Pediatric Burns

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3rd leading cause of accidental death in children
80% are minor scalds

Classification

1st degree - epidermis, red, painful, nonblistering
   - heal 3-5 days, no scarring

2nd degree (partial thickness)
   1) Superficial - < 1/2 dermis, pain, blister
      - heal 10-21 days, minimal scarring
   2) Deep - > 1/2 dermis, less pain secondary to edema, pale,
      thrombosed vessels give it a speckled appearance
      - heal 4-6 weeks, scarring

3rd degree (full thickness)
   - pale or charred, leathery, nontender, skin grafting

4th degree - involvement of fascia, muscle, and/or bone

Burn Surface Area

- rule of 9’s for children over nine years of age
- Lund Browder chart for children less than 9 years of age
- a child’s palm is approximately 1% of the BSA

Signs of Abuse

- deep symmetrical burns
- buttocks and thighs on a toddler
- cigarette burns
- other patterns ie. iron
Treatment:

1) ABC’s
   a. consider early intubation for major burns as airway edema worsens over a 24 - 48 hour period
   b. oxygen vital as carboxyhemoglobin may be on board
   c. shock present with 15 - 20% of TBSA in kids
      - fluids needed in 2nd - 3rd degree burns involving > 10% of TBSA
      - cardiac output decreased by circulating myocardial depressant factor

2) Fluid Therapy
   - Crystalloid the first 24 hours then colloid when capillary permeability is restored
   - Parkland formula = 4 cc/ kg/ %TBSA plus maintenance (first 1/2 over 8 hours and 2nd half over 16 hours)
   - DO NOT add potassium initially
   - adjust rates depending on UOP (need atleast 1 cc/kg/hr)

3) Pain control
   a. Major burns consider IV morphine 0.1 mg/kg (hypotension a contraindication)
   b. Minor wounds requiring debriding consider:
      Tylenol w/ codeine 0.1 mg/kg +/- Versed PO 0.7 mg/kg

4) Wound care
   a. 1st degree: moisturizer, tylenol
   b. 2nd / 3rd degree: remove clothing, leave intact blisters alone unless they are in an area susceptible to rupture
      - irrigate with lukewarm NS, may debride with sterile 4x4 gauze & NS,
         use forceps and tissue scissors to remove excess skin
   c. Antibiotic ointment: controversial
      1) Silvadene - agent of choice in most burn centers, expensive,
         sulfâ allergy a contraindication, leukopenia
         - then place non-adherent mesh like xeroform & dressing
2) Neosporin good alternative w/ application of xeroform, then dressing
   - usually do not need a dressing on the face

5) Tetanus - if not given within the last 5 years

6) Antibiotics: prophylaxis not warranted for minor burns, ? IV PCN for major

Disposition

Admit and/or Burn consultation: 2nd > 10-15%, 3rd >3%, 1% face, ears, eyes, hands, feet, perineum, inhalation, abuse/social
   - would also consult for burns over joints, circumferential burns

Burn Unit referral: 2nd > 10% if less than 10yo., >20% if older
   : 3rd degree > 5%
   : 1% face, ears, eyes, hands, feet, perineum
   : electrical, chemical, or associated trauma
   : underlying medical condition

Home Care: change dressing daily (gentle wash > topical agent > dressing)
   : elevation
   : pain meds
   : range of motion exercises

Followup: Recheck debrided wounds in 24 - 48 hours
   : RTC sooner for signs of infection, increased pain

Electrical Burns

   - usually mouthing of electric plugs in toddlers, adolescents daring power lines
   - moisture decreases resistance, tissues w/ least resistance: vessels, nerves, muscle
   - check for entry and exit wounds
   - EKG, UA rule out myoglobinuria

Chemical Burns

   - corrosives: alkalis more serious secondary to liquefaction necrosis
   - skin and eyes must be copiously irrigated with NS

References
1) Trott, A. Minor Burns in Wounds and Lacerations Text, 1991:260 - 274


