Medical Emergencies in Remote Environments

The aging population of divers along with medical advances allowing people formerly unable to participate in adventure sports to do so means an increased potential for medical emergencies in remote places. When we head out to hike, dive, fish or explore, we bring our personal medical histories with us. Dive operators are well aware of this; they require completion of medical forms in which divers must list known illnesses, conditions, allergies and medications. Many conduct this practice primarily to ensure they're protected in the event of legal issues, but they also recognize the value of such information in an emergency. In fact, this information is important enough that recreational divers and outdoor enthusiasts should consider sharing it with each other even when adventuring outside the context of a professional dive or travel operation. Perhaps more important, they should be prepared to provide basic assessments and treatments should a medical emergency occur in the backcountry or on the water.

Respiratory Emergencies



Respiratory emergencies warrant quick action; people who are unable to breathe will die within minutes unless an appropriate intervention is forthcoming. Reasons a person may find it difficult or impossible to breathe include anaphylaxis (severe allergic reaction), asthma, foreign-body airway obstruction and lung

injury. Lung injuries generally are not manageable in the field; when a lung injury is suspected, administer oxygen, and seek medical care by the quickest means possible. Suspect lung injury if respiratory distress occurs after diving. Rescuers should refer to their CPR training for proper treatment of foreign-body airway obstructions.

People who are experiencing difficulty breathing may assume the “tripod position” (hands on knees), and gasps or wheezes may be audible. When asthma is the cause of breathing difficulty, a medication such as an albuterol inhaler may be needed. People with asthma should have the necessary medication available; help them take it if they have trouble doing so on their own. An asthma attack may be provoked by exercise, dry air, cold, smoke or other factors.

Anaphylaxis is the result of exposure to an allergen; the substance may have been consumed, inhaled, injected or simply touched. Remove the allergen from the patient if possible, or remove the individual from the offending environment. If a person with a known allergy has difficulty breathing following exposure to an allergen, it is appropriate to administer (or assist the patient in administering) epinephrine if it is available and you know how to do so. Other signs it is appropriate to administer epinephrine include difficulty swallowing or speaking and large areas of swelling. In addition to this medication, a person who suffers respiratory distress due to anaphylaxis should also take an antihistamine such as Benadryl (diphenhydramine hydrochloride).

For any individual not breathing adequately on his own, oxygen is recommended. People who are not

breathing at all should be given rescue breaths, either by mouth, bag valve mask or manually triggered ventilator followed by immediate evacuation for emergency medical care. Prompt evacuation for a medical exam is recommended after any respiratory distress, even if it resolves.

Abdominal Emergencies



Gastrointestinal problems are very common among travelers. Even in locales where the water is safe to drink, changes in activity, schedule and diet can be sufficient to cause discomfort or diarrhea. The important thing is to be able to determine whether abdominal distress warrants a medical evaluation or whether it's just gas or some other transient phenomenon. Any abdominal pain that's accompanied by a fever of more than 39°C or lasts for more than 12 hours should prompt evaluation, as should pain localized to a very specific area or accompanied by signs such as dizziness, rapid breathing, lightheadedness, sweating or anxiety — signs that might indicate shock. Blood in the urine, stool or vomit; unusual hardness or softness of the abdomen or resistance to touch are also grounds for seeking medical care. A woman for whom pregnancy cannot be ruled out should also be evaluated promptly. Finally, anyone who is nauseated and vomiting or has diarrhea for more than 24 hours should consult a physician; such a person would likely become too dehydrated to manage effectively in the field.

In the absence of any of these red flags, it is appropriate to monitor a patient and encourage him to eat a bland diet consisting of foods such as bananas, rice, applesauce and toast until symptoms resolve. An anti-diarrheal medication such as Imodium (Loperamide) may be helpful for short-term management of diarrhea, but it does not address the cause and should not be used for extended periods. For people who are constipated, caffeine and/or alternating hot and cold liquids (ice water in one hand and a cup of coffee in the other, for example) may help.

