Definition of Burn

(Patients with burns from hot liquids, electrical, chemical, inhalation, and fire)

A burn is damage to the skin and epithelial tissue resulting from contact with or direct exposure to high temperatures or sources of heat, radiation, electricity, or chemicals. Young children and the elderly are at high risk for burns. Burns cause damage to the skin, which leads to increased fluid loss, infection, hypothermia, scarring, immune dysfunction, and changes in body function and appearance. The risk of death from burns is high in people over 40 years of age and under 5 years of age.

Nursing Interventions

*Improve Gas Exchange and Airway Clearance

- Provide the patient with humidified oxygen and measure arterial blood gases and carboxyhemoglobin levels

- Pay attention to the respiratory rate, rhythm, depth, and hoarseness, and listen to the lungs for abnormal sounds.

- Monitor for signs of respiratory tract injury: chapped lips or oral mucosa; burning of the nasal passages; burning of the face, neck, or chest; increased aggressiveness; and the presence of soot in sputum or respiratory secretions.

- Report these immediately: Respiratory distress - Decreased depth of inspiration and expiration or signs of hypoxia (be prepared to assist with intubation).

- Carefully monitor mechanically ventilated patients.

- Intensive pulmonary care measures - Turning the patient - Coughing - Deep breaths - High-pressure breaths - Use spirometry and suction of tracheal secretions.

- Position the patient in a way that allows for easy drainage of secretions - Keep the airway open and the chest expanded (use an artificial airway if necessary). - Maintain sterile conditions to prevent contamination and infection of the respiratory tract, as infection increases the body's metabolic needs.

*Maintain body fluids and electrolytes

- Place large intravenous catheters and a temporary urinary catheter for the patient.

- Assess vital signs -Urinary output -Central venous pressure -Pulmonary artery pressure and cardiac output. Recognize and report hypovolemia or hypervolemia.

- Administer intravenous fluids as ordered, monitoring the patient's urinary output (record intake and excretion and patient weight daily).

- Elevate the patient's head and affected limbs above body level.

- Monitor serum electrolyte concentrations (such as sodium, potassium, calcium, phosphorus, and bicarbonate) and detect water and electrolyte imbalances

*Maintain normal body temperature

- Provide a warm environment by using thermal protection - blankets - or heat lamps.

- Check core body temperature frequently.

- Act quickly when changing wound dressings to minimize heat loss from the wound surface.

*Reduce pain and anxiety

- Use a pain scale to assess pain level (from 1 to 10)

- Administer intravenous analgesics as ordered and assess patient's response to medications.

- Assess patient and family's understanding of the burn process - coping strategies - family behaviors and anxiety level.

- Provide emotional and psychological support to the patient and his family and give simple explanations about treatment methods.

- If the patient is still anxious and distressed after psychotherapy interventions, use anti-anxiety medications.

*Control and treat possible complications

- Acute respiratory failure: Assess patient for increasing shortness of breath, hoarseness, and changes in respiratory pattern. Determine oxygen levels using ABG. Study chest radiographs.

Evidence of cerebral hypoxia such as restlessness and confusion should be monitored. Report worsening respiratory status to physician immediately. Prepare equipment for endotracheal intubation or sclerotomy.

Distributive shock: Consider early signs of shock (decreased urinary output, cardiac output, pulmonary artery pressure, blood pressure or increased pulse rate). Give fluids as directed

- Acute renal failure: Assess for inadequate urine output. Check urine for hemoglobin or myoglobin. Administer fluids as directed. Measure blood urea nitrogen (BUN) and creatinine concentration.

*Compartment syndrome: Assess the neurological and vascular status of the extremities (capillary refill, temperature, sensation, movement) every hour. Report any severe pain and decreased sensation and pulse.

After each blood pressure measurement, open the cuff and place the affected limb above the body.

* Paralytic ileus: Place an intragastric tube in the patient and continue intermittent suction at low power until normal abdominal sounds are heard again. Check the abdomen regularly for distension and abdominal sounds. When the ileus resolves, start oral feeding.

Stress ulcers: Measure stomach acidity. Reduce acidity by using antacids and histamine blockers (such as ranitidine) and test gastric secretions and stool for occult blood.

Preoperative training:

-Training patients to fast for 8 hours before surgery

- Training not to take blood pressure, diabetes and anticoagulant medications before surgery as ordered by the doctor

- Training on removing dentures, artificial nails, chewing gum, jewelry, etc.

