HCNUR3034:

Acute Care Nursing Practice 4

**BURN**

**INDIVIDUAL CASE STUDY**

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**l. INTRODUCTION**

Globally, burns are a serious health problem. Yearly, more than 300, 000 people die from fires alone (World Health Organization [WHO], 2011). More are killed by burns caused by hot liquids, electricity and chemicals. , millions of people are disabled and disfigured by severe burns (WHO, 2011).

A female patient, age 21 was admitted overnight with burns to approximately 40% of her body from an explosion and fire at a rave dance party in Port Melbourne. Patient acquired burn in the chest and abdomen mostly superficial partial thickness (18% BSA) and deep partial thickness in the anterior thighs (15%BSA).In addition to sustained circumferential burn in the left arm of about 8%. Initial BP is 100/50 pulse rate is 120 with SPO2 of 93%. This case study will discuss the pathophysiology , medication, physical assessment ,medical procedure in relation to the case. This case study will discuss the nursing management, discharge planning and as well as the literature of the current evidence based practice.

**ll. PATHOPHYSIOLOGY**

Following after the thermal burn injury, loss of skin destroys the primary barriers to microorganism (Sole,Klein & Moseley,2009).Then, function of the immune system is depressed, resulting in immunosuppression and thus increasing the risk of infection and sepsis (Silvestri ,2008).

Subsequently, after burn vasoactive substance are released from the injured tissue causing increase in capillary permeability, which permits plasma to pass into the surrounding tissues causing edema (Stener, Zanders & Morris,2009). Whereas, as the edema increases the circumferential burn at the left arm will be affected placing pressure on the blood vessels and causing obstruction of blood flow that will eventually led to ischaemia (Farell & Dempsey,2011).Therefore, the shifting of fluids from intravascular compartment to interstitial spaces will result into loss of fluid resulting in a decrease in organ perfusion(Farell et.al,2011). There will be increase in heart rate, decrease in cardiac output and a drop in the blood pressure and if the intravascular space is not replenish with intravenously administered fluids hypovolemic shock will occur(Farrell et.al,2011).

**lll. MEDICATION**

A. Penthidine 50mg IV

USES: Moderate to severe pain ( Skidmore-Roth,2011).

 SIDE EFFECTS: drowsiness, clouded sensorium, confusion, headache, sedation bradycardia ,tachycardia and cardiac arrest (Skidmore-Roth,2011).

NURSING RESPONSIBILITIES: Monitor respiratory and cardiovascular status, do not administer if respiration is 12 and below breaths per minute. Monitor bowel function patient may need laxative. Observe for withdrawal symptoms if drugs is discontinued after long term of uses (McKenna et.al,2010).

CONTRAINDICATIONS: hypersensitivity to drug ( McKenna et.al,2010).

B. Cephazolin 2g (IV)

 USES :Anti-infective(Skidmore-Rote,2011).

 SIDE EFFECTS: Seizure if given in a high dose, headache, dizziness, diarrhea and anorexia (Skidmore-Rote, 2011).

 NURSING RESPONSIBILITIES: Use cautiously in patient with history of penicillin sensitivity. Perform skin test prior to administering the first dose (McKenna et.al, 2010). Dose and interval will be based on creatinine level below 55 ml/min (McKenna et.al, 2010). Alternate injection site if IV therapy lasts longer than 3 days use small needles in larger available veins (McKenna et.al,2010).

CONTRAINDICATION: Contraindicated in patients with hypersensitivity to drug and other cephalosporins (McKenna et.al,2010).

C. ADULT DIPHTERIA AND TETANUS (ADT)

 USES: Booster vaccination (McKenna et.al,2010).

 SIDE EFFECTS: low grade fever, redness and soreness (McKenna et.al,2010).

NURSING RESPONSIBILITIES: Obtain history of allergic reaction to immunization. Shake well before using vaccine storage at 2° to 8° C. Administer only by deep IM injection (McKenna et.al, 2010).

CONTRAINDICATION: Hypersensitivity to the drug and vaccine is deferred in patient with unknown cause of fever (McKenna et.al, 2010).

D. SILVER SULPHADIAZINE

USES: Topical anti-infectives ( Skidmore-Roth,2011).

SIDE EFFECT: The common side effects are rash , pruritus and stinging( Skidmore-Roth,2011).

NURSING RESPONSIBILITIES: Cleanse with soap and water before each application, use finger cot to prevent further infection and put enough medication to cover the leasion ( Skidmore-Roth,2011).

CONTRAINDICATION: hypersensitivity to the drugs ( Skidmore-Roth,2011).

**V. MEDICAL PROCEDURE**

A.CHEST XRAY

A test use to determine inhalation of smoke among burn patient. Inhalation of hot and gases potentially results in airway obstruction.

B.ARTERIAL BLOOD GAS (ABG)

Test use to determine the integrity of acid-base balance and the concentration of oxygen and carbon dioxide in the body. Metabolic acidosis may occur among burn patient (Silvestri,2008).

C.UREA AND ELECTROLYTES (U & E)

Test performed to confirm normal kidney function. Elevation of BUN and is potential for decrease renal function (Farrell et.al,2011).

D. FULL BLOOD EXAMINATION (FBE)

Use to determine the level of blood parameter mostly notable is hematocrit, haemoglobin and WBC. Expected findings from burn patient is increase hematocrit, WBC and decrease platelets (Sole at.al,2009).

E. BLOOD SUGAR LEVEL (BSL)

Use to determine level of sugar in the blood ( ). In burn hyperglycemia may occur as a result of catecholamine release ( Sole et.al,2009).

