Case Report

Multidisciplinary approach to Thermal Burns

Mary Shaila[1*], N. Loganayaki[2]

[1]Nursing Supervisor, Kauvery Hospital, Hosur
[2]Assistant Nursing Superintendent, Kauvery Hospital, Hosur
*Correspondence: nursing.hosur@kauveryhospital.com

Abstract

Advances in the management of burns patients have led to improvements in morbidity and mortality. Burns care requires extensive surgical intervention, resuscitation and multidisciplinary care. This case presentation will review the standard care of patients with 30% Burns.

1. Background

A burn is an injury to the skin or other organic tissue primarily caused by heat or due to radiation, radioactivity, electricity, friction or contact with chemicals.

Thermal (heat) burns occur when some or all the cells in the skin or other tissues are destroyed by:

1. Hot liquids (scalds)
2. Hot solids (contact burns)
3. Flames (flame burns).

Burns are a global public health problem, accounting for an estimated 180,000 deaths annually. The majority of these occur in low-and middle-income countries and almost two-thirds occur in the WHO African and South-East Asia Regions.

In many high-income countries, burn death rates have been decreasing, and the rate of child deaths from burns is currently over 7 times higher in low-and middle-income countries than in high-income countries.

In many ways, patients who sustained burn injuries because of suicide attempt were similar to the patients who had sustained accidental burn injury in the socio-demographic profile. However, they were more likely to come from joint families and had more stressful life events in the year prior to injury. Additionally, burns secondary to suicide attempts resulted in larger injuries than those who accidentally burned.

2. Case presentation

A 34-year-aged female was brought to ER with alleged H/o Thermal Burns (self-induced, using petrol) sustained at her home. H/o Vomiting (+), No H/o Fever/chest pain/SOB/ LOC/Giddiness, H/o Previous LSCS, N/K/C/O - DM/HTN/IHD/TB/ epilepsy. She was

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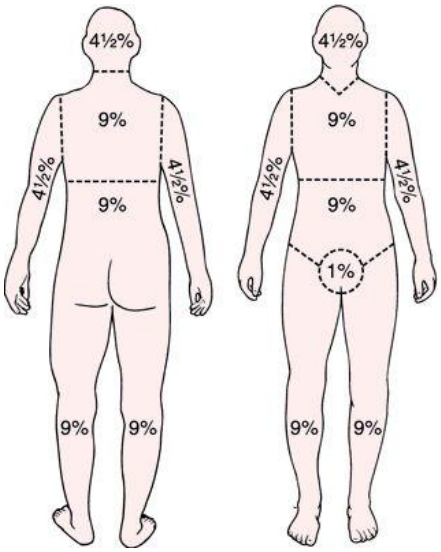
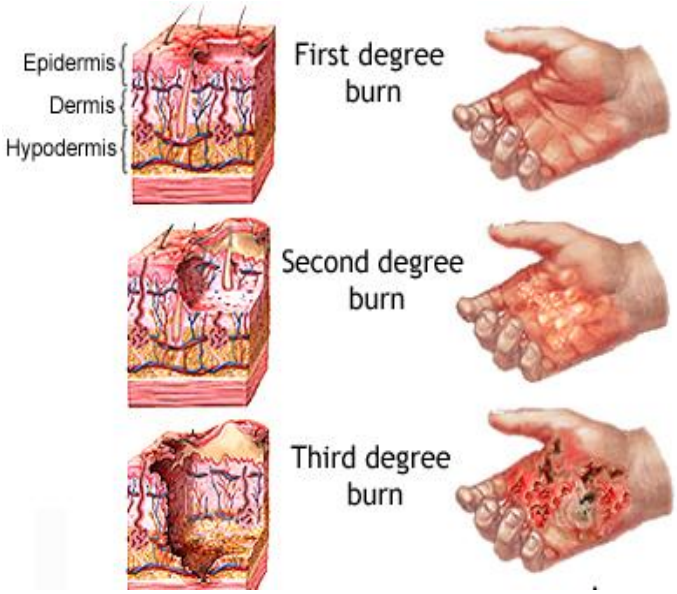
awake and alert with no loss of consciousness at the scene. She had and sustained significant thermal injuries over face, chest and abdomen and both upper limbs. Total BSA involved 28–30%.



Body Part	Rule of nine (%)
Face	4
Neck	1
Chest	9
Abdomen	7
Right Upper Limb	3.5
Left Upper Limb	4

Patient initially treated at general hospitals and came here for further management. Initial evaluation revealed, mild tachycardia, bilateral air entry present in both lungs with readily apparent, partial thickness burns to face, chest and abdomen and both upper limbs.

The patient was immediately admitted to the ICU and ruled out for other injuries by a multi-specialty team that included a Physician, Plastic Surgeon and an Intensivist. The central line was obtained. Fluid resuscitation done for next 48 h, and Hemodynamic status was monitored closely.



Patient underwent serial excisional debridement and wound preparation procedures over the next few weeks after which patient underwent wound debridement and cadaveric graft for neck and chest. Redressing done under IV sedation. Mechanical ventilation was provided immediate post-operatively to protect airway. Investigations and cultures sent throughout the admission and treated as per sensitivity. Blood transfusion was done in view of low hemoglobin 8.3 g/dl. On improvement of general condition, patient was shifted to ward with same line of management.

It is important to note that during the entirety of our patient is 39 days of hospitalization, she received attentive multidisciplinary care including efforts from nutrition services, physiotherapy services, social work, as well as the nursing and physician teams. After continued local wound and graft care the patient was discharged on 16.09.2024 to home.

2.1. Nursing management

1. Assessment: Hemodynamic Monitoring, Monitoring strict Intake and Output Chart, Pain Assessment and Pain Relieving Measures, Monitor signs of infection, Assessment of TBSA - 30%
2. Fluid resuscitation
3. Wound care: Heparin spray applied every second hourly
4. Pain Management: Fentanyl infusion and Anti Inflammatory Analgesics
5. Infection Prevention: Strict Hand hygiene practices, sterile disposable sheets, PPE
6. Nutritional Support: High protein RT feed 2 hourly, High protein and high calorie diet oral diet
7. Psycho social Support: Psychological Counselling and emotional support
8. Mobility and Rehabilitation: Time plan for rest and activity. Encouraged early mobilization to prevent contractures and improve circulation.

2.2. Education on discharge

1. Educate the patient and family on wound care, signs of infection and pain management
2. Encouraged for high calorie and high protein diet
3. Provided instructions for dressing changes and follow-up care

4. Prepare for long-term rehabilitation including plastic surgery.

Conclusion

Care of the patient with a large body-surface area burn is complex, lengthy, and fraught with potential complications. These complications can be anticipated and minimized in advanced care center accustomed to the complexities of major burn care; ultimately yielding improved survival and functional outcomes. Her burn scars are being managed in the outpatient department with measures such as moisturization, massage, and compression. This positive outcome provides confident to our team to handle patient with burns in future.