively, for 5–10 times every five minutes. At each operation, needles were retained for 20–30 minutes. For mild manual stimulation, the needle was lifted, thrust and twisted intermittently with lifting and thrusting in depth of about 0.3 cun, as well as twisting for 90°; for moderate manual stimulation, the needle was lifted, thrust and twisted continuously with lifting and thrusting in depth of about 0.3 cun, and twisting for 180°; for severe manual stimulation, the needle was lifted, thrust and twisted rapidly and continuously with lifting and thrusting in depth of about 1.0 cun, and twisting for 360°; for electro-
acupuncture stimulation, after needling sensation occurred, G 6805 II-type acupuncture anesthesia therapeutic apparatus was selected with lead wire connected to acupuncture needle. Continuous wave was adopted with frequency from low to high (200–1 000 times/min). The strength was controlled at patient tolerable range (positive pulse of infusion voltage >12.5 V, negative pulse >20 V, and the load was 250 Ω). For electroacupuncture stimulation, five digits must simultaneously conduct a regular flexion along with the frequency of therapeutic apparatus. Meanwhile, their feet were forbidden wagging. If patients didn’t comply with the above requirements, the angle and depth of acupuncture were allowable to adjust slowly until five digits simultaneously conducting a regular flexion along with the frequency of therapeutic apparatus on the premise that they could tolerate the current output strength. Every 5 to 10 minutes, the output current and frequency were increased alternatively under the condition of patient tolerable. Electroacupuncture stimulation was performed based on the conditions that patients were tolerable, with no pains at site of acupuncture and with sensations of soreness, numbness and distension at acupuncture part or ankle. At each electroacupuncture, the stimulation retained for 20–30 minutes. After electroacupuncture, the power of therapeutic apparatus should be turned off, the acupuncture needles should be removed and a local acupuncture site was press on for a moment.

CLINICAL APPLICATION

Acupuncture at Neimádiān point can be adopted for all types of acute and chronic pain, including alleviating visceral pain and cancer pain, and treating all kinds of pain caused by fracture trauma, as well as postoperative chest, abdominal and orthopedic pains. In 1992, CHANG [2] analyzed that acupuncture at Neimádiān point for anesthesia can be applied in orthopedic surgery of extremities, and surgical site includes wrist, forearm, elbow and upper arm of upper extremities and hip, thigh, knee, shank and ankle of lower extremities. The total effective rate for acupuncture at single Neimádiān point was 90%. Besides, according to the statistic analysis of the surgical sites, it was shown that the effect of acupuncture anesthesia on ankle surgery was best, while on upper extremities and other parts of lower extremities had no apparent difference. In 1996, CHANG [3] reported a study on acupuncture at Neimádiān point and auricular point pressing used for analgesia after orthopaedic surgery in 64 patients with postoperative pain in upper and lower extremities. The results showed that patients in the group of acupuncture at Neimádiān point had rapid onset of analgesia and the analgesic effect was superior to that in auricular point pressing group. In 1997, CHANG [4] reported that the effective rate of acupuncture anesthesia applied to 95 cases of orthopedic surgery of extremities was 94%. Acupoints selected for upper extremities surgery included Neimádiān point, Quêpên (兌盆 ST 12), Qūchī (曲池 LI 11), Hènggu (合谷 LI 4), etc.; those for lower extremities surgery included Neimádiān point, Huántif (寒火 LI 34), etc. According to the surgical sites, Neimádiān point combined with 2–4 body acupoints was selected. The results showed that anesthetic effect in knee surgery was the best, followed by ankle and upper extremity surgery. The duration of surgery

Precautions

① The key to achieve a good therapeutic effect of acupuncture is accurately positioning Neimádiān point, selecting appropriate stimulation method, finding needling sensation and having obvious indications; ② The main indications for electroacupuncture at Neimádiān point are that five digits must simultaneously conduct a regular flexion along with the frequency of therapeutic apparatus; ③ Examination on therapeutic apparatus should be performed before treatment to make sure that the switch is flexible and available, the power indicator is workable, the plugs are in good conditions and all the buttons are adjusted to zero; ④ Every time the adjustment or increase of output strength and frequency should be operated lightly and slowly. It is forbidden to suddenly increase the amount of stimulation, which may bring discomfort to the patient.

