You Are the Rescuer

The next several pages contain scenarios that place you as the first OEC technician responding to the scene of an injury or illness. These scenarios are presented for your consideration and discussion. There are many “right” answers and appropriate solutions. Regardless of where the incident actually occurred—on a ski slope or on a biking trail—the assessment and basic emergency care remain essentially the same.

Carefully read these scenarios, each of which is based on an actual incident. Formulate your emergency care actions based on local area protocols.

To prepare yourself for the portion of the refresher that features *guided discussion* about these scenarios, jot down answers for the questions below as well as any notes that pertain to the discussion points and other thoughts that come to mind as you consider each scenario. Use additional paper as necessary and be sure to bring these answers and notes to the refresher.

Scenario I

It’s a sunny day marked by six inches of fresh snow and temperatures holding around 24°F. While on duty at the patrol’s top shack, you receive the report that a child has struck a tree on a nearby intermediate run. You respond to the scene and from the top of the hill see a group of skiers standing around a small clump of mature trees in the middle of the trail.

As you get closer, you hear a child screaming, several other children crying, and a man speaking anxiously in what sounds like Spanish. At the scene, you see that the man is greatly distressed, and is trying to console three crying but uninjured children who range in age from about 6 to 10 years. They are hovering over an injured child, a girl who looks to be approximately 9 years old. An English-speaking bystander identifies herself as an EMT, and you ask her to position herself at the child’s head to stabilize the cervical spine. She says that while she did not see the incident, she thinks she came upon the scene shortly afterward and found the little girl conscious. When you ask the man and nearby children if they speak English, they shake their heads “no.” The injured child is still shrieking in pain.

Turning your attention to the girl on the ground, you see that she has obvious, severe facial injuries. You note bleeding from the nose, lacerations over the left maxilla, and copious hemorrhaging from the mouth and gums. Several teeth are broken off at the gum line and/or missing, but upon checking inside the girl’s mouth you find no loose teeth.

Her eyes are open and she is screaming inconsolably. Clearly, she’s not a ready source of information.

The girl is next to a 12-inch diameter tree, which bears traces of blood on the uphill side. She is situated such that she is laying vertically down a short, steep fall line, with her head facing uphill. The EMT is bracing herself against the tree to keep from sliding downhill. The girl’s skis, which apparently came off during the collision with the tree, have been placed to the side, out of the way.

During the rapid body survey, aside from the visible facial injuries, you find widespread bilateral facial tenderness with palpable instability of both the upper and lower jaws, and tenderness of the proximal left tibia. Your attempts to determine distal sensation in the left leg are thwarted by the language barrier and the patient’s distress. Checking her vital signs, you find that her pulse is 122 and strong. You are unable to obtain a reliable respiratory rate due to the screaming, but her breathing appears unimpeded.

After 8 minutes on scene, the patient settles into a constant whimper and moan with shallow breathing. Her pulse is 118 and remains strong, respirations are 24 and shallow. She does not voluntarily open her eyes when spoken to. The man and other children—clearly related to the little girl and shaken by the experience—want to help but are proving a distraction; crying loudly and apparently asking many pleading questions in Spanish.

QUESTIONS

1. What injuries/illnesses do you suspect in this scenario?
2. What additional aspects of assessment would be of particular interest?
3. List the information you would communicate to the patrol’s dispatcher or top shack, including (but not limited to) requests for equipment and assistance, and your transportation decisions.
4. What difficult issues of scene management must be addressed to successfully manage this scenario?

NOTES

POINTS TO PONDER

Being the first-on responder at an accident scene in which the injured skier is a child with severe facial soft tissue bleeding and obvious facial deformity can be a real challenge, even to the most experienced caregiver. Add to this the difficulty of looking for broken/missing teeth and trying to communicate with a patient or witnesses who speak a foreign language and you have a true tension-producing situation. The visual image of such a scene is truly disturbing and daunting. Critical Stress Debriefing for all OEC technicians involved with such an injury should be considered at a later time because of the stark presentation of the patient.

