PRACTICE GUIDELINES FOR BURN CARE

Committee on Clinical Practice Guidelines (CPGs)
International Society for Burn Injuries (ISBI)
The mission of the ISBI Practice Guidelines Committee is to create a set of CPGs **to improve the care** of burn patients and **reduce costs** by outlining **recommendations** for management of specific medical problems encountered in burn care, recommendations which are supported by objective and comprehensive **reviews of the literature** as well as by **expert opinion**.

Our vision is that these CPGs for burn care in low resource settings will recognize the current best and **most cost-effective methods of treatment**.
OBJECTIVES OF CPGs

- Standardization of care
- Quality improvement
- Reduction of risk
- Optimization of cost-benefit ratios

CPGs focus on important clinical options and critical decision points.

These lead to courses of action which influence outcomes.
HISTORY OF CPGs FOR BURN CARE

Publication in 2001 Journal of Burn Care
Subsequent topics updated by American Burn Association
New project initiated by ISBI President Rajeev Ahuja in 2014

ISBI CPGs intended for health care professionals providing acute care and rehabilitation for burn patients.

Although ISBI CPGs are pertinent to resource-limited settings, they are applicable in high-income countries as well.
METHODS

Steering Subcommittee
- reviews of literature
- research sources of expert opinion
- editorial functions
- ensure uniformity of quality

Advisory Subcommittee
responsible for content review for value, feasibility, and preferences
Rajeev Ahuja (India)
Nicole Gibran (USA)
David Greenhalgh (USA)
James Jeng (USA)
David Mackie (Netherlands)
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19/06/2017
PROCESS FOR EVIDENCE RETRIEVAL

MEDLINE (PUBMED) search
English language
Human studies only
Published in last 10 years

Article types included Clinical Trial, Comparative Study, Controlled Clinical Trial, Multicenter Study, Observational Study, Randomized Controlled Trial, Review, Systematic Reviews, and Meta-Analysis
STRUCTURE OF RECOMMENDATIONS

Recommendation

Supporting evidence
Balance of benefits and harms
Values and preferences
Costs
  • Direct medical costs
  • Analysis of resource utilization
  • Feasibility
Antibiotic stewardship
Burn shock: resuscitation and monitoring
Escharotomy and fasciotomy
Ethical issues, including end-of-life care
Initial assessment and stabilization
Infection prevention
Nutrition
Organization and delivery of burn care

Positioning
Pruritus management
Quality assessment and improvement programs
Smoke inhalation injury: diagnosis and treatment
Splinting
Scar management, non-surgical
Surgical management of wounds
Wound care, including grafts and donors

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Thermally injured patients should be evaluated using a systematic approach that seeks to **identify the greatest threat(s) to life first**.

Evaluation of burn injury should estimate **total body surface area** (TBSA) utilizing a standardized method and delineate characteristics that require immediate attention from a designated burn center.

Appropriate resuscitation should be **initiated promptly** and tailored based on patient parameters to avoid over- and under-resuscitation.

**Tetanus** immunization status should be evaluated and addressed if indicated.
Adult patients with burns greater than 15% total burn surface area (TBSA), and pediatric patients with burns greater than 10% TBSA, should be formally resuscitated with salt-containing fluids; requirements should be based on body weight and percentage burn.

When IV fluid administration is practical, between 2 to 4 mL/kg body weight/burn surface area (% total body surface area, TBSA) should be administered within the first 24 hours after injury, with alertness to over-resuscitation.

If only oral fluid administration is practical, drinking liquids (typical of the local diet) equivalent to 15% of the body weight each 24 hours is recommended for two days. Five-gram tablets of table salt (or the equivalent) must be ingested for each liter of oral fluids.

When practical, monitoring the adequacy of resuscitation can be conducted by titrating salt-containing fluids. For adults, titrate provided fluids to average patients’ urine outputs of 0.3 to 0.5 mL/kg/hour; in children titrate to 1 mL/kg/hour. For the first three hours of resuscitation, values may still approach anuria, irrespective of the rate of fluid administration.
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Escharotomy should be performed when circumferential or near circumferential eschar of the extremities compromises the underlying tissues or the circulation distal to it. Escharotomy should be performed when eschar on the trunk or neck compromises aeration and breathing.

**Abdominal escharotomy** should be performed when circumferential or near-circumferential eschar is associated with evidence of intra-abdominal hypertension (IAH) or signs of abdominal compartment syndrome (ACS).

Escharotomy should be performed in the longitudinal axes of the affected part near the neurovascular bundles. The extent of the incision in the eschar should range from normal skin to normal skin. If this is not possible, the range should extend from joint above to joint below. The depth of the incision is limited by reaching healthy tissue at the floor.