Handling of adverse reactions

① Acupuncture syncope: acupuncture syncope often occurs in patients who are nervous or afraid of acupuncture. To avoid this situation, it is important to explain feelings of acupuncture to patients to relieve their anxiety. If acupuncture syncope (dizziness, flusteredness, sweating, etc.) occurs, stimulation should be stopped, needles should be removed and a close observation should be conducted. ② Sticking of needle: sticking of needle is related to patient’s emotion and acupuncture-induced local muscular tension. If sticking of needle occurs, stimulation should be stopped, massage at local acupuncture site should be performed to stabilize patient’s emotion and needles should be removed slowly. ③ If local bleeding occurs after withdrawal of needles, sterile cotton swab should be applied to press for a moment.
within 2 hours obtained better anesthetic results than those of surgery over 2 hours. In 1999, CHANG[5] reported a study on application of acupuncture at Neimádián point for anesthesia in orthopedic surgery of extremities. Seventy-three patients received acupuncture at Neimádián point for anesthesia, 55 patients in control group received acupuncture at other acupoints for anesthesia, and 60 patients in control group received conventional anesthetic drug. The results showed that anesthetic effect in the group of acupuncture at Neimádián point was the best. Moreover, 21 patients in the group of acupuncture at Neimádián point and conventional anesthetic drug group were selected, respectively, to determine the level of serum β-endorphin and angiotensin II before, during and after surgery. It was found that the level of β-endorphin in the group of acupuncture at Neimádián point during and after surgery was significantly higher than that before surgery, while the level of angiotensin II had no obvious difference. Therefore, it can be concluded that acupuncture at Neimádián point had a significant effect for anesthesia on orthopedic surgery of extremities and its analgesic effect was better than that of other acupoints. In 2001, CHANG[6] reported a study on application of acupuncture at Neimádián point in advance to orthopedic surgery of extremities. Sixty cases of orthopedic surgery of extremities were randomly divided into two groups. Patients in the acupuncture analgesia group received electroacupuncture at Neimádián points for 30 minutes, while patients in control group were only received routine drug anesthesia. According to the pain scoring standards formulated by WHO, the postoperative analgesic effect in the group of acupuncture at Neimádián points was better. In 2005, CHANG[7] reported a clinical observation on acupuncture at Neimádián point for analgesia after operation of extremities. Sixty-two patients were randomly divided into two groups. Patients suffering from postoperative pain in observation group were treated with electro-acupuncture at Neimádián-points for 30 minutes, while patients in control group were orally taken tramadol hydrochloride tablets. The results showed that the analgesic effect of electroacupuncture at Neimádián point on orthopaedic postoperative pain was superior to that of oral administration of tramadol hydrochloride. In 2005, CHANG[8] reported a clinical observation on analgesic effect of electroacupuncture at Neimádián point after operation of extremities. This study was a multi-center, randomized, parallel-control clinical trial. Two hundred patients with pain in the extremities after surgery were enrolled and equally assigned into two groups. Patients in the treatment group were treated with electroacupuncture at Neimádián point and oral administration of placebo, and the patients in control group were treated with oral administration of tramadol hydrochloride and placebo. The results showed that the analgesic effect and safety of electroacupuncture at Neimádián point on postoperative analgesia of extremities were superior to those of the routine analgesic drug. In 2013, ZHAO[9] reported an observation on electroacupuncture at Neimádián point and Neiguan (PJ 6) for analgesia after thoracic surgery. One hundred and twenty patients were divided into two groups randomly. Patients in treatment group were treated with electroacupuncture at Neimádián point and PC 6 for analgesia after thoracic surgery, while patients in control group were treated with patient-controlled intravenous analgesia. The visual analogue scales (VAS) in two groups at each time interval after surgery were decreased when compared with those before treatment, which in treatment group was significantly lower than that in control group. The analgesic effect in the treatment group (2 h after operation) was superior to that in the control group. The levels of β-endorphin in two groups after treatment were both increased when compared with those before treatment, which in treatment group was higher than that in control group. The safety in treatment group was higher than that in control group. In 2011, DING[10] reported an observation on acupuncture at Neimádián point for abdominal postoperative analgesia. One hundred and twenty patients were randomly divided into the group of electroacupuncture at Neimádián point and the group of patient-controlled intravenous analgesia. The results showed that the analgesic effects at each time interval after surgery in the electroacupuncture group were superior to those in the group of patient-controlled intravenous analgesia. The level of β-endorphin in two groups after treatment was both increased when compared with that before the treatment, which in the electroacupuncture group increased more significantly. The safety level after surgery in the electro-acupuncture group was higher than that in the control group, and the analgesic effect and safety of electroacupuncture at Neimádián point after abdominal surgery were superior to those of patient-controlled intravenous analgesia. In 2012, CHEN[11] reported an observation on the therapeutic effect of hydroacupuncture at Neimádián point for the treatment of fracture pain of extremities. One hundred and fifty patients with fracture of the extremities were equally divided into hydroacupuncture group, filiform needle group and western medicine group. After
treatment, the VAS score in hydroacupuncture group decreased more significantly than that in other groups. Therefore, it was considered that hydro-acupuncture at Neimādiān point for the treatment of fracture pain of extremities had a satisfactory efficacy. In 2012, TANG[12] reported a study on application of acupuncture at Neimādiān point for the treatment of herpes zoster by technology of cauterized needle-knife. Eighty-nine patients with herpes zoster were divided into two groups. Forty-six patients in the Neimādiān point group were treated with acupuncture at Neimādiān point for 15 minutes, followed by fire acupotomy therapy. Forty-three patients in fire acupotomy group received fire acupotomy therapy only. The results showed that acupuncture at Neimādiān point before fire acupotomy therapy can effectively alleviate patients’ pain.

