ARTICLE

Treatment and Nursing of a 90% Bullous Epidermal Necrolysis Drug Eruption Complicated with Diabetes, Hypoproteinemia and Bilateral Pneumonia

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ABSTRACT

Bullous epidermal necrolysis drug eruption is mainly caused by drug allergy, also known as toxic epidermal necrolysis, TEN, first reported by Lyell A in 1956, also known as Lyell syndrome, is the most serious type of drug eruption, the fatality rate is about 25%-50%[1]. The disease is characterized by acute onset, obvious systemic toxic symptoms, and flaccid blisters of varying sizes on the skin of the whole body. At the beginning of the disease, the skin rash is dark red or dark red. It quickly fuses into flakes and develops into the whole body. There are flaccid blisters and epidermolysis in the lesions, which are slightly rubbed or broken, and the tenderness is obvious and accompanied by a large amount of exudation. Severe cases may involve various organs and tissues of the body, accompanied by oral, conjunctival, respiratory, gastrointestinal mucosa erosion, ulcer, some patients may have liver and kidney function damage, serious cases may die of infection, liver and kidney failure, toxicemia, electrolyte disorders or visceral bleeding.

1. Introduction

Bullous epidermal necrolysis drug eruption is the most serious type of drug eruption, often with acute onset, high mortality, rapid development of skin lesions throughout the body, there are relaxing scars and epidermolysis accompanied by obvious tenderness, a large number of exudation, such as scalded appearance. The lesions often involve oral cavity, eye, respiratory tract, gastrointestinal tract, and accompanied by visceral damage. They often die of secondary severe infections such as liver and kidney failure and electrolyte disturbance.

On March 6, 2018, the dermatology department of our hospital treated a case of 90% (except for the normal skin of both hands and palms). A 66-year-old female patient with bullous epidermal necrolysis drug eruption complicated with diabetes mellitus, hypoproteinemia and bilateral pneumonia was discharged from hospital on March 24, 2018. This patient is the most serious and complications case of epidermal necrolysis drug eruption since the establishment of dermatology department in our hospital.

2. Summarizes the Treatment and Nursing Experience

2.1 Clinical Data

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A 66-year-old woman was hospitalized in a local hospital on February 25, 2018 for re-examination of “pancreatitis”. She found several erythema on the chest and back skin, papules on February 26 with itching, and rashes gradually increased. The local hospital assessed the allergic history of the patient and gave infusion treatment (drug: dexamethasone, other unknown) after the treatment, the drug was discontinued. On March 2, a large number of erythema and blisters suddenly appeared in the patient’s whole body. The area of blisters gradually expanded to form bullae. Some ulcerated skin showed more erosive surface, and large area of epidermis exfoliated, accompanied by obvious skin tenderness. Oral cavity and vulva have erosive surface and vulva skin urination pain, accompanied by high fever, chills, shivering, body temperature up to 40 degrees, sometimes cough, cough white phlegm, no abdominal pain, diarrhea. On March 3, the local hospital gave methylprednisolone sodium succinate 120 mg to treat fever and chills. In order to seek further diagnosis and treatment, the outpatient clinic was admitted to our department on March 6, 2018 with “bullous epidermolysis drug eruption”. Inquire about the patient’s past history of pancreatitis, diabetes, chronic anemia, chronic cervicitis, long-term drug conservative treatment, denial of food, drug allergy history, denial of family and genetic history.

On the day of admission, the body temperature was 37.4 °C, pulse 88 times/min, breathing 20 times/min, blood pressure 120/76mmHg, fasting blood glucose 11.5mmol/L, postprandial blood glucose 17.7mmol/L, neutrophil 82.2%, eosinophil percentage was low, basophil percentage was within the normal range, C-reactive protein 57.1mg/L, albumin 26.7g/L, blood amylase was normal, urinary amylase 246u/L, trunk and limbs. A large number of erythema, blisters and flaccid bullae were widely distributed. Serous exudation was found on the erosive surface in some cases of ulceration. Nissl sign was positive. The positive skin area of bullae, erosion and Nissl sign was more than 90% of the body surface area. Palpation was positive. Symmetrical red patches were found on the face, mainly on bilateral cheeks. The erosive surface was scattered in the mouth and vulva. No pustules, ulcers and yellow-green pustules were seen on the vulva. Secretions.

