GUIDELINES AND PROTOCOLS

Lyndon B. Johnson General Hospital Trauma Services Department
Guideline/Protocol Number: T27

Guidelines and Protocols

TITLE: BURN TRAUMA

PURPOSE:

Patients suffering burn injury will have rapid assessment and timely interventions performed, to prevent further patient deterioration by anticipating needs

PROCESS:

1. BURN TRAUMA
   A. Evaluate and provide interventions to maintain airway, breathing and circulatory status.
      1. Stop the burning process in conjunction with airway management.
      2. Pediatric consideration - children are vulnerable to rapid occlusion of airway due to smaller airway and increased proportion of soft tissue.
      3. INHALATION INJURY. Inhalation injury typically occurs in closed spaces. Flash burns often harm the face but rarely involve the airway. Signs of inhalation injury and potential need for intubation:
         a. Singed nasal hair
         b. Carbonaceous sputum
         c. Oral pharyngeal edema or blistering
         d. Altered mental status
         e. Respiratory distress
         f. Hypoxia or hypercapnia
         g. Elevated carbon monoxide and/or cyanide level
         h. Hoarseness
         i. Persistent cough strider or wheezing
         j. Deep facial or circumferential neck burns
   4. CARBON MONOXIDE AND CYANIDE.
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a Carboxyhemaglobin level should be obtained in all patients with moderate or severe burns. Treatment should include high flow oxygen. Transfer to higher level of care or oxygen therapy should not be delayed awaiting carboxyhemaglobin level.

b Cyanide toxicity should be considered in severe burn patients with an unexplained lactic acidosis or a low or declining EtCO₂, or if these measurements are unavailable in any patient demonstrating altered mental status, cardiac arrest, or cardiac decompensation. Hydroxocobalamin is the preferred treatment.

B. Remove all clothing, jewelry, and obvious debris. Burned areas should be cooled immediately using cool water or saline soaked gauze (ideal water temp is 54°F(12°C)).

C. Monitor core body temp in patients with >10% TBSA. Body Temp < 95°F(35°C)

D. Document on burn chart estimation of burn surface involved. Use rule of 9’s or Lund-Browder chart in adults. In children the Lund-Browder chart is recommended because it takes into account the relative percentage of body surface area affected by growth. Small or patchy burns can be approximated by using the surface area by using the patient’s palm.

E. Determine burn type (e.g. thermal, chemical, radiation) and burn depth (recognize true burn depth may not be evident for hours after the injury).

F. Refer to Transfer to Higher Level of Care Policy T1 and immediately initiate transfer to higher level of care as indicated while initiating burn management and resuscitation.

G. Wound care
1. Patients being transferred to higher level of care: Patients rapidly transferred to a burn center can be wrapped in a sheet.
2. Do not use ice.
3. Do not apply ointments or creams (including Xeroform gauze); this interferes with wound assessment at receiving facility potentially delaying therapy.
4. Avoid hypothermia. Keep ambient temperature warm (above 86°F) can reduce hypothermia and hypermetabolism.

H. Patients being admitted
1. Silver Sulfadiazine (SSD) is applied to partial thickness burns
   a. Thick layer is smoothed on clean burn area
   b. Apply saline damp kerlex over SSD in a fan-fold fashion so that the dressing can expand.
   c. Apply dry kerlex of damp kerlex
   d. Use appropriate size net dressing to hold in place
2. Xeroform can be applied to partial thickness burns that are closing in lieu of SSD.

I. Initiate burn resuscitation for patients with >20% TBSA and/or inhalation injury.
1. Establish 2 large bore IV’s with LR.
2. Administer fluid as follows
   a. Start IV fluid resuscitation at 2 ml/kg/%TBSA with LR.
   b. If urine output <30ml/hr increase IV fluids by 10-20%.
   c. If urine output 30-50ml/hr keep current IV fluid rate.
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If urine output >50ml/hr decrease IV fluid rate by 10-20%

J. Insert Foley catheter to monitor output and assess adequacy of fluid volume.

K. Initiate multimodal IV pain therapy.

L. Insert NG tube if patient has nausea/vomiting present.

M. Escharotomy of the neck or chest may be required prior to transfer if mechanical constriction from eschar prevents adequate chest excursion and compromises respiration. Constrictive swelling of extremities does not occur until fluid resuscitation is underway (usually greater than three hours), and therefore decompressive escharotomy of an extremity is rarely required prior to transfer. If transfer of a patient with severe or circumferential burns is delayed, surgeon should continually assess the patient to determine need for escharotomy prior to departure.

N. Administer Diphtheria/Tetanus 0.5 ml IM to all burn patients per emergency Center policy.

O. Provide emotional support to patient and/or family.

II. SPECIFIC BURNS

A. Electrical burns:
   1. Difficult to assess true extent of damage.
   2. AC current more dangerous than DC current. AC current causes tetany, which lengthens the exposure to current.
   3. Significant internal damage may be present (only entrance and/or exit wound may be visible).
   4. Possible cardiac dysrhythmias.
   5. Possible altered level of consciousness.

B. Chemical burns
   1. Assure protection of the trauma team from contamination by using gloves, mask, and goggles.
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2. Rinse areas with copious amounts of water - removing clothes and jewelry.
3. 30 minutes for acid burns.
4. 1-2 hours for alkaline burns.
5. Hydrofluoric acid may require neutralization with topical calcium gluconate or intradermal subcutaneous injections of 10% calcium gluconate to the area (not digits).
6. Lavage eyes first and then attempt removal of contact lens - consult ophthalmologist immediately.
7. Tar or asphalt burns - cool area first and use mineral oil or petroleum jelly to loosen.
8. Gently wash areas with milk soap and water.
9. Debride nonviable tissue.

REFERENCE / BIBLIOGRAPHY:


OFFICE OF PRIMARY RESPONSIBILITY:

LYNDON B. JOHNSON HOSPITAL TRAUMA SERVICES

REVIEW / REVISION HISTORY

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