

# Nursing Experience of A Patient with Acute Heart Failure Complicated with Diabetic Foot Scald

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**Abstract:** The nursing care of a patient with acute heart failure and diabetes who accidentally scalded the right foot with hot water bottles was analyzed and summarized. Early assessment of the wound, reasonable selection of biological dressings to manage the wound, plus bedside teaching, group teaching, the introduction of materials and photos, information contact, etc. Various forms of health education for patients, including nursing measures such as ankle pump exercise and food guidance, can significantly improve patients' medical compliance and accelerate wound healing. It shows that for patients with acute heart failure with coronary heart disease and diabetic foot scald, it is equally important to evaluate and treat the wound correctly and early when controlling blood sugar and dealing with the underlying disease of coronary heart disease.

**Keywords:** coronary heart disease, acute heart failure, diabetes, scalding, case care

## 1. Introduction

Coronary heart disease (CHD) is a common disease in daily life. It is often combined with heart failure. Severe patients can lead to myocardial infarction, which reduces the blood flow of the heart, thus endangering the health of the body. Therefore, once the disease is found, it should be actively treated. In recent years, the age of onset of coronary heart disease has become younger and younger. Due to high life pressure, irregular diet, and lack of healthy exercise, more and more young people suffer from cardiovascular disease. The main clinical symptoms are palpitations, angina pectoris, etc., so early diagnosis and long-term effective care must be ensured [1]. Coronary heart disease can lead to various major complications such as myocardial infarction and dyspnea if not properly cared for. Studies have found that the high-quality nursing model has a better nursing effect on patients with coronary heart disease [2]. The so-called acute left heart failure is a type of acute heart disease symptoms such as insufficient perfusion of tissues and organs and acute pulmonary congestion due to a sharp drop in left ventricular output. Seriously endanger the patient's life [3].

Prolonged hyperglycemia will affect the heat supply and utilization of surrounding tissue cells, thereby weakening the body defense function of hyperglycemia patients. One of the main reasons that affect the ability of wound healing is to affect glucose metabolism. There is a lot of exudate in the early wound caused by scald, and there are a lot of inflammatory cytokines in the exudate, which is also an important factor hindering the healing of wounds. Therefore, proper regulation of blood sugar levels is as critical as proper and timely management of trauma. The biological dressings help to inhibit and prevent wound infection well and create a moist environment, thereby promoting the rapid healing of wounds and reducing the recovery time of patients [4]. This article analyzes the nursing care of a patient with acute heart failure complicated by diabetic foot accidental hot water bottle scald. The specific conditions are as follows.

## 2. Case Introduction

The patient Lin, a male, 67 years old, was admitted to the hospital due to "chest oppression, tightness of breath, and depressed edema of both lower extremities for ten days, aggravating for half a day". He had intermittent wheezing and dyspnea at night, and gradually after bed rest. Relief, but intermittent cough with white sputum. The patient had been treated in a community clinic and was treated by a community doctor with "bronchial bronchial". "Ambroxol hydrochloride" and other treatment, the symptoms could not be significantly relieved, gradually aggravated, accompanied by pain in the apical area, radiating to the back, without dizziness, profuse sweating, nausea, and vomiting, etc., on December 29, 2021 emergency "Acute

heart failure" was admitted to the hospital, and the chest CT film showed pulmonary edema, and the B-type natriuretic peptide of the NT-front end was 9190.00 $\uparrow$ pg/ml. The patient was treated with the heat on the 26th. The right foot was severely scalded after the water bag, the patient's fasting blood sugar was high during the test after admission, and the OGTT test was performed to confirm the diagnosis of type 2 diabetes. Severe edema of both lower extremities wound on the right dorsum of the foot 13cm\*3.3cm, local blister rupture, red base, exudate More, black dead skin can be seen locally attached to and around the wound surface. After admission, Xinhuosu 0.5mg, levosimendan 12.5mg group solution, sacubitril and valsartan sodium tablets for cardiotoxic therapy, furosemide tablets 20mg, spironolactone tablets 20mg diuretic therapy, Plavix, aluminum Magnesium-Pirin anticoagulation. Subcutaneous injection of insulin aspart injection before breakfast, lunch, and dinner and subcutaneous injection of insulin glargine injection before bedtime control blood sugar. After the wound on the back of the right foot was cleaned by NS, the yellow slough was mechanically removed, the wound and surrounding skin were disinfected with 1% iodophor, and then Anxin gel was applied to the wound, covered with cotton pads for fixation, the affected limb was elevated, and the ankle pump function was performed. exercise. The patient was discharged from the hospital on January 11, 2022. There was no obvious chest tightness, pain, shortness of breath, or discomfort at the time of discharge. The general condition was fair, mild pitting edema was seen in both lower extremities, NT-front B-type natriuretic peptide was 3610.00 $\uparrow$ pg/ml, blood sugar The control was acceptable. There was no exudate from the wound on the right dorsum of the foot, granulation tissue was seen, and the epithelium was crawling.

