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Postprint: Nursing Experience in Integrated Traditional Chinese and Western Medicine Pain Management for a Patient with Gangrene Under the Medical-Nursing Integration Model

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Abstract

Objective: To investigate the application of a physician-nurse collaborative care model in integrated traditional Chinese and Western medicine pain nursing management for diabetic foot with infection.

Methods: One patient with diabetic foot complicated by severe rest pain was selected from our department. Integrated physician-nurse ward rounds and integrated physician-nurse nursing measures were combined to implement pain nursing care integrating traditional Chinese and Western medicine.

Results: During hospitalization, through integrated physician-nurse ward rounds, the patient received traditional Chinese medicine emotional nursing care and individualized health guidance, combined with external treatment methods of traditional Chinese medicine nursing. After 15 days of treatment and meticulous nursing care, the patient's local wound surface was basically stabilized, rest pain was essentially eliminated, and the patient was discharged with a favorable wound healing trend.

Conclusion: The application of an integrated physician-nurse care model provides patients with comprehensive, holistic, and continuous nursing care, enabling them to relieve pain, reduce suffering, improve quality of life, and shorten the duration of illness. This approach is worthy of clinical promotion and application.

Full Text

Integrated Medical-Nursing Care Model in the Management of Pain in a Patient with Diabetic Foot Gangrene: A Case Study on Combined Traditional Chinese and Western Medicine

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Abstract

Objective: To explore the application of an integrated medical-nursing collaborative care model in pain management for diabetic foot complicated by infection, using a combined Traditional Chinese Medicine (TCM) and Western medicine approach.

Methods: We present a case of a diabetic foot patient with severe rest pain managed in our department. An integrated medical-nursing ward round system was combined with integrated nursing interventions to deliver comprehensive pain care through TCM-Western medicine integration.

Results: Through integrated medical-nursing ward rounds, the patient received TCM emotional care, health guidance, and external TCM nursing therapies. After 15 days of intensive treatment and meticulous nursing care, the local wound stabilized, rest pain essentially resolved, and the patient was discharged with good wound healing progression.

Conclusion: The integrated medical-nursing care model provides patients with comprehensive, continuous, and holistic nursing care, effectively relieving pain, improving quality of life, and shortening the duration of suffering. This approach merits clinical promotion and application.

Keywords: Diabetic foot; Gangrene; Integrated medical-nursing care; Combined Traditional Chinese and Western medicine; Pain

Introduction

The earliest description of gangrene (脱疽) appears in the *Lingshu·Yongju* chapter of the *Huangdi Neijing*: “When a carbuncle occurs on the toes, it is called ‘tu yong.’ If it appears red and black, it is fatal and untreatable; if not red and black, it is not fatal. If treatment does not improve the condition, death will follow.” This text outlines both the prognosis and principles of external treatment for gangrene. During the Jin Dynasty, Huangfu Mi changed the term from “tu yong” to “tu ju” (gangrene) in his *Jingjiu Jiayi Jing*. Once diabetic foot leads to lower limb infection, ulcer formation, or deep tissue necrosis, healing becomes

extremely difficult, and patients face the risk of amputation, severely impacting their quality of life and prognosis [1].

As a common surgical condition in TCM, gangrene affects a broad population, particularly those with long-standing diabetes, prolonged exposure to cold-damp environments, and diets rich in fatty, sweet, and greasy foods. The disease typically manifests in the terminal extremities, follows a chronic course, and initially presents with coldness and numbness in the digits. As the condition progresses, intermittent claudication and rest pain develop. In advanced stages, terminal ischemic necrosis and sloughing of toes occur, potentially leading to severe limb necrosis, amputation, and death. This condition corresponds to thromboangiitis obliterans, arteriosclerosis obliterans, and diabetic foot in Western medicine [2], characterized by a prolonged course, severe pain, high disability risk, and significant impact on quality of life.

The integrated medical-nursing care model refers to a collaborative approach where physicians and nurses jointly manage patients and develop specific nursing interventions [3]. Research demonstrates that integrated medical-nursing ward rounds enhance communication between medical and nursing staff, enabling both parties to jointly understand patient progress and evaluate treatment and nursing outcomes [4]. This article summarizes our department's experience in applying an integrated medical-nursing model to guide combined TCM-Western medicine pain nursing care for one case of diabetic foot gangrene with infection.

1 Clinical Data

We present a 70-year-old female patient with a 21-year history of elevated blood glucose. She was admitted on August 31, 2022, with a one-year history of left foot ulceration and pain, worsening over the previous day. The primary diagnoses were gangrene (diabetic foot gangrene with infection) and arteriosclerosis obliterans. The patient had a 15-year history of depression, a 21-year history of diabetes, and a history of lacunar infarction for over four months. Specialized examination revealed a left heel ulcer measuring 9.5 cm in diameter with relatively fresh granulation tissue, minimal yellow-white purulent discharge, and painful wound. Both lower legs and dorsal feet were cool to touch, with mild pitting edema in both lower legs. The skin of both feet was dry, with hair loss, thin and shiny skin, nail deformities, and thickened toenails. Bilateral superficial femoral artery pulses were markedly diminished, popliteal artery pulses were weakened, and dorsalis pedis and posterior tibial pulses were not palpable.

