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# TRADITIONAL CHINESE MEDICINE ANESTHESIA IN SEVERE THROMBOANGIITIS OBLITERANS

## REPORT OF 30 CASES

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**30 patients with severe thromboangiitis obliterans (TAO), Stage III, were treated by traditional Chinese medicine (TCM) anesthesia with an effective rate of 86.7% . It was proved to be more effective than dolantin for pain relief and could abstain from addiction of anesthetics, elevate skin temperature of the afflicted limbs, increase walking distance, extinct depending edema, and accelerate wound healing. The therapeutic mechanism of TCM anesthesia as to blood vitalization, blood-stasis elimination, immune suppression and nerve system regulation is discussed.**

For years, it has been difficult to treat violent pain at gangrene stage of thromboangiitis obliterans (TAO), which usually leads to amputation because of failure of dolantin to relieve severe pain and drug addiction after long period of administration.

Since 1972, we have tried TCM anesthesia in severe cases of TAO[1] and found that it can be potentially used to replace dolantin and abstain from its addiction with gratifying results. We report herein 30 patients with Stage III TAO undergoing 205 times of TCM anesthesia.

### PATIENTS AND METHOD

**Patients.** All the 30 patients, aged from 22 to 59 years, were men with Stage III TAO. Of these 28 were in-patients and 2 out-patients. The duration of pain ranged from 1.5 months to 2 years. 24 with severe pain had to sit down holding the knees day and night, and became addictive to anesthetics. The rest 6 with mild pain depended upon large doses of analgesics. Gangrene involved toes ( degree 1) in 12 patients, metatarsus (degree 2) in 8 and the whole tarsophalanges or heel (degree 3) in 10. All patients were previously treated without effects. 23 patients were subjected to amputations of thighs or lower extremities, and 1 underwent lumbar sympathectomy.

**Method.** Two preparations No. 1 and No. 2 of TCM anesthesia (the Shanghai First Chinese Medicine Works, Shanghai) were introduced, with 3-5 mg and 1-3 mg per injection respectively. Following the increasing use of anesthesia, the dosage could be increased gradually, and be combined with wintermine 12.5-25 mg each injection given intramuscularly or intravenously or by dripping. More often, it was given once daily or every 1-2 days according to patients' condition. In this series, the times of injection varied from 2 to 17 (mean 7). In case of occurrence of apparent dysphoria after injection, 1 mg analeptic (Shanghai First Chinese Medicine Works) would be injected.

### RESULTS

**Pain relief.** Pain due to ischemia inflammation or nervous origin was usually remitted. The patients with severe pain slept soundly for 4 hours after TCM anesthesia, some of them after waking fell asleep again for another 24 hours. Pain remittance maintained at least 24 to 48 hours by one injection; the more times of TCM anesthesia, the more evident the effect was. Pain in 17 of the 24 patients and the rest 6 turned to be slight eventually. In 4 patients whose condition was not fully controlled, pain decreased in severity or even relieved for a moment immediately after application of TCM anesthesia. Before treatment, dolantin had been given to 3

patients, 1 received 500 ampules within 3 months, and 21 000 ampules within 5 and 10 months respectively. Once dolantin was suspended, pain came back again. But dolantin was stopped eventually after using TCM anesthesia for 2-4 times.

**Blood circulation.** In this series 12 patients with progressive condition turned to be stable, and 26 had improved blood circulation characterized by elevated skin temperature of the involved areas and prompt wound healing. During the anesthesia, skin temperature of the affected limbs raised on average 1.5-4.5, the highest being 8 C. The temperature became permanently higher after several times of anesthesia. The hospital days in this series reduced more than 50% as compared with those in another 30 severe patients without use of TCM anesthesia. 18 patients were free from amputation of limbs.

**Other effects.** Dressing was done without pain under the TCM anesthesia for all the 30 patients, of which 1 also underwent arteriography and 24 with severe pain carried out passive excercise of the knee and ankle joints.

**Immediate results.** Of the 30 patients undergoing 205 times of TCM anesthesia, 20 (66.7%) had marked results, and 6 (20%) fair results, with a total effective rate of 86.7% (Table 1). Among the 26, 23 were followed up for 1-12 years, of which 13 remained well, 7 relapsed, 2 lost to contact with, and 1 died.

**Comparison of TCM anesthesia with other therapeutic methods.** Prior to the use of TCM anesthesia, all the 30 patients had been treated with traditional Chinese medicine, hyperbaric oxygen and Western medicine, without effect. They were alternatively given TCM anesthesia and 26 of them had effective results (Table 2).