### 3. Care

#### 3.1 Treatment and Nursing of Coronary Heart Disease Complicated with Heart Failure

Patient care was guided by the Centers for Early Prevention and Evaluation of Diseases (MEWS) [5]. A comprehensive nursing model in the Department of Cardiology was given [6], including (1) postural care: guide the patient to take a semi-recumbent position or a full orthosis position, and place both lower limbs in a low-lying position, thereby reducing the venous return blood volume and relieving myocardial load. (2) Oxygen therapy care: keep the airway open, and give high-flow oxygen inhalation (6~8L/min), add 20%~30% alcohol to the humidification bottle, which can reduce the surface tension of alveolar foam, Improve pulmonary ventilation function. (3) Open venous channels: According to the doctor's orders, drugs for cardiotoxic, diuretic, tube dilating, sedative, and antispasmodic drugs are given, and several venous channels are opened for patients with electrolyte acid-base imbalance in the water. , To limit the rate of rehydration measures. (4) Psychological nursing: establish a good relationship of trust with patients, fully grasp their psychological status, and give psychological guidance, so that patients can fully grasp the relevant knowledge of the disease. (5) Mental health education: After the patient's treatment enters a stable period, the causes of heart failure are analyzed from various aspects, and the patient is instructed not to forcefully defecate, and to control the intake of potassium. Instruct patients to monitor their body weight, 24-hour intake, output, etc., and improve self-monitoring ability.

In addition, the patient underwent elective coronary intervention or coronary artery bypass grafting. Taking Plavix, aluminum-magnesium Pirin period

Observe whether there is ecchymosis, black stool, bloody stool, etc., and take the medicine according to the doctor's order.

#### 3.2 Blood Sugar Monitoring

Dynamic blood glucose monitoring can understand the patient's blood sugar level and control, then judge and analyze the condition, and evaluate the treatment effect of the patient in terms of diet, medication, and exercise. After the patient is hospitalized, a glucose tolerance test is performed to diagnose type 2 diabetes, and the blood sugar level is monitored by measuring the blood sugar before and after meals and before going to bed. Usually, in patients with irregular treatment or poor blood sugar control, the resulting complications will be several years earlier, so only if the blood sugar is controlled and kept in the normal range, the scalded wound can heal faster.

The patient's blood sugar was controlled by subcutaneous injection of 8 IU of short-acting insulin aspart before meals and 12 IU of long-acting insulin glargine subcutaneously at bedtime.

### **3.3 Wound Care**

Wound assessment. The area of superficial second-degree scald on the dorsum of the patient's right foot was 13cm\*3.3cm; the base was red, with a large amount of exudate on the surface, and the surrounding skin was red, swollen, slightly warm, and black dead skin could be seen locally attached to and around the wound surface.

Debridement. By washing the burn wound with normal saline, mechanically removing the exudate and necrotic skin tissue, and then applying Anxin gel to the wound, dissolving and removing it through dressing, absorbing exudate, creating moist wound healing conditions, and enhancing cell resistance. The ability of immunity can make the damaged endothelial cells in the wound repair and grow, improve the repair of the wound tissue and the growth and healing of the wound [7].

Dressing. First, the wound was cleaned with normal saline solution, then 1% iodophor was used to disinfect the wound and the skin on all sides, and then an in the gel was applied to the wound, and an external cotton pad was used to cover and fix it. Because the patient's heart failure caused severe edema of both lower extremities and more exudate from the wound, the dressing was changed once a day. When the dressing was changed on January 5, granulation tissue could be seen on the wound surface. When the dressing was changed on January 9, the exudate was significantly reduced, and epithelial tissue crawling was seen on the wound surface. When the dressing was changed on January 11, there was no exudate, and the patient was instructed to continue dressing change in the wound clinic after discharge. After follow-up, the patient's wound healed.