### 2.2 Diagnosis and Treatment Process and Nursing Care

#### 2.2.1 Diagnosis and Treatment

After admission, patients were given dermatological routine nursing, grading nursing according to patients’ self-care ability and condition as Grade II nursing, accompanying one person, severity of illness, 24-hour incoming and outgoing volume, monitoring blood sugar and oral nursing, informing patients’ family members of the side effects of glucocorticoid and then giving methylprednisolone sodium succinate 120 mg for anti-inflammatory and anti-allergic treatment, supplemented by stomach protection (magnesium aluminium carbonate), potassium supplementation and oral nursing. Calcium supplementation, symptomatic support treatment (compound glycyrrhizin, potassium chloride, sodium chloride, etc.), skin care, skin physiotherapy, informing patients to increase protein intake appropriately, patients and their families to supplement human serum albumin after consent, intravenous drip of human immunoglobulin shock therapy, continuous electrocardiogram monitoring, close observation of changes in the condition of the disease. From 6 to 10 March, 400 M1 gamma globulin was infused to control the disease and neutralize antibodies. From March 6 to 14, 100 ml of human albumin was transfused to correct hypoproteinemia. On March 7, the director continued to give anti-inflammatory and anti-allergic treatment, supplemented by symptomatic supportive treatment such as stomach protection, potassium supplementation, calcium supplementation and correction of low protein (compound glycyrrhizin, vitamin C injection, methylprednisolone injection 120 mg/day, propionic globule, albumin, cimetidine for injection, aluminium-magnesium suspension, vitamin D2 calcium lactate tablets, potassium chloride oral solution, etc.) and strengthened local nursing to prevent secondary occurrence. Infection; after consultation with clinical pharmacy department, meropenem (2g ivdrip q8h on the first day, followed by Igivdrip q8h) and vancomycin (1m units of slow intravenous drip q12h) are recommended for the temporary treatment. After endocrinology consultation, it is recommended to check urinary microalbumin, 24-hour urinary protein quantification and urine routine. Insulin Dexter Injection is administered subcutaneously for 8 days. Before going to bed every night, Acarbose Tablets are chewed at the first meal of 50 mg 50 mg 100 mg, blood sugar is monitored continuously, and drug dosage is adjusted according to the monitoring results. On March 8, the patient’s vulva (urethral catheter) showed more gray-white purulent secretion exudation, which overflowed obviously after extrusion, and the erythrocyte sedimentation rate was 2.0m/hr; glycosylated hemoglobin7.40%↑; Both anti-0 and RF were negative. Urethral secretions were smeared with general bacteria and treated with anti-infection (vancomycin+imipenem/ cilastatin sodium), anti-inflammation (methylprednisolone injection 120 mg/day, compound glycyrrhizin), lowering vascular permeability (vitamin C injection), C-ball impact,
correcting hypoproteinemia and assisting symptomatic treatment such as protection of gastric mucosa, potassium supplementation and calcium supplementation. On March 10, the patient’s skin rash pain was significantly alleviated. He could roll over slowly without new blisters or bullae. On March 11, 50 mg/tid anticoagulant therapy with double midamole tablets was added, and methylprednisolone injection was reduced to 100 mg/day intravenous drip. Due to poor blood sugar control in patients, the endocrinology consultation was again requested to adjust the hypoglycemic regimen as follows: insulin detemir injection 5USubcutaneous injection of insulin lactopril 5 before lunch and dinner, first meal chewing at 50 mg of acarbose for breakfast, continuous monitoring of blood sugar, adjust the dosage of drugs according to the monitoring results. On March 14, in view of the patient’s stable vital signs, good general condition, marked improvement of skin lesions and control of the disease, antibiotics (vancomycin + imipenem / cilastatin sodium) anti-infective treatment was discontinued. On March 16, no albuginea was found in the oral cavity; the skin lesions of trunk, abdomen and limbs were dry, and the Nissl sign was negative. New-born skin was seen on the trunk, buttocks and buttocks. A small amount of bleeding was seen on the surface, and no purulent secretion was found. No obvious yellow-green purulent secretion was found in the vulva. Auxiliary Examination: Vaginal Secretion Culture from March to 14, 2018: Growth of Non-pathogenic Bacteria: Blood Gas Analysis from March to 14, 201803: Acidity and Alkalinity(PHD7.↑, Oxygen partial pressure(P02)67.0mmHg↓, Actual bicarbonate 26.6mol/Lt, Oxyhemoglobin%93.3%↓, Reduced hemoglobin% 6.2%.Blood lactic acid was 2.7 mol/Lt. The percentage of neutrophils was 70.40%, Erythrocyte 3.02*1012/Lt, Hemoglobin 84g/L↓(Normal value: 110-150 g/L), Hematocrit 0.271, mean hemoglobin concentration 312g/L, platelet 324*109/Lt. Liver function: albumin 33.45g/L, alkaline phosphatase 271/t, glutamyl transpeptidase 173U/L↑, Serum iron 6.68umol/L; ferritin 961.00ng/ml; C-reactive protein 8.75mg/Lt; erythrocyte sedimentation rate 35.0mm/hr; DC complete set: fibrinogen degradation product determination 5.640ug/ml↑; There were no abnormalities in renal function and electrolyte. From March to 14, 2018, the diagnosis of vulvovaginal candidiasis was confirmed by fluorescence microscopy of vaginal secretions (+). Antifungal treatment of itraconazole capsule 0.1g/bid was given: fluorescence microscopy of oral albuginea fungi (-). The serum vitamin B12 (-) and folic acid (-) were transported from 201803 to 15. The fungus D-glucan (G test) from March to 15, 2018 was negative. Chest CT scans from March to 15, 2018 showed a slight inflammatory change in both lungs, a thickening of the left pleura, and a decrease in absorption of inflammatory lesions in both lungs compared with the previous (2018.3.6): micronodules in the left lung. On March 19, no albuginea was found in the oral cavity; the skin lesions of trunk, abdomen and limbs were dry, and the Nissl sign was negative. New skin was seen. The area of red erose surface of buttocks was reduced. There was no evident bleeding on the surface, no purulent secretion and no evident yellowish-green purulent secretion on the vulva. The patient recovered and discharged on March 24.