*Table 1. The immediate results of TCM anesthesia in the 30 patients*

| Disease condition | Degree of gangrene | No. of patient | Times of anesthesia | Marked effect | Effective | Without effect |
|---|---|---|---|---|---|---|
| Stabilized | 0 | 0 | 0 | 0 | 0 | 0 |
| Remittent | I | 7 | 30 | 5 | 2 | 0 |
| | II | 6 | 26 | 5 | 1 | 0 |
| | III | 1 | 6 | 1 | 0 | 0 |
| Progressing | I | 5 | 45 | 4 | 1 | 0 |
| | II | 2 | 20 | 2 | 0 | 0 |
| | III | 9 | 78 | 3 | 2 | 4 |
| Total No. | | 30 | 205 | 20 | 6 | 4 |
| % | | | | 66.7 | 20.0 | 13.3 |

Note: Marked effect: Blocking the deterioration of the illness and disappearance or marked improvement of symptoms and signs. Ulcers healed completely.

Effective: Relief of symptoms and signs with healing of ulcers or diminishing the size of ulcers.

Without effect: Symptoms and signs were not improved or further deteriorated with ending in amputation.

It is apparent that the TCM anesthesia is more effective than other methods[2-4].

## ILLUSTRATIVE CASES

**Case 1.** A 39-year-old male was admitted to our hospital on July 13, 1972 with a complaint of right foot pain at rest and ulcers for 14 months. 7 years ago, the patient used to feel coldness, numbness, and intermittent claudication of the lower limbs. Two years before admission, he had an operation for removal of his right big toes nail, but the wound failed to heal. Since then, ulcers developed at the right 3rd and 4th toes. At the time of admission, he had violent pain of his 2nd right

*Table 2. Comparison of TCM anesthesia with other methods*

| Methods | Patients | Condition | | Marked results % | P | Total effective rate % | P |
|---|---|---|---|---|---|---|---|
| | | Stage | Degree | | | | |
| TCM Anesthesia | 30 | III | 1,2,3 | 66.7 | | 86.7 | |
| Electrical Acupuncture | 410 | I-III | 1,2,3 | 18.8 | < 0.01 | 83.9 | < 0.05 |
| Ultrasonic waves | 30 | I-III | 1 | 36.6 | < 0.05 | 83.3 | > 0.05 |
| Magnetic methods | 11*/70 | III | 1 | 18.1 | < 0.05 | 63.5 | < 0.05 |

* 11 out of 70 were stage III, degree 1.

toe at rest and was unable to sleep even after use of codeine or dolantin. Physical examination revealed that his temperature was 37 C, blood pressure 16.75/10.64 kPa (126/80 mmHg) and pulse 75/min. Both dorsalis pedis arteries and posterior tibial arteries were not palpable, the popliteal arteries were feable. The right 2nd toe was swollen with an ulcer of 1.0 × 0.5 $cm^2$, of which the margin was uneven and granulation was not fresh. Laboratory studies yielded the following values: WBC, 11 800/$mm^3$; ESR, 40 mm/h. The patient was diagnosed as having Buerger's disease of the lower limbs (left Stage II, right Stage III, degree 1). After admission the patient had TCM anesthesia daily for the first three days and then every other day for 5 times. There were no distress or side reactions. His great toenail was extracted because of paronychia during his 29 hospital days. On discharge, pain disappeared, ulcers healed, the distance between intermittent claudications increased by 250%. WBC and ESR turned normal, and weight increased by 4 kg. He was followed up for 12 years without recurrence. He has been working in geological surveys.

**Case 2.** A 40-year-old male was admitted to our hospital on April 21, 1984 with complaints of gangrene and pain of his right foot, hand and knee for 3 months. The symptoms exacerbated in the late half month. Two years ago, his left thigh was amputated because of severe pain. One year after that, he had a right lumbar sympathectomy due to pain in his right foot. In the late 3 months, he had pain and gangrene in the right 4th and 5th toes and the right thumb and mid-finger became ulcerated. 15 days before admission, he was given injections of fortanadyn 8 to 10 ampules daily. Physical examination showed that he had sad appearance, amputated left lower limb, and pitting edema in the right leg. Multiple gangrenous areas with unclear margin were seen in the right thumb, mid-finger, knee, and right 4th and 5th toes. Diameter of these gangrenous areas measured about 1 cm. Pulsation of the right radial artery and the bilateral ulnar arteries was not felt, and that of the femoral arteries and bilateral popliteal arteries reduced. Blood test revealed increased CIC and lowered $C_4$. EKG showed right bundle blocking. The patient was diagnosed as having Buerger's disease of limbs (right upper Stage III, degree 1; left upper Stage II; right lower Stage III, degree 1 with gangrene of knee. TCM anesthesia was used for 10 times. After admission, the patient was given 2 to 3 times a week. After 2 injections, fortanadyn was stopped and edema of the right leg subsided. 4 times later, most of the ulcers healed, and the 5th toe appeared dry. The margin of the gangrenous area was clear. He could walk downstairs with a stick. After having 8 injections of TCM anesthetics he underwent wound debridement and suture of the 5th toe. Later, 2 more injections of TCM anesthetics were given and all the ulcers healed completely. He was hospitalized for 58 days. At the time of discharge EKG remained unchanged whereas blood CIC and $C_4$ turned to normal.