Neurological Emergencies



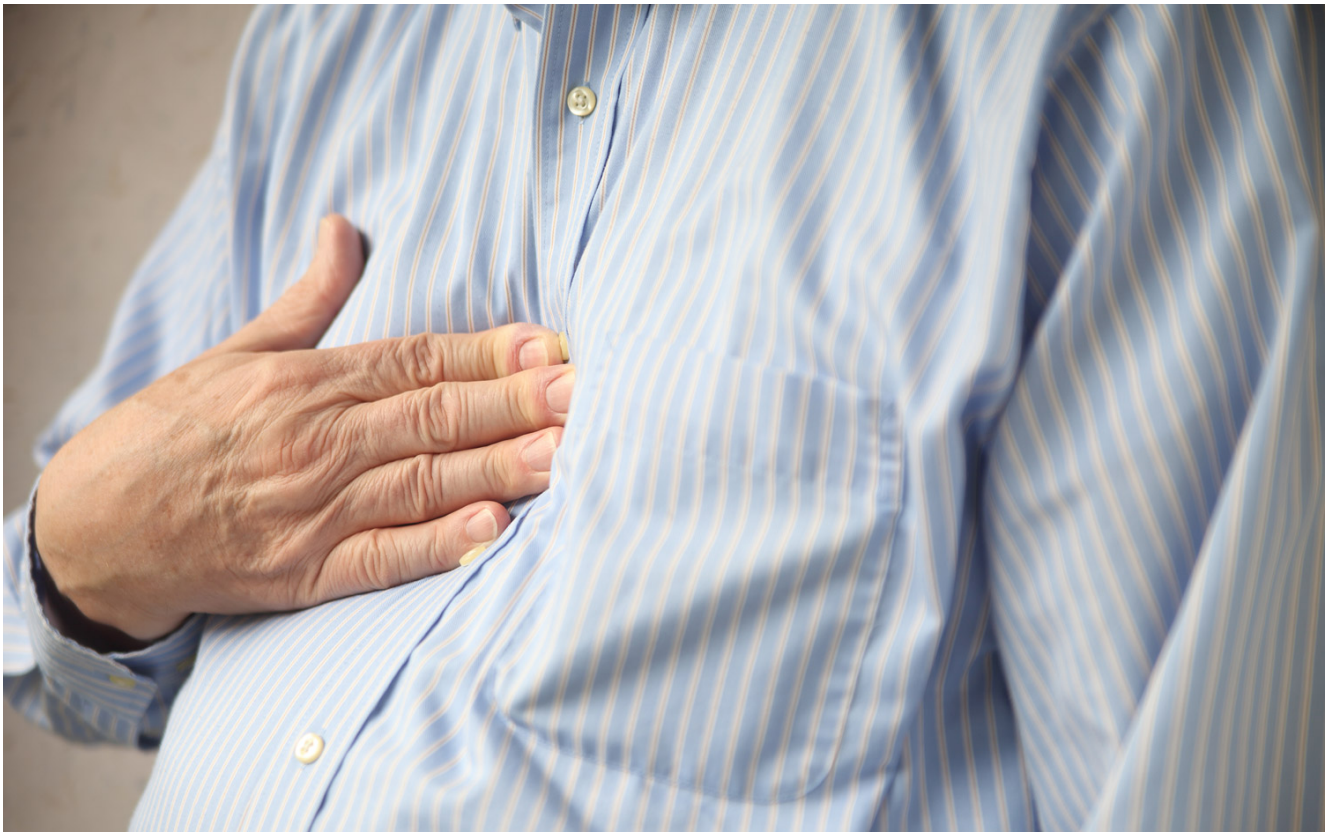
Many factors can cause neurological impairment: temperature extremes, decompression illness, head injuries, intoxication and others. But when confusion, disorientation, seizures or personality changes occur in the absence of any such causative factors, an underlying medical issue might be to blame.

A cerebrovascular accident, or stroke, is an interruption in the flow of oxygenated blood to a part of the brain. Facial droop, weakness or paralysis on one side of the body or impaired speech, memory or cognition may be apparent. There is little that can be done for a stroke patient in a remote setting, but providing oxygen, evacuating quickly and lying the patient on the affected side (to protect the airway) are recommended. Continue to interact with the individual as you did before the stroke, even if he can't participate in the conversation or seems unable to understand you.

A seizure is the result of disorganized electrical activity in the brain. Seizures can manifest as a period of unresponsiveness or dramatic, uncontrolled physical activity. The best thing a rescuer can do for a person experiencing a seizure is to pad the environment. Do not restrain the individual or put anything in his mouth, but protect him (especially his head) from any hard or sharp objects. After the seizure, protect the patient's dignity by providing some privacy and asking someone to provide crowd control.

An unconscious person will not be able to give you much helpful information, but clues may be found in his or her surroundings or pockets. Odors as well as medical-alert tags, bracelets or necklaces may also help rescuers figure out why someone is unconscious. Because a serious injury (such as a head or spine injury) may not be possible to rule out, do not move an unconscious person unless their airway is compromised or you are trained to do so properly. Arrange an evacuation for anyone who is unconscious or who shows symptoms that may indicate a stroke or a seizure.

Cardiovascular Emergencies



Chest pain in an environment where emergency medical services are not readily available is cause for decisive action. Particularly when combined with other symptoms such as sweating, cool or pale skin, shortness of breath, dizziness or anxiety, chest pain may be due to angina or a myocardial infraction (heart attack). Angina is pain due to inadequate blood flow to the heart that can usually be relieved with rest or medication; a myocardial infraction is heart-tissue death resulting from a significant interruption in blood supply. Overexertion and stress commonly precede such chest pain, which may be described as crushing or squeezing. Sometimes the chest pain is accompanied by pain that radiates into the jaw, arm or abdomen, or the pain may even be referred — felt in other parts of the body such as the back. If in doubt, any unexplained upper-body pain should be considered cardiac in nature.

The first step in addressing chest pain is to encourage the patient to rest. Help him relax in the shade, take deep breaths and loosen his collar or other constricting clothing. He should assume whatever position is most comfortable to him. Administration of a baby aspirin (81 mg) is a good idea as long as the patient is not allergic to it. Oxygen is called for, as is any medication the patient takes for a known heart condition (nitroglycerin, for example); the medication should be taken according to a doctor’s instructions. Even if the chest pain passes, prompt medical attention is recommended.

Part of the challenge in dealing with medical problems is the sense there is not much that rescuers with limited resources can do. But do not underestimate the importance of good judgment, a conservative approach, emotional support, a well-crafted emergency action plan and the ability to arrange and execute a speedy evacuation.