### 2.2.2 Nursing diagnosis

1. Lack of knowledge
2. Malnutrition: below body requirement
3. Impairment of skin integrity: associated with skin lesions and epidermal necrosis
4. Insufficiency of body fluids: related to skin exudation
5. Pulmonary infection: associated with pulmonary inflammatory lesions
6. Changes in comfort: related to changes in illness and posture
7. Potential complications: shock, pressure ulcer, anemia, risk of infection, upper gastrointestinal bleeding, acid-base imbalance of water and electrolyte, anxiety, etc.

### 2.2.3 Nursing

1. Disinfection and isolation of patients with skin lesion area of more than 90%, the skin has lost the protective barrier role[3], coupled with the use of large doses of hormones in treatment, resulting in the reduction of patients’ immunity, strict disinfection and isolation work is the key to control infection. We will arrange patients in single wards, disinfection 3-4 times a day, cleaning and disinfection with disinfectant on the floor and beds, ventilation 3-4 times a day, 30 minutes each time, limit the number of visiting personnel, allow only one family member to stay with, and wear disposable isolation clothes and aseptic masks. Medical and nursing personnel should wash their hands and wear masks when entering and leaving the wards, strictly aseptic operation.

2. Strengthen the observation of the patient’s condition and arrange the patient’s ward next to the nursing station so as to observe the changes of the patient’s condition at any time. In addition to strictly handing over each shift, the responsible group inspects the ward every two hours and inspects it whenever necessary. Specific observation contents are as follows: 1. Observing the adverse reactions after medication; 2. Observing the degree of pain at the rash and the improvement of erosive surface; 3. Observing systemic exudation; 4. accurately recording the
amount of entry and exit; 7. Observing the patients’ eye secretions, oral and perineal lesions; 8. Observing the fluctuation of blood sugar of patients; 9. Observing the patients’ indwelling catheter and the color, nature and urine. Quantity; 10. Observe the patient’s biochemical indicators and auxiliary examination results; 11. Observe the patient’s psychological changes. At the same time, we formulated a detailed nursing plan in the process of hospitalization, adjusted the program dynamically according to the patient’s condition, and implemented the nursing measures according to the plan.

3. Nursing of pressure ulcer prevention

First, keep the beds clean and dry, and change them whenever there is contamination; Second, turn over at regular intervals to observe the skin condition of the pressure area (the buttocks were covered with Vaseline mepirocin gauze without pressure ulcer).

4. Pain Nursing

Vaseline gauze wrapping to protect the wound, moisten the skin, prevent dry and chapped skin; communicate with doctors, in order to ensure medical safety, concentrate on nursing operations, minimize nursing operations.

5. Prevention and control of pulmonary infection

(1) Strict protective isolation will place patients in the laminar flow clean room, wipe the tabletop and floor with chlorine-containing disinfectant every day, keep the sheets clean and dry, change the dressings contacting the wound in time, strengthen hands disinfection, strictly sterile, prevent cross-infection.

(2) The air disinfection ward is disinfected 3-4 times a day, the ground and bed units are wiped and disinfected with disinfectant. The ward is ventilated 3-4 times a day, 30 minutes each time. The number of visiting personnel is limited. Only one family member is allowed to stay with and wear one-time isolation.