**IV. PHYSICAL ASSESSMENT**

 Focus on the main priorities of trauma patient: Airway, Breathing and Circulation (Johnson, 2008). Inhalation injury is expected among burn patients and signs may include singed nasal hair and tachycardia (Silvestri, 2008). Furthermore, it is essential to note any changes in the vital signs such as decrease blood pressure, tachycardia and abnormal temperature for possible burn shock (Johnson,2008). Use methods to estimate extent of burn injury such as depth of burn and the rule of nine ( Sole, Klein & Moseley,2009). Assess for circumferential burn for pressure from edema may impair blood flow to distal tissue (Sole et.al,2009).

**VI. MANAGEMENT OF CLIENTS WITH BURNS**

A.FLUID REPLACEMENT

● Administration of intravenous fluids according to need to prevent patient undergoing burn shock (Mehmet, Ebru & Hamdi,2010).

● Insert urinary catheter to monitor urinary output of 30 to 50 ml/ hour as needed and if output is less than the required amount immediately notify the physician need (Funnell, Koutoukidis & Lawrence , 2009).

● Frequent blood test is needed to determine occurrence of fluid deficit (Smeltzer et. al,2010).

B.RELIEVING PAIN

● Assess level of pain using a pain scale and monitor for physiologic response to pain such as increased BR and HR (Sole et. al,2009).

●Administer prescribed pain medication; penthidine 50 mg IV .

● Medicate the patient prior to bathing, dressing and any procedure (Silvestri, 2009).

●Minimize open exposure of wounds because expose nerve endings increase pain (Cameron, Ruzehaji & Cowin, 2010).

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C.PREVENTION OF INFECTION

● Observe aseptic management of wound and the environment(Sterner et.al,2009).

● Apply topical antibiotic agent(Sole et.al,2009).

● Administer antibiotic cephazolin 2g IV.

● Monitor laboratory values and clinical signs of possible sepsis (Funnell et. al,2009).

● Enhance patient natural defence by providing adequate nutrition (Funnel et. al,2009).

D.PROVIDING ADEQUATE NUTRITION

●Provide diet that is high in calorie and high in protein and as well as giving nutritional supplements as prescribed (Prelack, Dylewski & Sheridan,2007).

●Monitor patients daily weight and calorie count to determine if dietary needs are met (Smeltzer et.al,2010)

●.Admisnister vitamins and mineral supplement as prescribed these help meet additional nutritional needs and aids wound healing and cellular function (Smeltzer et.al,2010).

●Notify the physician for abdominal distention, large gastric residual volume or diarrhea for this may indicate intolerance of type of feeding (Silvestri,2008).

E.PROMOTING MOBILITY

●Careful positioning of the client must be observed to prevent flexion of the burned area(Cameron et.al,2010).

● Implement range of motion (ROM) exercise several times daily to prevent muscle atrophy (Smeltzer,et.al,2010).

F.PROVIDING PSYCHOLOGICAL SUPPORT

● Orient patient to support services available for the patient (Silvestri,2009)

● Develop a trusting relationship by listening and encouraging the patient to verbalize feelings (Funnell et.al,2009)

●Involve the patient in the plan of care to enhance feeling of control and self worth (Funnell et.al,2009).

●Monitor patient for signs and symptoms of depression and refer the client to psychologist (Silvestri,2009).

●Support clients coping mechanism as needed (Sole et.al, 2009).

G. WOUND MANAGEMENT

● Perform meticulous wound care (Cameron et.al,2010).

● Administer analgesics prior to wound care( Cameron et.al,2010).

● Apply solugel as prescribed .

 ● Apply topical antibiotic cream as prescribed (Sole et.al,2009).

**VII. DISCHARGE PLANNING**

**●** Inform the client that healed burned is tender and will easily tear compared to normal skin (Funnell et.al,2009).

● Avoid sunlight for 12 months for injured skin can easily burn (Sole et.al,2009).

●Use only non- irritant soaps and cosmetic on burned area (Funnell et. al,2009).

● Take extra precaution not to bump burn areas in any activities for it can easily be damage (Silverstri,2009).

●Wear clothing with soft fabric to avoid irritation on burned skin(Funnell et.al,2009).

● Continue prescribed management that may include wearing of tailored elastic garments, application of cream and exercise to improve mobility(Funnell et.al,2009).

● Seek psychological help such as counselling, group therapy and support group if there is difficulty adjusting to changes in the body (Sole et.al,2009).

**VIII. EVIDENCE BASED PRACTICE**

The latest development of burn wound management is the biological skin substitutes that allows the construction of a more natural new dermis and allow excellent re-epithelialisation characteristics due to the presence of a basement membrane (Halim, Khoo, Mohd & Shah, 2010). Synthetic skin substitutes demonstrate the advantages of increase control over scaffold composition. The vital goal is to achieve an ideal skin substitute that provides an effective and scar-free wound healing (Halim et.al, 2010).

Another evidence-based practice that is proven to be effective is the the hydrogels it has long been recognized as the standard treatment for necrotic or sloughy wounds that is use to maintain and introduce moisture into the wound (Edwards,2010). In relation to burn wounds, hydrogels have been proven to be beneficial in managing deep burns when surgery is contraindicated (Edwards, 2010).

**IX. REFLECTION**

Burn of more than 30% of the body surface area is a serious injury. Massive complication of burn can be fatal if not treated appropriately and some of the complication are hypovolemic shock, edema , and sepsis. The author learned that providing care for patient with severe burn is difficult because a nurse is not only dealing with the physical injuries but as well as the psychological effect of the incident to the patient. Furthermore, it is essential to establish a deep understanding on how to provide critical care to burn patient starting from the initial encounter up to the discharge planning.

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