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Friday, June 9, 2017

16:30 - 17:25 WS #68: Update on Burns
17:35 - 18:30 WS #80: Update on Burns (Repeated)
Update on Burns

John Pearn
Paediatrician to the Burns Centre

NZMA Rotorua GP CME Conference
9 June 2017
The Spectrum of Thermal Injury
Age of children attending

58% male

Breakdown of age by year presented

Female
Male
Centre for Burns & Trauma Research

Prevention

First Aid

Initial Treatment

Psycho-Social Support

Scar Management

Burn

Scar
Staying Ahead of the Game
Preventing or reducing Scarring
Managing the whole family-social unit
Hypertrophic Scarring

Know Your Enemy
Evidence for the link between healing time and the development of hypertrophic scars (HTS) in paediatric burns due to scald

Tania C.S. Cubison a,b, Sarah A. Pape b, Nicholas Parkhouse c

a Plastic Surgery, Northern Regional Burn Centre, Royal Victoria Infirmary, Newcastle Upon Tyne, NE1 4LP, UK
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c Queen Victoria Hospital, East Grinstead, RH19 3DS, UK

Accepted 13 February 2006

<10 days = 0%
10–14 days = 2%,
15–21 days = 20%,
22–25 days = 28%,
26–30 days = 75%
>30 days = 94%
Jackson Model

The Skin

- Hair
- Sebaceous Gland
- Sensory Nerve Ending
- Epidermis
- Nerve
- Dermis
- Subcutaneous Tissue
- Capillaries
- Sweat Gland
- Muscle
- Arteriole
- Fat, Collagen, Fibroblasts
Burn Classification

Superficial Burn (erythema only)

Burn Classification

Superficial Partial Thickness Burn
(blisters, will re-epithelialise in <2/52)

Burn Classification


Deep Dermal Partial Thickness Burn (will re-epithelialise in >2/52, will usually scar)
Full Thickness Burn

Intentional Immersion Injury with Doughnut Sign
Skin Breakdown and Blisters from Senna-Containing Laxatives in Young Children

Henry A Spiller, Mark L Winter, Julie A Weber, Edward P Krenzelok, Deborah L Anderson, and Mark L Ryan

8yr old boy, unknown mechanism
First Aid Recommendations

- Cold running water 2-15°C
- 20 minutes duration, with delay up to 3 hrs
- Alternative treatments (inc. ice) only relieve pain
First Aid 2005: 12% have at least 20min water

First Aid 2012: 51% have at least 20min water

First Aid 2014: 68% have at least 20min water
Burn Wound Area Estimation

Relative percentage of body surface area (% BSA) affected by growth

<table>
<thead>
<tr>
<th>Body Part</th>
<th>0 yr</th>
<th>1 yr</th>
<th>5 yr</th>
<th>10 yr</th>
<th>15 yr</th>
</tr>
</thead>
<tbody>
<tr>
<td>a = 1/2 of head</td>
<td>9 1/2</td>
<td>8 1/2</td>
<td>6 1/2</td>
<td>5 1/2</td>
<td>4 1/2</td>
</tr>
<tr>
<td>b = 1/2 of 1 thigh</td>
<td>2 3/4</td>
<td>3 1/4</td>
<td>4</td>
<td>4 1/4</td>
<td>4 1/2</td>
</tr>
<tr>
<td>c = 1/2 of 1 lower leg</td>
<td>2 1/2</td>
<td>2 1/2</td>
<td>2 3/4</td>
<td>3</td>
<td>3 1/4</td>
</tr>
</tbody>
</table>

Lund CC, Browder NC The estimation of areas of burns Surg Gynecol Obstet 1944; 79: 352-8
Burns Dressings

• Mepitel with Acticoat
• Multiplex Ag (silver)
• Summary

  Best –practice first aid
  Consult Burns Centre
  Photograph burn and transmit image
  Many burns are best managed locally with shared care.
The relationship between pain & burn re-epithelialisation

Model corrected for depth by laser Doppler
Faces revised pain score taken at first dressing change

A one point increase in pain score = a delay in re-epithelialisation of 2.2%
Wound Debridement & Blisters

Re-epithelialisation enhanced after Debridement

Escharotomy

12yr Boy 50% TBSA
Flame Burn
Fluid Resuscitation, LCCH Brisbane

- Parkland Formula: % TBSA x Wt x 3-4
- 50% in 1st 8hrs, 50% in next 16hrs (Hartmann’s solution)
- Maintenance fluids over and above (Hartmann’s & 5% Dextrose)
- Enteral feeds started at 6hrs & increased to full feeds by 24hrs
- Second 24hrs, Crystalloids if needed, Colloids (4% albumin, only if unstable)
- Remember analgesia
Fluid Resuscitation, Large Burns
>20% TBSA

- Parkland Formula: % TBSA x Wt x 4
- 50% in 1st 8hrs, 50% in next 16hrs (Hartmann’s solution in 1st 6hrs, then 1:1 Hartmann’s / 4% Albumin)
- Maintenance fluids over & above (Hartmann’s & 5% Dextrose)
- Enteral feeds started at 6hrs & increased to full feeds by 24hrs
- Second 24hrs, 4% Albumin
The ideal burns dressing

- Antimicrobial Properties
  NB: Toxic Shock Syndrome

- Promotes Re-epithelialisation
- Requires Infrequent Dressing Changes
- Cost-effective
Run wound size

>10% TBSA
- Consult LCCH Burns Registrar

Indeterminate or FT wound
- Consult LCCH Burns Registrar

≤10% TBSA
- SPT-DPT wound
  - Unclean wound or unclean first aid/child unwell
    - Mepitel + Acticoat
  - Clean wound, clean first aid, child well
    - Dressing change in >5 days
      - Mepitel + Acticoat
    - Dressing change in ≤5 days
      - All body surfaces (excl. fingers/toes)
        - Mepilex Ag
          - >2 years
            - Meptilex Ag
          - ≤2 years
            - Mepitel + Acticoat OR Mepilex Ag

For all paediatric burns
1. Ensure adequate first aid is provided, 20 mins cool running water up to 3hr post burn
2. Contact the LCCH Burns Registrar (07)30681111 prior to dressing, or sending referral
3. Complete online referral
4. Email referral with photos to burns-opd@health.qld.gov.au
5. We do not recommend the use of Silver Sulphadiazine or ice.
6. All paediatric burns, irrespective of size, should be discussed with the Burn Registrar. However many can be cared for in local centre under our supervision.
Scar Management

Splinting to Prevent Contractures

Pressure Garments

Silicone Contact Gel
Factors in Burn Wound Healing

Faster Re-epithelialisation & Reduced Scarring

Decrease in Wound Progression

Optimal Fluid Resuscitation

Initial Wound Debridement

Optimal Wound Dressings

Pain & Anxiety Control

Poor Pain & Anxiety Control

Poor Wound Conditions, Infection

Wound Progression

Delayed Re-epithelialisation & Increased Scarring
Thank You
Update on Burns

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