Albi Qeli MD

www.albiqelimd.com

Patient handout for frostbite injuries

Frostbites are injuries that result from exposure to freezing temperatures. Freezing causes formation of crystals inside cells and death of the same cells (tissue necrosis). The damage is similar to that cause by burns or certain chemicals.

Depending on the depth of freezing, frostbites are classified as follows.

1. First degree: Redness and swelling. No blisters.
2. Second degree: Blisters, epidermal sloughing.
3. Third degree: Subcutaneous (fat) layer affected. Grayish blue discoloration.
4. Fourth degree: Extensive tiessue necrosis (death of cells). Color is deep blue, no redness, or swelling.

Initial treatment of an otherwise stable patient consists of rewarming of the involved fingers in warm water (40 degrees Celsius or 104F). The goal of initial treatment is to limit further crystal formation and tissue death.

By the time patients come to the office and receive this handout, initial treatment has been provided at an ER. In addition to rewarming of the limb, tetanus vaccine has usually been administered.

The role of the orthopedic surgeon: When dealing with frostbite, it is important to remember that the damage has already been done. The goal of treatment then is to allow the spontaneous healing processes to occur and to treat infections, if they occur.

1. Wound care:
    1. Dry, clean, airy dressing are best.
    2. Monitor for signs of infection.
    3. Third degree frostbites may result in formation of a leathery black eschar during the second week of healing.

2. Medications:
    1. Aspirin or ibuprofen
    2. Antibiotics are not necessary unless there is a confirmed infection.

3. Debridement of necrotic tissue, if necessary.
    1. Early surgical debridement may risk removal of excessive tissue. It is notoriously difficult to determine the extent of tissue death.
    2. Blisters will often heal on their own and unroofing is not indispensable.
    3. Fingers have a good capacity for spontaneous healing even under a black eschar.
    4. Surgical debridement or amputation only if clear demarcation of necrotic tissue occurs.

4. Initiation of early motion, physical therapy as necessary.