WMS issues important new practice guidelines for frostbite prevention and treatment

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Frostbite can be a minor injury or a life-threatening condition. In the June issue of *Wilderness & Environmental Medicine*, a panel of experts has published evidence-based practice guidelines issued by the Wilderness Medical Society (WMS) for the prevention and treatment of frostbite to guide clinicians and disseminate knowledge about best practices.

"Frostbite can be a devastating injury that afflicts many people who are in the prime of their lives," commented Scott McIntosh, MD, MPH, lead author, member of the WMS Board of Directors, and Assistant Professor, Division of Emergency Medicine, University of Utah, Salt Lake City, UT. "These guidelines will help guide management of those patients and describe the efficacy of tried and true treatments as well as the newer treatments that hold great promise."

Experts serving on the panel were selected based on their clinical and/or research experience and convened at the 2010 Annual Winter Meeting of the Wilderness Medical Society in Park City, UT. "The adage that 'prevention is better than treatment' is especially true for frostbite, which is typically preventable and often not improved by treatment," according to the panel. It suggests that maintaining blood flow to the extremities by insuring adequate core temperature and body hydration, as well as exercise, and simple procedures to minimize exposure and heat loss can reduce the incidence of frostbite.

To simplify classification either in the field or before rewarming and/or imaging, the panel favors a two-tier classification scheme: 1) Superficial: no or minimal anticipated tissue loss, corresponding to 1st- and 2nd-degree injury; 2) Deep: deeper injury and anticipated tissue loss, corresponding to 3rd- and 4th-degree injury

Once frostbite has occurred, the panel outlines treatments in a variety of circumstances. They emphasize that if field-thawing occurs, refreezing must be absolutely avoided. There are two primary scenarios in the field and each requires different treatment. In the first, external conditions are such that the frozen part could re-freeze. This situation poses significant health threats and therefore no thawing should be attempted. In the second, circumstances will allow the frozen part to be thawed and remain thawed until the person can be evacuated for further treatment.

In the first scenario, dressings do not appear to help, while padding and splinting of the extremity may be effective in enabling mobility that might be needed to reach medical care. The panel cautions that movement of the frozen part can result in further damage.

In the second scenario, rapid field warming of frostbitten areas is recommended. Warm water at 37°C to 39°C (98.6-102.2°F) should be used, but since the damaged part will likely be insensitive, care must be taken to maintain this temperature to avoid thermal injury. Antiseptic solutions applied carefully to the area may prevent damage later, and pain medications can be given. Blisters should be left alone unless they are at high tension and may rupture, in which case they can be aspirated and dressed with dry gauze. Hemorrhagic (blood) blisters should not be treated in the field.

The Guidelines continue with recommendations for hospital or advanced field clinic treatment of frostbite, such as hydrotherapy, hyperbaric oxygen therapy, sympathectomy (surgical removal of part of the

sympathetic nervous system), and surgical treatment or amputation.

The panel concludes that "This summary provides evidence-based guidelines for prevention and treatment of frostbite. Many important questions remain and should serve as a focus for future research. Such research includes potential medications to assist in the prevention of frostbite, specific peri-thawing procedures to reduce injury and decrease morbidity, and post-thaw therapies that could improve the long-term outcomes of frostbite injury."

More information: The article is "Wilderness Medical Society Consensus Guidelines for the Prevention and Treatment of Frostbite" by Scott E. McIntosh, MD, MPH; Matthew Hamonko, MD, MPH; Luanne Freer, MD; Colin K. Grissom, MD; Paul S. Auerbach, MD, MS; George W. Rodway, PhD, APRN; Amalia Cochran, MD; Gordon Giesbrecht, PhD; Marion McDevitt, DO; Christopher H. Imray, MD; Eric Johnson, MD; Jennifer Dow, MD; and Peter H. Hackett, MD. It appears in Wilderness & Environmental Medicine, Volume 22, Issue 2 (June 2011) www.wemjournal.org/article/S10 … (11)00077-9/fulltext

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