Apart from high-voltage electrical injuries, **fasciotomy** is extremely rarely indicated as a primary procedure in burns. Fasciotomy is more commonly performed once the diagnosis of compartment syndrome has been confirmed, particularly in cases of very deep burns, whatever their etiologies.
PREVENTION OF INFECTIONS AND ANTIBIOTIC STEWARDSHIP

A clean hospital environment should be maintained.

Hand hygiene guidelines should be taught, implemented and monitored.

Avoid the use of prophylactic systemic antibiotics for acute burns.

Develop, implement and monitor a local antibiotic stewardship program.
An appropriately trained, prepared and equipped burn team is essential for any center treating serious burn injuries with excisional surgery.

An appropriate surgical plan should be made for each major burn patient. The plan is determined by: the extent, site and depth of the burn injury; the general physical state of the patient; and the resources of the team treating the patient. Early excision and wound closure is the standard of care where resources permit, but a conservative approach to wound debridement is indicated where logistics and resources are outweighed by patient numbers or available skill sets.

Early surgery for small to moderate-sized deep burns is cost-effective, speeds recovery and might improve outcome.

In high-voltage electrical injuries, urgent surgery may be life-saving, and is necessary to give the highest chance for limb salvage.

Tangential excision is the standard method of burn wound excision. Fascial excision may be indicated in very deep burns and high voltage electrical injuries. In a resource-limited setting, conservative wound management, sequential removal of separated slough and split skin grafting may be the most realistic approach, provided wound care is sufficient to prevent infection.

Burn wound excision and grafting can be undertaken without undue blood loss.

After excision or debridement of the burn wound it is essential that the wound is covered with autograft skin or an appropriate skin substitute.
Initial assessment of the burn patient should include evaluation of the airway and breathing.

Diagnosis of inhalation injury is suspected by a history of exposure within a closed space to products of incomplete combustion, in the physical examination by diminished consciousness, and by the presence of soot in the oral cavity and by facial burns. Normal oxygenation or chest radiographs do not exclude the diagnosis. However, signs such as hoarseness, carbonaceous sputum, wheeze and dyspnoea are strongly suggestive of inhalation injury.

Treatment for suspected or confirmed carbon monoxide poisoning is administration of high-flow supplemental oxygen for at least 6 hours.

Treatment of upper airway burns secondary to smoke inhalation includes observation and monitoring. Patients with upper airway burns should be nursed in the semi-upright position with moderate elevation of the head and trunk. Endotracheal intubation or tracheostomy is indicated if airway patency is threatened.

In those patients requiring ventilatory support, transpulmonary inflating pressures and tidal volumes should be adjusted to as low as possible. Prophylactic antibiotics and corticosteroids are not indicated for the treatment of smoke inhalation injury.
distributed as paper copy in the journal *Burns*

Posting of document on [ISBI web site with open access](#)

Perceived as living document with planned reconsideration of new evidence and commitment to periodic revisions

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TOPICS GUIDELINES PART II

1. Blood Transfusion
2. Metabolic modulation
3. Chemical burns
4. Electrical burns
5. Respiratory care
6. Pain control
7. Subtopics for infection
   a. Bloodstream infection, sepsis
   b. Pneumonia
   c. Urinary tract infection
   d. Wound: Claudia Malic
8. Deep venous thrombosis:
9. Psychiatric disorder
10. Skin sloughing disorders
11. Topical agents in burn care
12. Outpatient burn care
13. First Aid:
14. Monitoring
15. Management of indwelling catheters:
16. Mobility, strength, physical function
TOPICS TO BE DEVELOPED IN FUTURE

Blood transfusions
Chemical burns
Edema prevention during resuscitation, including use of albumin
Electrical injuries
Erythema multiforme major diseases (Stevens-Johnson syndrome, Toxic Epidermal Necrolysis Syndrome)
First aid, emergency medical services, and pre-hospital care
Metabolic modulation, including beta-blockers and oxandralone

Necrotizing skin and soft tissue infections
Nutritional immunomodulation, including glutamine and omega-3 fatty acids
Out-patient, ambulatory and domiciliary care
Pain management
Psychosocial assessment and treatment, peer support, and social reintegration
Venous thrombo-embolic prophylaxis
VALIDITY—BASED ON ACCURACY AND PRECISION

ACCURACY
The degree to which the recommendation correctly describes the best assessment or intervention.

PRECISION
The extent to which the recommendation describes the assessment or intervention exactly.