

Electrical Injuries

Aliases

Electrical burns

Electrocution

Patient Care Goals

1. Prevent additional harm to patient
2. Identify life threatening issues such as dysrhythmias and cardiac arrest
3. Identify characteristics of electrical source to communicate to receiving facility (voltage, amperage, alternating current [AC] versus direct current [DC])
4. Understand that deep tissue injury can be far greater than external appearance
5. Have high index of suspicion for associated trauma due to patient being thrown
6. Determine most appropriate disposition for the patient as many will require burn center care and some may require trauma center care

Patient Presentation

Inclusion Criteria

Exposure to electrical current (AC or DC).

Exclusion Criteria

None noted

Patient Management

Assessment

1. Verify scene is secure. The electrical source must be disabled prior to assessment
2. Perform primary survey with specific focus on dysrhythmias or cardiac arrest—apply a continuous cardiac monitor and obtain 12-lead EKG as soon as feasible
3. Identify all sites of burn injury. If the patient became part of the circuit, there will be an additional site near the contact with ground. Electrical burns are often full thickness and involve significant deep tissue damage, and there may be multiple burn sites
4. Assess for potential associated trauma and note if the patient was thrown from contact point. If patient has altered mental status, assume trauma was involved and treat accordingly
5. Assess for potential compartment syndrome from significant extremity tissue damage
6. Determine characteristics of source if possible (AC or DC, voltage, amperage, time of injury)

Treatment and Interventions

1. Identify dysrhythmias or cardiac arrest — even patients who appear dead (particularly dilated pupils) may have good outcomes with prompt intervention [see appropriate guideline for additional information and patient assessment/treatment]
2. Apply spinal motion restriction if associated trauma suspected [See [Trauma Section](#)]
3. Apply dry dressing to any wounds
4. Remove constricting clothing and jewelry since additional swelling is possible
5. Administer IV fluid resuscitation. Remember that external appearance will underestimate the degree of tissue injury but that electrical injuries do not generally require as much fluid as thermal burn injuries