- Training on voiding urine before surgery

- Removing nail polish

Minimum Education at Discharge:

*General Information

Provide written and verbal education to the patient and caregiver and provide them with the name and phone number of the physician or nurse to call in case of any problems.

Review the description of the type of burn and the extent of the injuries.

Prepare the patient for transfer to rehabilitation centers and long-term facilities as directed by the physician

*Wound Care -Instruct the patient on wound care and dressing changes (for minor burns). -The wound should be observed for signs of infection. -Change the dressing using medium-strength Betadine. Gently rub with sterile gauze to remove topical agents.

-Use thin, non-sticky gauze initially, then thicker, bulkier gauze to absorb exudate.

-Talk about the importance of avoiding contamination. Explain how to dispose of contaminated dressings.

-Explain that the healing process with the formation of new skin takes 6 weeks, and complete healing takes 6 to 12 months, depending on the extent of the injury.

-Review the care of healed wounds.

-Wash and rinse the skin, dry it thoroughly, and apply cream.

-Avoid exposure to direct sunlight -Use of strong detergents -Fabric softeners -Irritation of the skin through clothing contact should be avoided.

-Moisturizers and sunscreen should be used to reduce skin irritation.

*Warning Signs

-Review the signs and symptoms that should be reported to your doctor and nurse.

-Fever - Malaise

-Redness -Swelling -Pain in the burn area

-Bleeding -Foul odor -Discharge from the burn area

*Special instructions

- Advise the patient to avoid contact with people with infections, especially upper respiratory tract infections.

- Assist the patient in obtaining the necessary dressing supplies and any special aids for home care.

- Inform the patient that reconstructive or cosmetic surgery may be necessary for extensive burns.

*Medications

-Objective – Explain the amount, timing, and method of taking each prescribed medication and any side effects that should be reported to the doctor or nurse.

-Warn the patient about taking medications without a prescription or without consulting a doctor.

*Activity

-Explain the importance of planning rest periods.

-Talk about maintaining normal activities as tolerated.

-Encourage the patient to perform active and passive exercises of the affected limb within the range of motion to prevent muscle weakness and contractures.

-Instruct the patient in the use of any equipment as directed.

-Explain the importance of physical therapy to help with exercises.

-Encourage the patient to perform aquatic exercises to maintain activity and movement of the limb

-Encourage the patient to talk about her abilities and limitations with regard to her job, hobbies, and activities.

*Diet

-Emphasize maintaining a high-calorie, high-protein diet and vitamins to maintain a balanced weight and aid in recovery. Refer the patient to a nutrition center for diet planning.

-Encourage the patient to drink adequate fluids.

*Care for the elderly

-Be aware that decreased mobility, vision changes, and decreased pain sensation in the

hands and feet in the elderly increase their risk of burns.

-Assess the patient's ability to perform activities of daily living safely and effectively.

-Assess medications taken before the burn and any underlying medical conditions such as arthritis.

-Help the patient and his/her family to modify the home environment to ensure safety.

-Refer the patient to community centers or nursing services to provide appropriate home care or to monitor the patient.

-Remind the patient of the importance of reporting signs of infection, as low body resistance will lead to wound infection and subsequent septicemia.

Psychosocial care

- Encourage the patient to express his/her fears and concerns about deformity, decreased function, and feelings of powerlessness and sadness.

- Encourage the patient to perform self-care activities as soon as possible.

- Encourage the patient and his/her family to pursue individual and group counseling to reduce emotional stress and help with adjustment in life.

*Follow-up care

-Emphasize the importance of regular and ongoing medical check-ups, laboratory tests, and physical therapy until complete recovery is achieved. Make sure the patient has the names and phone numbers of emergency contacts.

*References

Advise the patient to reach out to support groups and social resources to help resume daily activities and relationships.

-Refer the patient to community health centers -Home care centers and rehabilitation centers.

-Medical treatment

-Hydrotherapy (water therapy): once or twice daily to remove dressings and debride wounds

-Dressings: Wet to dry or dry

Increase nutrition if needed, high-calorie and high-protein diet with vitamins and iron supplements

-Physiotherapy

*Medications

-Antibiotics

-Narcotic analgesics

*Surgery

-Skin grafts

-Amputation in case of severe limb injuries

-Wound debridement

*Treatment of minor burns

-Wound cleaning with bactericidal solutions

-Wound debridement

-Dressing changes: Use non-adhesive multi-layer dressings that are changed 1-2 times a day.-