In a scenario such as this, the first concern—as always—must be the airway, but with an even greater urgency because of the broken teeth, facial bleeding, and palpable unstable fractures of the upper and lower jaws. Facial injuries often lead to partial or complete obstruction of the upper airway. Bleeding from facial injuries can be very heavy, producing large blood clots in the airway. Therefore, upper airway suction should be carried out as soon as available.

Concomitant to the airway and suctioning concerns is the immediate need to protect the cervical spine. This is because blunt force trauma (as described in this scenario) presents the very real potential for injury to this area.

Your first emergency step is to open and clear the airway. Remember that blood draining into the throat can produce vomiting and airway obstruction itself. Take appropriate precautions to safeguard the cervical spine, and be sure to avoid moving the neck. Once the patient is immobilized in a cervical collar and on a backboard, you can turn the backboard to one side to allow any blood or vomitus to drain out of the mouth rather than pool in the pharynx and obstruct the airway.

Control bleeding by applying direct manual pressure with a dry, sterile dressing. Use roller gauze, wrapped around the circumference of the head, to hold the pressure dressing in place. Do not apply excessive pressure if there is a possibility of an underlying skull fracture.

VITAL VOCABULARY

AVPU Scale A mnemonic for assessing a patient's level of responsiveness by determining whether a patient is Awake and alert, responsive to Verbal stimulus or Pain, or Unresponsive; used principally in the initial assessment.

bilateral A body part that appears on both sides of the midline.

cerebrospinal fluid (CSF) Clear fluid that surrounds and cush- ions the brain and spinal cord. In the case of a skull fracture, CSF may be found draining from the nose, ears, or open skull fracture.

mandible The bone of the lower jaw.

maxilla The bone that forms the upper jaw on either side of the face and contains the upper teeth, the orbit of the eye, the nasal cavity, and the palate.

turbinates Layers of bone within the nasal cavity.

ONLINE OUTLOOK

Interested in a more in-depth review of face and throat injuries, pediatric outdoor emergency care, or head and spine injuries? Go to www.OECzone.com and click on the link to Chapter 21, 26, or 30 in the Online Outlook section.

Scenario II

It's a very cold evening at your mountain, with temperatures hovering near 10°F. You're sent by the patrol dispatch to respond to a report of a semiconscious skier who is lying at the base of one of the steeper runs that are lighted for night skiing.

Upon arriving at the scene, you find an adolescent female in a fetal position in the snow. She is covered in vomit, responsive only to deep pain as you firmly pinch her earlobe, and appears to be struggling to breathe. You notice the very strong smell of alcohol on her breath and in the vomit.

No one at the scene knows who the teen is, and you're unable to check her pockets for identification until more help arrives. One witness states that he initially saw the girl vomiting at the top of the slope, and then she began to ski but fell down almost immediately

and slid the rest of the way down the icy run. He says that she vomited again when she reached the bottom of the slope and then "passed out." At that point, he called for help on a nearby patrol phone.

Assessment reveals multiple abrasions to the patient's cheeks, nose, and forehead. There is vomit packed into her nose and mouth, and covering the front of her parka. As you begin your rapid body survey, the girl moans in pain when you palpate her lower left leg just above the boot top. Your subsequent assessment of the leg reveals no obvious deformity, but with deep palpation of the area you do feel what seems to be crepitus. The girl's initial pulse is 100 and bounding; respirations are 18 and deep.

By now, you're joined by more patrollers, who help you move the girl into a neutral anatomic position. Oxygen at 15 liters/min by non-rebreather mask is applied. When you and your fellow patrollers begin backboarding the patient, she grows combative and starts tearing off the head restraint, oxygen mask, and backboard straps. As you attempt to suction out her nose and mouth, she puts up a fight and grabs the suction catheter.

