

Winter, 2011

www.MidwestDisasterMedical.com

Volume 2, Issue 6

Upcoming Events

- Dates are confirmed for the next Austere Medic Course. The class will be February 25th and 26th, 2012
- Class size is limited to 10 students, so SIGN UP EARLY!!

Midwest Disaster Medical

+1 (608) 769-5023

Suite 360
317 S. 4th Street
La Crosse, WI 54601

Tip: Print and store hard copies of Disaster Medical Preparedness News in case there is a long term power outage. Having the info available on your computer won't help!!

Hypothermia and Frostbite

With winter nearly upon us, many northern portions of the US are anticipating the yearly cold and snow that is present during these months.

In a normal winter there are numerous cases of cold injuries. In a widespread disaster -should it occur during the winter months- the numbers would be much higher. Inadequate nutrition, lack of housing, inability to provide a warm environment, and an increased need to be out of doors working will all contribute to the danger.

There are essentially two types of cold injury of which the Survival

Medic needs to be aware: Frostbite and Hypothermia.

As the body gets colder, the hypothermic person exhibits what are called "The Umbles:" Stumble, mumble, fumble, grumble.

Hypothermia is the generalized decrease in body temperature. It can be accompanied by Frostbite, which actual freezing of the fluids in the body's cells. The elderly are especially at risk for frostbite for two

reasons: Many elder folks have lost their layer of fat under the skin which acts as insulation and their body's system of heat regulation does not work as well as a younger persons.

Hypothermia is generally said to have occurred when the body's core temperature reaches 95°F or below. This occurs when heat being produced by the body is removed faster than the body can produce it. The body acts to produce more heat by causing involuntary muscle contractions, also known as shivering. As well, the body at-

Q & A with MDM

The Readers Question:

Winter is coming and I have been thinking a lot about frostbite. Assuming I get a really bad case of frostbite. How do I know when I have done irreparable damage? Is amputation my only solution at that point? If so, why?

MDM Answer:

A: As long as infection does not set in, give the body several months to repair what it can. The old adage goes "Frozen in January, amputate in July." Unfortunately, amputation is the only treatment for tissue that has absolutely no blood flow. That dead tissue

will eventually become infected and may lead to a generalized body infection.

-MDM Staff

Hypothermia and Frostbite Continued

tempts to conserve heat by restricting blood flow to the areas away from the core, such as hands /arms and feet/legs. As the body -especially the brain-gets colder, the hypothermic person exhibits what are called "The Umbles:" Stumble, mumble, fumble, grumble. This is a brain with the normal biochemical reactions slowed by the cold.

As hypothermia continues and/or worsens, other normal chemical reactions that take place in the body begin to slow and ultimately stop. Heart rate and respirations may decrease dramatically, and it can be difficult to assess the person accurately.

In a complete collapse scenario, the Austere Medic's treatment will be gentle rewarming. This is accomplished by gently placing the patient in a warm environment and adding warm (not hot) packs to areas of high core blood flow: Kidney area, head, neck, armpits, chest and groin.

Why the emphasis on gentleness? As the core temperature of the body decreases the irritability of the heart increases. Rough handling can make the victim's heart go from a slow, but normal rhythm to a rhythm that does not move any blood. To top it off, many medications that are used to correct heart rhythms (even if we as Austere

Medics had them) don't work when the core temperature is low. So: Gentle handling and slow rewarming.

Hot packs to the arms and legs, vigorous rubbing, and hot baths can cause the abnormal heart rhythms by another means, as well: Recall that in attempting to preserve heat, the body closes off circulation to the arms and legs by constricting the blood vessels.

"In a complete collapse scenario, the Austere Medic's treatment will be gentle rewarming."

The blood in the arms and legs becomes colder than the blood in the core, loses its oxygen, and builds up cellular waste products. If we warm the arms and legs, those blood vessels open up quickly, dumping that cold, acidic, deoxygenated blood right into the struggling core and the irritable heart. This is termed "afterdrop."

Warm fluids can be given by mouth if the person is awake and able to swallow without choking.

Frostbite is the actual freezing of fluids inside the body cells. Recall that as the body reacts to cold, it decreases blood flow to the extremities to maintain core temperature. This allows the limbs to become colder and colder, and -without intervention- eventually freeze. This generally occurs first in the most distal parts of the body such as fingers, toes, nose and ears. The freezing process damages the

cells by forming ice crystals which burst cell membranes. In many ways frostbite is similar to burns, and is classified in a similar manner with first, second, third, and fourth degree frostbite.

Gentle handling is again the goal of the frostbitten body part. No massage, rubbing, etc. to already frozen tissues. The ice crystals that have formed can do more damage if the area is moved. Rapid rewarming by immersion in 104-108 degree water will limit damage more than just allowing the body part temperature to come up by simply being in a warm room. However, remember the afterdrop caused by rewarming, and make sure the core is warmed first, then limit total the area of frostbite being rewarmed at any one time.

Do not rewarm if there is any danger that the limb will be re-frozen. It's better to delay re-warming than to have a re-warmed frostbitten area re-frozen. The rewarming process usually causes severe pain, so painkillers are appreciated by the patient during this process.

The body has a limited capacity to repair this damage, and it often takes several months even in an intact medical system to finally determine what tissue will survive and what will die and require removal.

As in any medical condition, prevention is much, much easier than treatment.