First aid for burns

Burn injuries are one of the most common household injuries that present to emergency rooms, ranging from very mild to severe.

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BURN INJURIES MAY present challenges to the health care provider.

There are many aspects to consider, the severity of the injury and pain as well as possible long term physical and psychosocial problems. It is well known that a patient who is assessed and treated quickly responds and heals more quickly than those with delayed management. First aid can greatly reduce the risks and severity of the injury.

The principles of first aid are to[1]
- Stop the burning process
- Cool the burn wound
- Cover the wound.

Stopping the burning process may reduce the extent of tissue damage dramatically. With an open flame burn, the flames need to be extinguished either by the traditional stop drop and roll or with help from bystanders by safe assisting.

In a scald burn, the water needs to be removed by either removing clothing that is soaked with hot fluids or allowing water to roll off as quickly as possible.

With contact burns, the offending objects need to be removed as quickly as possible. All hot and charred clothing should be removed except if stuck to the underlying skin. All of this is to decrease the contact time which can reduce the depth and severity of the burn.

Cooling the surface of the burn wound reduces the production of inflammatory mediators and promotes maintenance of viability in the zone of stasis. It therefore, helps to prevent the progression of damage that occurs in an untreated burn in the first 24 hours after the injury. The burned surface needs to be cooled with cool running water. Tap water is ideal as it ranges from 8-25°C.[2] The cold water needs to flow over the burn if possible. Spraying or sponging, wet towels and cold dressings are not as effective as the running water. Wet towels and dressing also increase the temperature with time rendering it less effective and may even worsen the problem.

The duration of application should be for approximately twenty minutes. Practically this may be difficult to perform initially at first assessment and thus can be done in the first three hours since the time of the burn. After three hours have passed the cooling of the burn is no longer effective and will not improve outcomes.

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Special care needs to be taken with the elderly and young when it comes to cooling of the wound as they are more susceptible to hypothermia. It should only be done if the wound is small enough to prevent large portions of the body exposed thus decreasing circulation and actually worsening the burn. If it is at all possible the ambient temperature should be kept at 30°C to prevent hypothermia.

Tepid tap water is best as it allows for normal vascular flow at the burn site. Ice or ice water should not be used at all as it will cause vasoconstriction and could experimentally deepen the injury.

The cooling of the burn also has some analgesic effect and can be beneficial in the initial stages of assessment before analgesic administration, however, should not be used as sole analgesia.

In addition to removing the clothing, all jewellery should also be removed. If clothing is stuck to the surface of the skin, it should rather be left in place and can be removed once a formal assessment is made by a burn centre or treating doctor.[3]

Once first aid has been completed the burn wound can be covered with plastic wrap or a clean dry non-stick dressing. The wound should then be washed, and this can be done with saline, soap and water, or chlorhexidine 0.1% solution. Other antiseptics should not be applied.

In preparation for transport, the patient may need a dressing on the burn wound. Depending upon the time between injury and transport and the expected time taken during the transporting process, it may be necessary to apply something more than simply wrapping the area in a clean cloth.

Plastic cling film can be used and is particularly useful in children because it limits evaporation and hence heat loss. Chlorhexidine impregnated Vaseline gauze (eg Bactigras) held on with a light bandage is suitable for patients who are going to take some hours during the transport process. The use of topical agents on the burn wound is reserved for those patients in whom there is a significant delay or prolonged transport time and should be done in consultation with the receiving burn centre.

No other substances (eggs, toothpaste, porridge, cotton wool etc,) should be applied. These could contaminate wound and cause infection at a later stage or may actually worsen the extent of the burn.

Elevation of an injured limb is useful during initial treatment and transport, as it tends to limit swelling. There is also a theoretical possibility that tissue nutrition is impaired by oedema increasing the diffusion distance between the capillaries and the cells. Burns of the perineum require early urinary catheterisation in order to prevent contamination. Delay in catheterisation may cause extreme difficulty in the insertion of the catheter once the swelling has become established.

Burns of the head and neck will require elevation of the head to limit upper airway swelling. Children with extensive burns or with burns of the head and neck benefit from the head-up position because they have a greater risk of cerebral oedema with fluid resuscitation.

SUMMARY

In summary:

1. Stop the burn
2. Cool the burn
- Tepid tap water for 20 minutes within three hours of burn
- Prevent hypothermia.

3. Close the burn
- Cling wrap works well
- Other dressings should be applied only when indicated by a burns centre or the treating doctor.

Following these easy first aid steps will be beneficial for the patient with burn injury. MC

If you have any questions regarding burns or about burns management, please direct an email to saburnsociety@gmail.com

REFERENCES

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