In summary, acupuncture at Neimādiān-point has a definite therapeutic effect on anesthesia and analgesia. No sophisticated equipment and expensive drugs are required. Meanwhile, no toxic side effects and complications are observed, and the operation is simple. Therefore, this approach is easy accepted by patients and is convenient to promotion and application.

CONCLUSION

Neimādiān point is a newly discovered acupoint possessing good analgesic effect. Based on clinical practice, it has been proved that acupuncture at Neimādiān point has a better effect on acute and chronic pain. Meanwhile, it has been reported that Neimādiān point applied to acupuncture anesthesia and preemptive analgesia has achieved great success. Both electroacupuncture at Neimādiān point and injection for therapy have achieved satisfactory analgesic efficacy in treatment of postoperative chest and abdominal pains, as well as herpes zoster pain. Especially, electroacupuncture at Neimādiān point has a good effect on orthopedic postoperative pain, which has been defined as feasible technology by State Administration of Traditional Chinese Medicine. This technology has been published in DVD form and widely applied in nationwide.

REFERENCES

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ABSTRACT IN CHINESE

[摘 要] 目的：介绍一个镇痛效果较好的新穴位。方法：通过对内麻点穴的发现、临床探察和实际操作，结合局部解剖，总结了内麻点穴的定位、操作手法、临床治疗范围、操作注意事项及不良反应的处理。结果：针对内麻点穴持续刺激后血清β-内啡肽明显升高而血管紧张素Ⅱ没有变化，说明针对内麻点穴有较好的镇痛效果。结论：针对内麻点穴可以作为临床急性疼痛的治疗方法。

[关键词] 内麻点穴 针刺操作 疼痛治疗