

Postprint: Experience with Bundled Traditional Chinese Medicine Nursing Care in a Postoperative Very Elderly Patient with Acute Lower Limb Arterial Embolism

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Abstract

This article summarizes the postoperative bundled traditional Chinese medicine nursing experience for a case of an extremely elderly patient with acute lower limb arterial embolism. The key nursing interventions included: herbal oral care, acupoint massage, ear apex bloodletting, comprehensive auricular acupoint therapy, and Bian stone hot compress with herbal penetration. Through nursing care based on syndrome differentiation, the risk of complications was effectively reduced, patient symptoms were ameliorated, and both comfort and satisfaction levels were markedly improved.

Full Text

Experience with Bundled Traditional Chinese Medicine Nursing Care for a Super-Aged Patient with Acute Lower Extremity Arterial Embolism After Surgery

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Abstract

This paper summarizes the experience of bundled Traditional Chinese Medicine (TCM) nursing care for a super-aged patient following interventional treatment for acute lower extremity arterial embolism. Key nursing interventions included

Chinese herbal oral care, acupoint massage, ear-tip bloodletting therapy, comprehensive auricular techniques, and Bian-stone ironing with herbal penetration. Through syndrome differentiation and holistic nursing, we effectively reduced complication risks, improved patient symptoms, and significantly enhanced patient comfort and satisfaction.

Keywords: arterial embolism; super-aged; interventional therapy; care bundles; Traditional Chinese Medicine characterized nursing; complications

Introduction

Acute arterial embolism is a common vascular surgical emergency, with the lower extremities being the most frequent site of thromboembolism [1]. Most affected patients have comorbidities including diabetes, cardiopulmonary insufficiency, and renal dysfunction. Super-aged patients over 85 years represent a particularly high-risk population due to severe physiological decline, decreased immunity, and various organ dysfunctions [2]. Surgical risks and postoperative complications increase markedly with age, necessitating higher standards of nursing care [3].

Bundled nursing refers to a set of evidence-based nursing interventions that improve quality of care and patient outcomes when implemented together [4]. TCM bundled nursing applies the holistic concept of traditional medicine, integrating multiple effective TCM nursing measures based on evidence and clinical experience. This approach combines individual effective interventions into a comprehensive care protocol tailored to the patient's condition. This case report describes the application of such bundled TCM nursing for a super-aged patient with acute lower extremity arterial embolism.

Clinical Data

The patient was a 93-year-old male who presented with sudden right lower extremity pain for 6 hours, characterized by severe rest pain accompanied by cyanosis and coolness of the limb. His pain score was 8 on the numeric rating scale. He was admitted with a diagnosis of "lower extremity arterial embolism" (gangrene due to qi and blood deficiency in TCM terminology). His medical history included coronary artery disease for 20 years, diabetes for 10 years, atrial fibrillation for over 10 years with pacemaker implantation, hypertension for 20 years, partial prostatectomy over 10 years ago, prostate cancer for 3 years, and chronic heart failure.

Preoperative laboratory findings included: creatinine 132 $\mu\text{mol/L}$, potassium 5.8 mmol/L , troponin T 0.08 ng/mL , myoglobin 89.5 ng/mL , B-type natriuretic peptide precursor 3560 pg/mL , and procalcitonin 0.25 ng/mL . Chest CT showed chronic bronchitis with mild infection. The patient required nightly sedatives for sleep and had dry stools.

The patient underwent emergency surgery with combined intravenous anesthe-

sia in the catheterization laboratory, receiving femoral artery thrombectomy, peroneal and tibial artery balloon angioplasty, and iliac and lower extremity angiography. Postoperatively, bundled TCM nursing interventions were implemented, including Chinese herbal oral care, acupoint massage, ear-tip bloodletting, comprehensive auricular techniques, and Bian-stone ironing with herbal penetration. After 7 days of intervention, the patient experienced no complications, pain decreased from 8 to 2 points, and he was discharged in stable condition.

Nursing Care

General Postoperative Observation Nursing staff closely monitored vital signs and temperature changes, observing for bleeding and hematoma at the puncture site. The puncture site was compressed for 6 hours, with the affected limb immobilized for 12 hours to prevent bleeding [5]. Blood supply restoration and limb swelling were assessed hourly by examining peripheral circulation, skin temperature, color, arterial pulsation, and calf muscle tension. After 6 hours, the patient was turned axially to prevent pressure ulcers every 2 hours during the day. To prevent urinary tract infection, perineal care was provided twice daily and adequate fluid intake was encouraged.

