



ELECTROCUTION

Electrocution is an uncommon but potentially very serious cause of injury and requires a high index of suspicion. It should always be considered in patients with unexplained burns (internal and external) or cardiac arrhythmias.

The procedure on scene is fairly standard as for any emergency.

- 1 Ensure scene safety. Do not approach unless confirmation that the source of electricity has been turned off by a suitably trained professional. If scene safety is ever at risk, withdraw until safety is returned.
- 2 Follow ABC as per any trauma victim and apply oxygen.
- 3 Assess and monitor the cardiac rhythm.
- 4 Suspect other injuries/fractures and treat accordingly.
- 5 Consider the need for analgesia and IV access.
- 6 Do not delay transfer looking for entrance/exit burns.

There are several different ways in which casualties may come into contact with electricity in the field. This can affect the pattern of expected injuries depending on the source of electricity and type (AC or DC).

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| 1 Domestic | Usually AC, low voltage around 250V |
| 2 Industrial | Often DC, generally high voltage |
| 3 Railway | Can be AC or DC, middle voltage |
| 4 Lightning | DC, very high voltage. Due to the shortness of contact, often does not penetrate skin so “flashover” occurs, burning clothes. A massive DC countershock will cause asystole. Those surviving the initial cardiac risk have a good prognosis. |

Alternating current is generally seen as more dangerous as it increases the risk of ventricular fibrillation.

Direct current has a much lower risk of VF but can cause asystole, especially at very high voltages. It tends to cause a small entry burn and large exit burn.

There are several factors involved in determining the likely severity of injury:

- Quantity of current, measured in Amps and determined by resistance and voltage ($I=V/R$)
- Path of current through the body
- Length of contact

The Industrial Guidelines for safe distances from live cables is:

- 750-150 000V keep at least 3m away
- 151 000-250 000V keep at least 4.5m away
- >250 000V keep at least 6m away