2 Methods

Given the patient's complex chronic conditions and multiple hospitalizations resulting in financial, psychological, and quality-of-life decline, we implemented an integrated medical-nursing care model to facilitate communication, coordination, and shared decision-making, providing continuous medical services throughout the patient's journey [5]. We established an integrated medical-

nursing-patient team consisting of the attending physician and two responsible nurses. The physician provided guidance to nurses from the perspective of TCM syndrome differentiation and professional research, while both parties jointly collected patient data and collaboratively developed treatment and nursing plans. The team operated on an “8-hour on-duty, 24-hour responsibility” system [6].

2.1 Integrated Medical-Nursing Ward Rounds

Bedside collaborative ward rounds followed a three-step process. First, the primary nurse provided a comprehensive report on the patient’s current treatment and nursing status. Second, the night-shift and day-shift nurses exchanged information regarding the patient’s diet, bowel and bladder function, nursing treatments, and any changes in condition during their respective shifts. Third, the attending physician and primary nurse summarized the patient’s current progress and jointly formulated the next steps in both medical treatment and nursing care plans.

2.2.1 Traditional Chinese Medicine Nursing Techniques

Gangrene represents a typical peripheral vascular disease in TCM surgery, characterized by local coldness, numbness, and pain in the extremities. In clinical nursing, reducing pain and discomfort while elevating the pain threshold constitutes the primary therapeutic focus. Therefore, we employed ultrasound-mediated drug delivery as a nursing intervention.

Ultrasound-mediated drug delivery is an innovative local administration technique that differs from conventional systemic intravenous therapy. This technology utilizes electroporation, ultrasonic cavitation, and iontophoresis to directly deliver selected medications to the local target site. During the delivery process, the generated microcurrents and sound waves dilate local blood vessels, accelerate blood circulation, and regulate local metabolism, thereby reducing inflammation, relieving pain and swelling, and releasing adhesions. Simultaneously, this approach stimulates local sensory nerves to elevate the pain threshold. By achieving targeted local drug delivery, this method reduces the potential for low local drug concentrations associated with intravenous administration and minimizes possible hepatic and renal toxicities.

2.2.2 Traditional Chinese Medicine Emotional Care

In TCM theory, emotions correspond to the five viscera and seven affects, with their generation, restraint, and pathological interactions influencing health. Emotional activities derive from the essence of the five viscera, and emotional disturbances can lead to abnormalities in organ essence, qi, blood, and spirit. TCM five-element music therapy systematizes natural sounds into the “jue, zhi, gong, shang, yu” pentatonic scale, organically linking musical tones with the five viscera and seven affects to balance yin-yang and regulate patient emotions, thereby influencing health. This therapy has substantial theoretical support

and, when properly applied in clinical practice through integration of body-mind treatment, effectively alleviates symptoms. Our patient, chronically tormented by pain, exhibited melancholy and depressive mood, which TCM classifies as an “earth” constitution amenable to “wood” restraint. We typically selected gong-mode musical compositions such as *Spring River in the Flower Moon Night* and *Ambush from Ten Sides*. For anxiety and depression resulting from liver fire disturbing the heart, we selected shang-mode compositions like *General's Command* and *White Snow in Early Spring* [7].

2.2.3 Health Guidance

Following integrated medical-nursing care, the patient experienced reduced pain at the gangrenous site, improved skin temperature in the distal lower legs and dorsal feet, and resolution of mild pitting edema. We provided guidance for regular follow-up visits, maintaining a home environment with soft natural lighting, appropriate temperature and humidity, and noise avoidance. The patient was instructed to protect the affected toes from wind-cold, maintain careful daily routines, prevent trauma and compression, wear loose and comfortable footwear, actively treat tinea pedis, and prevent infection, thereby improving nursing quality [8]. We emphasized regular medication adherence, blood pressure and glucose monitoring and control, lower extremity functional exercises to promote qi-blood circulation and limb function recovery, and work-rest balance while avoiding prolonged static postures such as prolonged standing.

Through integrated medical-nursing ward rounds, TCM emotional care, health guidance, and external TCM nursing therapies, the patient underwent 15 days of intensive treatment and meticulous nursing care. The local wound stabilized, rest pain essentially resolved, and the patient was discharged with favorable wound healing progression. At six months post-discharge, the wound had essentially healed, with no reported limb rest pain and no significant sequelae, demonstrating excellent outcomes.

Diabetic foot ulcers most commonly occur on the toes, and infection complicates diabetic foot gangrene, making the condition more complex and causing significant patient suffering. Successful implementation of refined clinical nursing pathways requires coordinated cooperation among physicians, patients, and nurses [9]. The integrated medical-nursing care model, centered on the patient, strengthens collaborative medical-nursing functions. Physician and nurse participation in this model facilitates follow-up and improvement of treatment protocols, promotes therapeutic efficacy, and enables selection of more effective nursing interventions beyond basic care [10]. In this case, application of the integrated medical-nursing model enabled collaborative practice where physicians' TCM syndrome differentiation guided specialized nursing interventions. Throughout the treatment and nursing period, medical and nursing staff jointly monitored the patient's pain, treatment response, and nursing status, enabling timely adjustment of care plans. This comprehensive, continuous, and holistic nursing approach effectively reduced pain, improved quality of life, and maxi-

mized rehabilitation, meriting clinical promotion and application.

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