## DISCUSSION

The effective element of TCM anesthetic is a M-cholinergic receptor blocking substance, scopolamine. According to the report, the following mechanism of TCM anesthesia on TAO has been appreciated.

**Vitalizing blood and eliminating blood stasis.** From the TCM point of view, TAO is considered as a disease of blood stasis which is more or less similar to the findings of modern medicine, such as inflammation of vascular wall,[5] constriction of vascular lumen, intravascular thrombosis, blood hypercoagulation,[6] and disturbance of microcirculation. Therefore, to invigorate blood circulation is essential to the treatment of TAO. TCM anesthesia has such function as to increase heart efferent blood volume and blood irrigation, and decrease peripheral vascular resistance,[7] experimentally. It was demonstrated by accelerated electrophoresis of RBC and blood flow and decreased blood viscosity in ear vessels after TCM anesthesia. In addition, lowered blood hypercoagulation parameters (fibrinogen, HPF) were observed in some patients. Clinically TCM anesthesia is characterised by marked improvement of heart sound and rate, blood pressure, surface temperature, pulsation, plethysmogramphic features and ulcer healing.

**Immune suppression.** Recent researches have suggested that TAO is an autoimmune disease,[8,9] and that the blockage of cholinergic receptors could suppress immunity in animal experiments. Better results have been obtained by using TCM anesthetics to treat some immune diseases with a result of increased ERFC, $CH_{50}$. Experiments also showed phagocytosis of reticuloendothelial cells and relieves vascular spasm caused by immune complex.[10]

**Regulating nerve system.** TCM anesthetics are capable of inhibiting extensively the central nerve system, resulting in elimination of excited pathological foci and regulation of cortex function. In addition, the dilatation and constriction of vessels would be balanced by the adjustment of the autonomic nerve system.[11] Furthermore, the inhibition of central M-cholinergic receptors will lead to the elevation of pain threshold, which was 42 to 48% continuously for 32 to 36 hours in rat experiments.[12] So the analgesic effect is attributed to the combinaion of central nerve system inhibition, vitalization of peripheral blood, and elimination of blood stasis.

TCM anesthetics are not harmful to the major organs. The main side effects are Atropin like, such as thirst, blurring of vision, dizziness, poor appetite, dysuresia, etc., but all of them could be relieved by Chinese medicine and acupuncture. In short, TCM anesthesia is a safe and effective method for treating severe TAO.

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## NEW METHOD DETECTS GERMS IN DRINKING WATER

Professor Wan Ji-bin of Tianjin No. 2 Medical College has worked out a new instrument which can detect germs in drinking water more quickly than and as accurate as before.

The 10 $cm^2$ instrument contains a plastic holder and a papercard-like sheet on which germs are cultivated. It is divided into four types which can tell different germs like colon bacillus and streptococcus, said the inventor. "When using it, you just drop the instrument into the water for about 30-45 seconds before you put it in a place under proper temperature. Varieties of germs will form groups in different colors on the sheet," he said.

The method is really something new in the field, an expert said. "It can help rural residents identify unsanitary drinking water."

## SMOKING CURBS ARE KEY TO CURBING LUNG CANCER

Cancer experts urged China to take strict measures to curb smoking for the health of the people.

At a news briefing held in Beijing in November 1987, Professor Sun Zong-tang of China's Oncology Institute, warned that "otherwise, the same disasters that happened in Britain, the United States and the Soviet Union years ago would happen in China.

Richard Peto, a British Cancer expert who was also present at the news briefing, said that based on circumstances in Britain, about two million people a year in this country may die from smoking by 2 026, including 900 000 lung cancer victims, if strict measures are not taken.

China is now the world's biggest producer and consumer of cigarettes.

In Shanghai where smoking has been entrenched for a longer period than other cities in China, two thirds of the lung cancer victims are smokers.

The experts put forward several suggestions to change the situation. They include: increasing the prices of cigarettes systematically each year to control the number of smokers; passing stronger legislation to ban smoking in public places; propagating the adverse effects of smoking and the need to quit compulsorily; and lowering the coal-tar content of cigarettes.

If measures are taken now, premature death of millions can be averted, Professor Sun said.