### **3.4 Diet Nutrition**

With acute heart failure, control of water and sodium intake is important. (1) The daily water intake should be adjusted according to the patient's daily urine volume, but if the urine volume exceeds 1,000 ml, it is not necessary to strictly control it. 500ml. (2) The daily intake of sodium salt should be controlled to be less than 2 grams per day. (3) The daily total calorie intake of diabetic children is directly related to the patient's gender, age, body type, and activity intensity, and should be properly adjusted. The first step is to estimate the standard weight of  $170-105=65$  kg (patient weight is 67 kg); the second step is to calculate the total calorie  $65 \times (20 \sim 25) = 13000 \sim 1625$  kcal; the third step is to replace the total heat with the corresponding food  $(1300 \sim 1625) / 90 = 14 \sim 18$  servings, and then according to carbohydrates 50~60%; fat 25~35%; protein 15~20% distribution, three meals a day according to 1: 1: 1 distribution. The patients were treated with insulin, especially the patients were told to be alert to hypoglycemia symptoms such as palpitations, cold sweats, and tremors, to carry candy with them during daily activities, and to inform them immediately if they felt unwell. Pay attention to maintaining adequate sleep, feel good, quit smoking and drinking, and develop good living habits.

### **3.5 Sports Rehabilitation**

Exercise therapy has been proven to be a good remedy for diabetes treatment. Most patients can control their blood sugar well and keep their blood sugar at a lower level through exercise therapy, thereby reducing the dosage of medication. The three principles of safe exercise should be followed [8], and patients should be instructed to exercise appropriately and moderately. In addition, due to the poor cardiac function of patients, exercise should be carried out step by step [9], and exercise training methods [10], such as walking, ladder climbing, Tai Chi, etc., should be used to promote the recovery of the disease and the improvement of the quality of life. During the patient's bedside standing exercise, pay attention to patient safety and prevent falls.

### **3.6 Psychological Support**

Some studies have shown that psychological nursing intervention for CCU patients with acute heart failure can better control the patient's condition, make the patient's various vital indicators tend to normal, effectively regulate the patient's blood pressure and heart rate, and improve the patient's quality of life [11]. Patient with diabetes and coronary heart disease requires long-term medication control. Complicated disease and long treatment time, various factors will cause patients to suffer from depression, anxiety, and other adverse psychological states. In severe cases, they may even develop resistance to treatment, so psychological care is very important.

### 3.7 Continuation of Care

Through timely and correct assessment and treatment of wounds, effective health education can be ensured, so that patients can eat according to the dietary requirements of diabetes, and their blood sugar level can be controlled within the ideal range. The wound on the dorsum of the right foot healed well without infection. Measures such as wet dressing and dressing change [12] are adopted to accelerate the extraction of wound exudate, eliminate necrotic tissue, promote the growth of granulation tissue, accelerate wound healing, and shorten the treatment time for patients. When the patient was discharged from the hospital, the scalded wound on the foot did not heal completely, and the patient should be instructed to go to the wound clinic for follow-up visits on time to change the dressing to promote healing. In addition, diabetes and coronary heart disease require long-term treatment, and professional health education should be given. Continued care requires the participation and cooperation of multiple departments, including outpatient clinics, communities, patients, and their families. Through the mutual assistance and cooperation of multiple disciplines, the plans and goals of continuing care are formulated to improve the effect of continuing care.

### 4. Experience

For diabetic scald patients, it is not only necessary to monitor blood sugar levels and infection, but also because of the low sensitivity of peripheral nerves, foot care education for patients is also very important. If the patient is complicated with coronary heart disease or acute heart failure, the diet, drugs, and psychological care should be considered comprehensively. Through the rational selection and use of biological dressings, wound healing can be accelerated, thereby reducing the recovery time of patients. Help to carry out health education for patients through bedside education, group teaching, text and picture explanation, information contact, etc., to enhance the patient's compliance with blood sugar regulation. Therefore, patients with diabetes should learn to protect themselves and prevent their health from being damaged in their daily life, and they should also deal with the trauma in time to prevent further aggravation.

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