C. Encourage patients to get out of bed and buckle their back once a day.

6. Skin Care

(1) Bullous treatment: first disinfect the blister site with iodophor cotton swab, suck the blister fluid at the lower edge of the lower part of the blister body with sterile syringe, and gently squeeze the blister fluid from top to bottom with sterile dry cotton swab. When sucking, try not to destroy the blister wall and prevent wound exposure.

(2) Wound care: 1) 0.9 sodium chloride gauze patches skin lesions lightly, no wiping, 2) irradiation with a wide-screen therapeutic instrument for 30 minutes/site, three parts irradiation 3) wrapping: Vaseline gauze was coated with Mepirocin on the lesion, covered with dry gauze and fixed with a bandage, sequential back-chest-upper limbs-bilateral armpits-palace-lower limbs, the wound was completely covered, the joint was on the upper part. Next gauze joint, change dressing once a day, when changing dressing again, according to the above method, the adhesive part can be cut off, the operation must be gentle, communicate with the doctor without affecting the patient’s life safety to minimize the examination, blood extraction, normal blood pressure measurement once a day, catheterization, reduce removal, keep the bed dry, help patients turn over every two hours, observe skin lesions when changing dressing. The inflammation of the skin lesion was obviously controlled the next day, and the times of dressing change and turning over remained unchanged. On the basis of the above, recombinant human epidermal growth factor was added. Four days later, the lesion was obviously dry. Six days later, the limbs and chest were not wrapped. On the seventh day, starch medicine bath was used for 5 minutes. According to the local wrapping of the lesion, mainly bilateral buttocks, patients were encouraged to get out of bed and stand properly. On the 10th day, the new epidermis on the back was dry, no blood and tissue exudation was found, and the pain was relieved obviously. On the 15th day, the new epidermis on the back completely restored the skin color, no obvious pigmentation spots, and no minor pain on the whole skin.

7. Mucosal nursing

(1) Eye care: Severe bullous epidermal necrolysis drug eruption with severe mucosal damage, conjunctival congestion, edema, more secretions, photophobia, tears, pain manifestations. Rinse eyes twice a day with 0.9% sodium chloride, and cover eyes with erythromycin gauze before bedtime.

(2) Oral care: patients with oral mucosal erosion, mouth opening difficulties, daily oral care of saline yarn cotton ball twice, warm water before and after meals, sodium bicarbonate mouthwash 4 times a day alternately, lips covered with erythromycin gauze.

(3) Perineal and perianal care: perineal erosion, reduce urine irritation, urethral catheterization, according to routine catheterization care, vulvar lesions, iodophor disinfection, to be dry, mepirocin, perianal skin after normal hair drying, to keep the wound dry.

8. Dietary Nursing

90% of the patients had skin lesions, accompanied by exudates, 23 g albumin in admission. History of diabetes mellitus, endocrinologists were invited to consult, mainly for the treatment of skin diseases. Diet was not strictly controlled. Because of oral erosion, patients were encouraged to eat low-temperature, sugar-free liquid diet.
They were encouraged to drink 500 ml of sugar-free pure milk every day. After 3 days, patients were encouraged to add semi-fluid and soft food after 8 days.

9. Psychological Nursing

Patients with acute onset, rapid development of the disease, skin lesion pain, obvious tenderness, patient resistance to nursing operation and dressing change, worry about the prognosis of the disease and the resulting economic burden. First of all, we take the initiative to communicate with patients and their families, explain disease-related knowledge, eliminate patients’ tension, respect and meet patients’ reasonable needs; secondly, when implementing various nursing operations for patients, we should act gently, be kind and relieve patients’ physical pain; thirdly, we should encourage and support family members to accompany and communicate with each other, guide patients’ psychology, obtain patients’ cooperation and resume the battle. [4] Confidence in winning disease.

10. Guarantee effective venous access

Patients with large area of exfoliation of the epidermis, venous indwelling needle puncture need to select senior nurses with good venipuncture technology. Fixation is the key: after film fixation, two layers are covered with bandages, and then fixed with 5 # elastic wrist bandage. Bandage is to protect skin and mucosa, elastic wristband is suitable for tightening.

11. Basic Nursing

Oral Nursing, Eye Nursing and Genital Nursing. Cut the hair off the lesion. Ultraviolet disinfection in ward three times a day, changing disinfected bedclothes once a day (wet change at any time), large sheets with nursing mattress to prevent seepage wet sheets.

12. Blood sugar monitoring

Routinely detects blood sugar four times a day. When the blood sugar value is abnormal, the doctor is informed to adjust the dosage of insulin subcutaneously injected before three meals. Increased blood sugar will directly affect the healing of skin wounds and easily cause skin infection. Therefore, close monitoring of blood sugar is necessary.

Reference


