Burns

181st INF BDE
Combat Lifesaver
Plus
Overview

Basic anatomy and functions of skin
- Epidermal, dermal layers and structures

Severity of burns
- Appearance, depth, extent
- Extent of burn using Rule of Nines

Complications and management:
- Thermal, chemical, and electrical burns
- Carbon monoxide poisoning and inhalation injury
Burns

Safety is extremely important.
  • Scene Size-up, rescue or removal

Multiple agents cause burn injuries.
Functions of Skin

Largest organ

Functions:

• Protective barrier
• Sensory organ
• Temperature regulation
Burn Classification

Depth of burn
- Superficial (first degree)
- Partial-thickness (second degree)
- Full-thickness (third degree)

Extent of burn
- Rule of Nines
- Palmar surface
Burn Depth

Superficial

- Minor tissue damage to outer epidermal layer
- Intense and painful inflammatory response
- “Sunburn”

Management

- Symptomatic treatment
Burn Depth

Partial-thickness

• Entire epidermis into variable depth of dermis
  • Usually no scarring

Management

• Cool burn and cover with clean dry dressing
Burn Depth

Full-thickness

- Epidermis and dermis
  - Scars contract, limit motion
- Deeper full-thickness
  - “Leather-like” eschar

Management

- Moist sterile dressing
Burn Depth

Courtesy of Roy Alson, MD
Burn Depth
Burn Types

Flash burn
• Source is explosion, not sustained fire
• Superficial or partial-thickness to exposed skin
  • Full-thickness (rare)

Associated symptoms
• Explosion trauma
  • Fractures
  • Internal injuries
  • Blast chest injuries
Chemical Burns
Chemical Burns
Burn Types

Electrical burns

• Heat generated by passage of current
• Extremities greater risk of injury

Mechanism

• Path of current through body
• Duration of contact with current source
Electrical Burns

Management

• Rapid transport
• IV access
  • Fluid administration needs often higher than thermal
Electrical Burns
Electrical Burns

Courtesy of Bonnie Meneely, EMT-P

Courtesy of David Effron, MD
Electrical Burns

Courtesy of Roy Alson, MD
Burn Types

Lightning injury
• Extreme voltage
• Short duration

Mechanism
• Direct contact
• Indirect contact

Associated symptoms
• Superficial and partial-thickness burns
• Cardiopulmonary arrest
Lightning Injury
Burn Types

Pediatric burns

• Greater severity
  • Thinner skin, larger surface area to body mass ratio

Mechanism

• Accidental
• Child neglect or abuse
  • Match object shapes
  • Clear lines without splatter or splash
  • History does not match developmental age
Summary

Safety is essential

Early deaths are due to airway compromise

Limit progression of depth and extent

Careful, systematic approach:

• Identify and manage critical life-threatening problems to improve patient outcome
Questions?