RCS 6080
Medical and Psychosocial Aspects of Rehabilitation Counseling

Burn Injuries

Burn Injuries

- Statistics
  - Annually, there are approximately 1.25 million people in the US who sustain burn injuries
  - Of these, 5,500 do not survive and 51,000 require hospitalization
  - Persons whose burn injuries require hospitalization have about a 50% chance of sustaining temporary or permanent disability
  - The most common part of the body involved in burn injury is an upper extremity, followed by the head and neck

Effects

- Burn injury causes destruction of tissue, usually the skin, from exposure to thermal extremes (either hot or cold), electricity, chemicals, and/or radiation
  - The mucosa of the upper GI system (mouth, esophagus, stomach) can be burned with ingestion of chemicals
  - The respiratory system can be damaged if hot gases, smoke, or toxic chemical fumes are inhaled
  - Fat, muscle, bone, and peripheral nerves can be affected in electrical injuries or prolonged thermal or chemical exposure
  - Skin damage can result in altered ability to sense pain, touch, and temperature

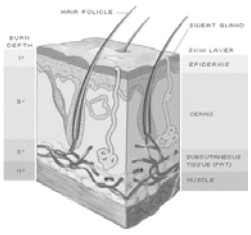
Burn Classification - Cause

- The primary cause of burn injury is exposure to temperature extremes
  - Heat injuries are more frequent than cold injuries
  - Cold injuries almost exclusively result from frostbite
- Electrical and chemical injuries constitute 5-10% of burn injuries and are largely the result of occupational accidents

Burn Classification - Depth

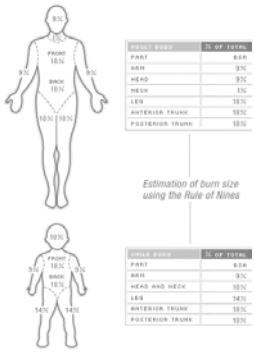
- Old terminology
  - 1st degree: only the epidermis
  - 2nd degree: epidermis and dermis, excluding all the dermal appendages
  - 3rd degree: epidermis and all of the dermis
  - 4th degree: epidermis, dermis, and subcutaneous tissues (fat, muscle, bone, and peripheral nerves)
- New terminology
  - Superficial: only the epidermis
  - Superficial partial thickness: epidermis and dermis, excluding all the dermal appendages
  - Deep partial thickness: epidermis and most of the dermis
  - Full thickness: epidermis and all of the dermis

Burn Classification - Depth



Burn Classification - Extent

- Extent
  - Burn injuries are also classified in terms of the percentage of the skin surface injured (TBSA)
  - A relatively simple, but not totally accurate, method for determining the extent of injury is the rule of 9s
  - The ABA classification system describes burn injuries as mild, moderate, or major



ADULT BODY	% OF TOTAL
PART	BSA
ARM	9%
HEAD	9%
NECK	1%
LEG	18%
ANTERIOR TRUNK	18%
POSTERIOR TRUNK	18%

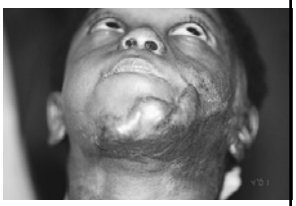
Estimation of burn size using the Rule of Nines

CHILD BODY	% OF TOTAL
PART	BSA
ARM	9%
HEAD AND NECK	18%
LEG	14%
ANTERIOR TRUNK	18%
POSTERIOR TRUNK	18%

Pathophysiology of Burn Injury

- Pathophysiology refers to the complex chain of mechanisms that occur in the skin (local effects) and in other organ systems (systemic effects) when a burn injury occurs, as well as what happens as the skin regenerates and heals
  - Local Effects
  - Systematic Effects
  - Skin Regeneration and Scarring
  - Electrical Burns

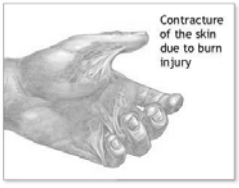
Burn Scars - Keloid



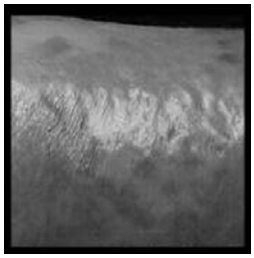
Burn Scars - Hypertrophic

Burn Scars - Contracture

Burn Scars - Contracture



Burn Scars - Nonraised



Skin Graft Scars

Functional Limitations

- Acute Limitations
  - Patients may experience delirium that precludes their participation in treatment
  - Edema, pain, bulky dressings, and immobilizing splints impair the person's ability to perform usual daily activities
  - Sleep is frequently disrupted
  - Anxiety and fear can be present
- Postdischarge Limitations
  - The most frequent functional limitations involve scarring and joint contracture
  - Other functional sequelae may result in permanent impairment

Rehabilitation Burn Treatment

- Postdischarge
  - Wound care continues
  - If there is a risk of hypertrophic scarring, or it has already started, continuous pressure applied to the area will prevent its progress
  - Garments need to be worn 20 hours per day for up to 1 year - uncomfortable, hot, and unattractive
  - Contracture control continues through PT and/or OT
  - Reconditioning and strengthening exercises begin
  - Counseling is a possibility to work on emotional difficulties that have resulted from the burn injury
  - Reconstructive surgery may be needed if the functional or cosmetic limitations are not responsive to rehabilitation treatment

Vocational Limitations

- It should be emphasized that many of the functional limitations that have already been discussed are not overtly apparent
- If they are not recognized as valid, the RC could very easily conclude that a person is malingering, whining, or unmotivated
- Seriousness, etiology, and site of the burn injury can significantly affect return-to-work and how long it takes
- All of the studies cited in the text suggest that size, depth, and location are factors that influence time to return to work

Additional Resources and Information from the Web

- Organizations
  - American Burn Association (www.ameriburn.org)
  - Burn Survivors Online (www.burnsurvivorsonline.com)
  - Phoenix Society for Burn Survivors, Inc. (www.phoenix-society.org)
  - JAN's Webpage (www.jan.wvu.edu/media/burninj.html)

Additional Resources and Information from the Web

- Burn Injury Rehabilitation Model Systems funded by NIDRR
  - UW/BIRMS University of Washington / Harborview Medical Center (http://depts.washington.edu/uwnidrr/index.html)
  - UT/SWMC University of Texas / Southwest Medical Center (www.swmed.edu/burntrauma)
  - SBI-G Shriners Hospital for Children/ Burn Institute (www.shrinershq.org/shc/boston)
  - JH/BM Johns Hopkins University/Bayview Medical Center (http://jhbmc.bayview.jhu.edu/BRBC/birms)

Additional Resources and Information from the Web

- Related Articles from Burn Survivors Online
  - The Impact of Reconstructive Surgery (www.burnsurvivorsonline.com/articles/Road_To_Restoration.asp)
  - Child burns survivors report good quality of life (www.burnsurvivorsonline.com/articles/Quality_Of_Life.asp)
  - Degrees of burns (www.burnsurvivorsonline.com/injuries/degree.asp)