Complication Monitoring and Management **Hyperthermia:** Temperature was monitored closely. When temperature exceeded 38.5°C, alcohol swabbing of axillary and inguinal areas was performed. At 39°C, ear-tip bloodletting therapy was administered. The procedure involved: seating the patient comfortably, massaging the ear apex to induce congestion, disinfecting with 75% alcohol, wearing sterile gloves, identifying the ear apex point at the tip of the folded ear, inserting a disposable lancet 2 mm deep, withdrawing immediately, gently squeezing to produce a drop of blood, and repeating the process 5-6 times.

Renal Failure: Given the patient's advanced age, acute presentation, hyperkalemia, and pre-existing renal insufficiency, plus potential nephrotoxicity from contrast agents and inflammatory factors released during revascularization, protective measures were implemented. Dietary guidance emphasized light, low-salt intake (salt <3 g/day) with controlled protein (0.8 g/kg/day). Blood pressure was maintained above 90/60 mmHg with dopamine as needed to preserve renal perfusion. Serum creatinine, BUN, albumin, and GFR were monitored. Adequate hydration was ensured to promote contrast excretion, with accurate 24-hour intake/output recording. The patient had 2850 mL total output on postoperative day 1.

Re-embolization: With a history of atrial fibrillation and prostate cancer, the patient had high risk for re-embolization. Postoperative vigilance focused on the "6 Ps" of arterial embolism: Pain, Paresthesia, Pallor, Pulselessness, Paralysis, and Poikilothermia [6], with pain being the earliest symptom. Pain characteristics were distinguished from wound pain to avoid masking symptoms.

Coagulation profiles were monitored, duplex ultrasound arranged, and anticoagulation (enoxaparin) and antiplatelet therapy (aspirin) administered promptly.

Respiratory Management: Preoperative chest CT showed chronic bronchitis with infection. On postoperative day 2, the patient had white, viscous sputum. Given age-related pulmonary changes and immobility, measures were taken to prevent aspiration pneumonia [7]. The bed was elevated 30°, low-flow oxygen (2 L/min) administered, and nebulization with ambroxol and ipratropium bromide performed twice daily. Chest physiotherapy with acupoint massage preceded postural drainage: neck and back muscles were relaxed first, then acupoints including Dingchuan, Dazhu, Fengmen, Feishu, Jueyinshu, and Xinshu were massaged from Dazhui bilaterally, followed by Tiantu, Danzhong, Zhongfu, and Yunmen. Cupped hands percussed the back from bottom to top, outside to inside, for 10 minutes each session. The patient produced thin, easily expectorated sputum within 2 days and had no aspiration pneumonia at discharge.

Hyperkalemia: Preoperative potassium was 5.8 mmol/L (>5.5 mmol/L defines hyperkalemia [8]), carrying high cardiovascular mortality. Sodium bicarbonate was administered intravenously with dynamic blood gas analysis. Postoperative continuous renal replacement therapy was provided with continuous ECG monitoring (heart rate, rhythm, respiration, consciousness) and strict urine output recording. High-potassium foods were avoided.

Constipation: Constipation affects up to 70% of bedridden patients [9] and is particularly dangerous in elderly heart failure patients, as straining increases cardiac workload 9-fold and can trigger sudden cardiac death [10]. The patient had preoperative constipation (1 bowel movement/2 days, dry stools, straining) and postoperative abdominal distension without bowel movement. Bian-stone ironing with herbal penetration was applied: the stone was heated electrically, the abdomen exposed (centered on Shenque, covering Zhongwan, Guanyuan, and Tianshu), herbal ointment applied, and clockwise massage performed on Zhongwan, Tianshu, Guanyuan, and Qihai for 30 minutes, followed by a warming film for another 30 minutes. The patient passed stool smoothly, with relieved distension and no incomplete evacuation.

Insomnia: The patient required nightly sedatives preoperatively and postoperatively reported fatigue and difficulty sleeping (PSQI score 18). Comprehensive auricular techniques were applied:

1. **Auricular Massage:** Following Huang Lichun' s method [11], 75% alcohol was used to wipe the entire ear for disinfection and circulation. Thumb and index finger massaged the energy pathway (endocrine-ovary-thalamus-pituitary-thyroid-pancreas-prostate-adrenal axis) and ear rim rings (skin metabolism, microcirculation, immune defense, peripheral nerve, and motor function rings) from bottom to top, front to back, to regulate endocrine function and balance Yin-Yang.
2. **Auricular Scraping:** Following Wang Hejian' s method [12], gua sha serum was applied to heart, kidney, spleen, subcortex, Shenmen, occiput,

and neurasthenia points. A Bian stone scraper was held at 45° and stroked gently (tonifying method) from bottom to top, inside to outside for 5-10 minutes per point.

3. **Auricular Plaster Therapy:** Based on Nogier' s “inverted embryo” theory, magnets were applied to the same points. Patients were instructed to press each point 3-5 times daily for 1-2 minutes to improve sleep quality [13].

