Approach to Thermal Burns in the Workplace

There are more than one million burn injuries in the United States every year. Most of them are minor, but it is important to recognize which burns should be evaluated and treated by a health care provider.

Medical evaluation is needed in these situations:

- The burn involves the face, hands or fingers, genitals, or feet
- The burn is on or near a joint (knee, shoulder, hip)
- The burn encircles a body part (arm, leg, foot, chest, finger)
- The burn is large (more than 3 inches in diameter) or deep (involves more than the top layer of skin). If in doubt, seek the advice of a health care provider.
- There are signs of infection (redness, pain, pus-like discharge, temperature greater than 100.4° F).

Current classification method for types of burns

Previously, burns were classified as first-, second-, third-, or fourth-degree, based on the thickness of the skin burned. This system has been replaced with one that better describes which burns require surgical treatment. Accurate classification is not always possible initially, and the depth of the burn may change over time. If you are unsure how deep a burn is, contact a health care provider.

Superficial skin burns (formerly first-degree burns). These burns involve only the top layer of skin. They are painful, dry, and red, and turn white when pressed. Non-blistering sunburns are a good example of a superficial skin burn.

Superficial partial-thickness skin burns (formerly second-degree burns). These burns involve the top two layers of skin. They are red and seep fluid, usually form blisters, and turn white when pressed. They are painful with air movement or air temperature changes. Sunburns that blister after several hours are good examples of superficial partial-thickness burns.

Deep partial-thickness skin burns (formerly third-degree burns). These burns extend deeper into the skin, are painful with deep pressure, almost always form blisters, and do not turn white with pressure. Burns that blister immediately are deep partial-thickness burns. A blister that persists for several weeks is also considered a deep partial-thickness burn.

Full-thickness burns (formerly fourth-degree burns). These burns extend through all layers of the skin, completely destroying it. The burned area usually does not hurt because the nerves have been destroyed, as well. The area is a waxy white to leathery gray or charred black color. The skin is dry and does not turn white when touched. Full-thickness burns cannot heal without surgical treatment. Scarring is usually severe.

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Care of minor burns (superficial or superficial partial thickness)

Care of superficial or superficial partial thickness burns, that is, relatively minor burns, should involve cleaning the area, immediately cooling the area, preventing infection, and managing pain.

Clean the area. Remove any clothing from the burned area. If any clothing is stuck to the skin, do not try to remove it. Instead, seek emergency medical care. Wash the burned skin gently with cool tap water and plain soap. It is not necessary to disinfect the skin with alcohol, iodine, or other cleansers.

Cool the area. After cleaning the skin, apply a cold compress to the skin or soak the area in cool water (not ice) briefly to reduce pain and the extent of the burn. Avoid placing ice directly on the skin because this can damage the skin further.

Prevent infection. To prevent infection in partial-thickness and more severe burns, apply aloe vera or an antibiotic cream, such as bacitracin. Do not apply ointments or other substances (e.g., mustard, egg whites, mayonnaise, lavender oil, emu oil, toothpaste) to skin burns. Keep burns clean by washing the burned area daily with soap (does not need to be antibacterial) and water.

Minor burns may be covered with a bandage or dressing; burns that form blisters should be covered with a clean bandage or dressing. A bandage that does not stick to the skin (labeled as "non-stick") is preferred for the first layer.

Change the dressing once or twice per day, as needed.

Do not try to break open skin blisters with a needle or fingernail because this can increase the risk of skin infection. The blister will open and drain on its own.

Tetanus prevention. If a burn is superficial partial-thickness or deeper, a tetanus booster vaccine is needed if it has been longer than five years since the last booster.

Treat pain. Elevating burns on the hand or foot above the level of the heart can help to prevent swelling and pain.

Non-prescription pain medication may be taken (such as acetaminophen or ibuprofen) if needed for pain. If the pain is not controlled with these medications, contact a health care provider. People with more severe or larger burns may require a prescription pain medication. Topical anesthetic (numbing) agents should not be used regularly on burn wounds, as irritation may occur, and the effects will wear off sooner with prolonged use.

Avoid scratching the skin. Many people are bothered by itching as the burned skin begins to heal. Try to avoid scratching the skin and use a moisturizing lotion if needed. A non-prescription antihistamine such as diphenhydramine (e.g., Benadryl) may help reduce itching.

Skin burn follow-up

If a burn is not healing, becomes more painful, or appears infected (redness spreading more than three-quarters of an inch from the edge of the burn), seek medical care.

Information largely obtained from UpToDate 2020,Wolters Kluwer. https://www.uptodate.com/home

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