

Episode 3 - Burns

Burns patients are trauma patients. ABCDE. The burn may not be the only injury. Treat immediately life-threatening injuries first.

The mortality from a burn injury is between 10-20% for hospitalised cases.

Assessment and referral criteria

Site	Depth	Extent
Face Neck Hands Feet Joints Perineum or genitalia Circumferential burns	Full thickness Electrical Chemical Associated trauma Extremes of age Pre-existing comorbidities	Adults > 10% BSA Children > 5 % BSA Inhalational injury

Fluid resuscitation

Fluid resuscitation is required in adults with an injury covering more than 15% of their body surface area or children with an injury involving more than 10% of their body surface area.

Adults: Parkland formula (resuscitation fluids)

Children: Brooke formula (resuscitation fluids) + maintenance fluids

Parkland formula

= crystalloid over 24 hours following the TIME OF INJURY ($\frac{1}{2}$ in 8 hours, $\frac{1}{2}$ in 16 hours)

= 4 mL x kg x % BSA

Fluid management

Balanced salt solutions such Ringer's acetate, Ringer's lactate (Hartmann's) or Plasmalyte are suitable. Plasmalyte and Ringer's acetate are compatible with blood products.

Fluid balance is difficult to assess in burns patients. It is affected by changes in fluid loss (evaporative, hyperthermia), fluid redistribution (plasma proteins, capillary permeability), cardiovascular and renal dysfunction (affecting urine output measurement or requiring renal replacement therapy). The risks or mismanagement include cerebral oedema, pulmonary oedema or compartment syndrome.

Blood loss

Blood loss can be between 50-100 ml per percentage body surface area excised. For a 10% burn this equals about 500 ml - 1000 ml.

Sepsis

Diagnostic criteria include three of the following with evidence of infection:

- Temperatures $> 39^{\circ}\text{C}$ or $< 36.5^{\circ}\text{C}$
 - Tachycardia $> 110/\text{min}$ or greater than 2 standard variations for age
 - Progressive tachypnoea to $> 25/\text{min}$
 - Hyperglycaemia $> 12.8 \text{ mmol/L}$
 - Thrombocytopenia $< 100 \times 10^9/\text{L}$ (from day 3 after injury; fall expected in the first 48 hrs)
 - Inability to continue enteral feeding for over 24 hours
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