Discussion

Acute lower extremity arterial embolism is a critical emergency with an annual incidence of 13-17 per 100,000 [14]. Without prompt treatment, it can lead to amputation or death. Organ function decline in elderly patients is a major factor contributing to postoperative complications [15]. The incidence of pulmonary infection exceeds 30% and cardiovascular complications reach 40% in patients over 85 years after surgery [16]. While surgical treatment is standard, elderly patients have poor tolerance and reduced self-healing capacity, making them prone to complications that affect outcomes [17]. Timely, specialized postoperative care is therefore crucial for improving treatment efficacy and reducing complications [18].

This super-aged patient with acute arterial embolism received conventional Western medical care focusing on observation and medication management, though drug-induced organ damage required vigilance. The bundled TCM nursing approach, grounded in holistic concepts and syndrome differentiation, targeted both symptoms and potential complications through integrated application of evidence-based TCM techniques.

Ear-tip bloodletting effectively reduces fever of various etiologies with appropriate diaphoresis and is suitable for all populations [19]. Strict aseptic technique is essential to prevent infection. Chinese herbal oral care using honeysuckle (Jinyinhua) and gallnut (Wubeizi) decoction reduces oral bacterial colonization and improves oral immunity [20]. The herbal mouthwash, applied twice daily, cleanses all oral surfaces systematically.

Comprehensive auricular techniques combine massage, scraping, and plaster therapy for synergistic effects. Auricular massage stimulates reactive points to regulate organ function and balance Yin-Yang. According to TCM theory, “the heart stores spirit” and “the heart governs consciousness.” The heart point calms the mind, while the kidney point nourishes the brain. Combined with spleen (tonifying qi and blood), Shenmen and occiput (sedation), subcortex (regulating excitation/inhibition), and neurasthenia point (deepening sleep), these points collectively restore peaceful sleep [21]. Auricular plaster therapy provides sustained benign stimulation transmitted via peripheral nerves to the cerebral cortex, rebalancing facilitation and inhibition while regulating organ function to improve sleep quality [22].

Bian-stone ironing with herbal penetration applies TCM organ and meridian theory through thermal stimulation of acupoints, warming yang, dredging meridians, and regulating qi and blood flow [23]. Abdominal application around Shenque, Tianshu, Zhongwan, and Guanyuan regulates spleen-stomach function, restores triple burner qi transformation, and promotes gastrointestinal motility [24]. The warming film prolongs drug penetration through skin absorption [25].

Bundled TCM nursing embodies the holistic and syndrome differentiation concepts of traditional medicine, emphasizing that “three parts treatment, seven parts nursing” requires tailored care [26]. Studies demonstrate that bundled TCM nursing enhances effectiveness and improves quality of life and satisfaction [27]. In this case, integrating evidence-based TCM techniques improved constipation, reduced PSQI scores from 18 to 7, and significantly enhanced sleep quality. As advanced age surgery becomes more common, bundled TCM nursing provides effective interventions to improve symptoms and comfort while consolidating treatment effects.

Conflict of Interest Statement: The authors declare no conflict of interest.

References

- [1] Zhang L, Lu Q S, Pei Y F, et al. Experience of AngioJet mechanical thrombectomy treatment on acute arterial embolism[J]. *Chin J Vasc Surg Electron Version*, 2019, 11(3): 180-183. (in Chinese)
- [2] Wu S P. Observation and nursing intervention on coagulation indexes of patients with lower limb arterial embolism after amputation in plateau area[J]. *World Latest Med Inf*, 2019, 19(70): 273-274. (in Chinese)
- [3] Fan S D, Liu J, Yu J. A comparative study on the clinical effect of operation with arthroplasty, proximal femoral nail antirotation or non-operation for femoral intertrochanteric fracture in patients over 90 years old[J]. *J Pract Orthop*, 2019, 25(10): 942-945. (in Chinese)
- [4] Lü X B. Nursing intervention in perioperative period of acute lower limb arterial embolism and its effect on reducing complications and improving prognosis[J]. *Women's Health Res*, 2017(13): 164. (in Chinese)
- [5] Li Y F, Cheng X H. Perioperative nursing experience of patients with acute arterial embolism of lower limbs[J]. *J Nurses Train*, 2014, 29(18): 1689-1691. (in Chinese)
- [6] Ling B C, Hu B, Xu Q Z. Perioperative management of abdominal surgery in over aged patients[J]. *Chin J Gen Surg*, 2011, 20(8): 834-837. (in Chinese)
- [7] Lan J, Liu Y, Zhang D D. Effect of selective oropharyngeal decontamination on pulmonary complications of elderly general anesthesia patients[J]. *Clin Med*, 2018, 37(3): 297-300. (in Chinese)

- [8] Heart Failure Group of Cardiovascular Physicians Branch of Chinese Medical Doctor Association, Expert Consensus Working Group on Hyperkalemia Management of Heart Failure Patients in China. Consensus of experts on hyperkalemia management in patients with heart failure in China[J]. Natl Med J China, 2021, 101(42): 3454-3460. (in Chinese)
- [9] Xiao M, Wang Y. Cause analysis and nursing care of a case of lower extremity arterial thrombosis after large vessel valve replacement[J]. Today Nurse, 2019, 26(6): 127-129. (in Chinese)
- [10] Wu Y L. Application of prospective nursing in preventing constipation in patients with acute myocardial infarction[J]. Cardiovasc Dis Electron J Integr Tradit Chin West Med, 2019, 7(23): 130. (in Chinese)
- [11] Huang L C. Treatment with Auricular Point[M]. 2nd ed, Beijing: Scientific and Technical Documentation Press, 2018. (in Chinese)
- [12] Wang H J. Exploration of Auricular Acupoint Scrapping Therapy[C]// Collected papers of Annual Meeting of China Association for Acupuncture and Moxibustion (Abstract). Beijing, 2018. (in Chinese)
- [13] Jiang B, Ma Z H, Zuo F. Auricular acupuncture for insomnia: a randomized controlled trial[J]. Chin J Epidemiol, 2013, 34(2): 189-191. (in Chinese)
- [14] Howard P J, Banerjee A, Fairhead J F, et al. Population-Based Study of Incidence, Risk Factors, Outcome, and Prognosis for Ischemic Peripheral Arterial Events: Implications for Prevention[J]. Circulation, 2015, 132(19): 1805-1815.
- [15] Lin G L, Qiu H Z, Xiao Y, et al. Laparoscopic and endoscopic minimally invasive surgery for the elderly patients with colorectal carcinoma[J]. Chin J Laparosc Surg Electron Ed, 2015, 8(5): 356-359. (in Chinese)
- [16] Liu Z J. Surgical procedures in senility[J]. Med & Philos Clin Decis Mak Forum Ed, 2010, 31(9): 24-26. (in Chinese)
- [17] Lü X B. Nursing intervention in perioperative period of acute lower limb arterial embolism and its effect on reducing complications and improving prognosis[J]. Women's Health Res, 2017(13): 164. (in Chinese)
- [18] Li C C, Hu J, Su X N, et al. Research progress of bundles nursing and its application in surgical nursing[J]. Chin J Mod Nurs, 2015, 21(14): 1731-1733. (in Chinese)
- [19] Yuan Y F. Observation on 50 cases of hyperpyrexia treated by pricking blood at auricular point[J]. J Guiyang Coll Tradit Chin Med, 2011, 33(5): 75-76. (in Chinese)
- [20] Sun L J, Li J T, Wu C P, et al. Effect of oral care of traditional Chinese medicine on oral bacteria and quantity[J]. Study J Tradit Chin Med, 2017, 35(5): 58-60. (in Chinese)

- [21] Yu J. Observation on therapeutic effect of standardized nursing combined with auricular point pressing beans on insomnia and analysis of nursing points[J]. Guide China Med, 2018, 16(28): 283-284. (in Chinese)
- [22] Xu T, Zhao Q H, Li X J. Nursing experience of abdominal massage combined with auricular point sticking in treating constipation after orthopedic surgery[J]. Hebei J Tradit Chin Med, 2016, 38(1): 149-150. (in Chinese)
- [23] Huang Y P, Tian X D, Li M Z, et al. Observation on electro-heated stone needle, massage and Chinese herbal skin penetration in treatment of abdominal distension in chronic gastritis patients[J]. Nurs Integr Tradit Chin West Med, 2015, 1(1): 45-47. (in Chinese)
- [24] Chen Y H, Lin M Q, Chen J, et al. Efficacy observation on prevention of constipation after stroke through abdominal massage and navel therapy with fructus evodiae[J]. Chin J Pract Nurs, 2014, 30(11): 50-52. (in Chinese)
- [25] Li L, Ma S X, Feng W Y, et al. Observation on the effect of Chinese herbal ointment on elderly patients with functional constipation[J]. Chin J Geriatr Care, 2018, 16(3): 297-299. (in Chinese)
- [26] Huang Y B, Yao X M, Hu Z Y. Comparative study on nursing concepts of Chinese and western medicine[J]. Lishizhen Med Mater Med Res, 2009, 20(7): 1820-1821. (in Chinese)
- [27] Zhong K, Zheng L Y, Gao L P. Effects of cluster nursing and Traditional Chinese Medicine nursing in patients with severe acute pancreatitis[J]. Chin J Mod Nurs, 2018, 24(30): 3662-3665. (in Chinese)

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