After a few moments the patient lapses once again into semiconsciousness. You assess her airway and find her respiratory rate to be 6. A fellow patroller in contact with the dispatch center reports that an ALS ambulance is en route, but 20 minutes away.

QUESTIONS

1. Given your initial assessment, what do you think is going on with this patient?
2. List, in the order of priority, the injuries/physical problems you need to consider regarding this patient.
3. What is your on-scene priority in caring for this young woman?
4. At what respiratory rate should you assist ventilation of the patient?
5. How might you transport this patient, given the possibility of multiple injuries (i.e., head and lower extremity) and the concern for maintaining her airway?
6. How might you deal with a combative, head-injured, or substance-overdosed patient? What are your area protocols for dealing with this type of patient?

NOTES

POINTS TO PONDER

Alcohol poisoning is a very different entity from acute alcohol intoxication and carries a much more dangerous and life-threatening prognosis. As we all know, alcohol intoxication occurs frequently in all strata of life. The drug kills more than 200,000 people each year subsequent to traffic fatalities, murders, and suicides, because it impairs the capacity to think and function rationally.

The chance for *primary* loss of life as the result of alcohol intoxication is minimal unless aspiration occurs because the patient becomes unresponsive. Alcohol is a powerful central nervous system (CNS) depressant. It is both a *sedative*, a substance that decreases activity and excitement, and an *hypnotic*, meaning that it induces sleep. It may also cause aggressive and inappropriate behavior and lack of coordination.

Alcohol poisoning, if left untreated, progresses through a chain of metabolic reactions, including acute hypoglycemia, which may culminate in severe CNS depression, respiratory collapse, and eventual cardiac arrest. Depression of the respiratory system can cause emesis (vomiting). The most important thing is to constantly monitor the airway, since with progressive hypoxia the patient can deteriorate within seconds to respiratory arrest.

VITAL VOCABULARY

hypoxia A dangerous condition in which the body tissues and cells do not have enough oxygen.

hematemesis Vomiting blood.

alcohol poisoning Ingestion of enough alcohol to adversely affect the body's normal physiology. Signs and symptoms may include a deteriorating level of consciousness or unconsciousness, respiratory depression or arrest, vomiting or hematemesis, and signs and symptoms of shock.

central nervous system depressant A substance, such as alcohol, that acts as a sedative (i.e., decreases activity and excitement) or has hypnotic effects (i.e., induces sleep). A CNS depressant dulls awareness, slows reflexes, and reduces reaction time. It can cause respiratory depression or arrest.

ONLINE OUTLOOK

Interested in a more in-depth review of the consequences of alcohol/substance abuse? Go to www.OECzone.com and click on the link to Chapter 4 in the Online Outlook section.

Scenario III

On a bright and sunny—but bitingly cold—day, you're called to the terrain park to administer aid to a snowboarder who has fallen off one of the park's features. Upon arrival, you find a man—whom you judge to be in his late 20s—lying on his right side in the snow, just below one of the area's fun boxes.

The man is alert and oriented to time, place, and date, and tells you he had "the wind knocked out of him" when he fell. Although still quite short of breath, he states that he is now breathing a little better, but does complain that his chest hurts. The rider tells you that he got going a bit too fast on his approach to the box, missed his take-off, and slammed chest-first into the corner of the feature.

Upon exposing the patient's chest, your assessment reveals a reddened area over the man's mid-sternum and what appears to be a shallow indentation. You ask him if this indentation is "normal" for him, and he tells you—with some degree of alarm—that it is not. As you palpate his sternum and ribs, you notice slight sternal instability and a feeling of crepitus when applying direct pressure upon the sternum. You also observe a faint bruise forming on the left side of his chest, between the fifth and sixth rib.

A check of the snowboarder's vital signs reveals that his pulse is 100 and strong and his respiratory rate is 20 and shallow. The man is without major distress, and his skin is cool and pink. You pull out your stethoscope and find that his lung sounds are clear bilaterally.

*You and other patrollers who have responded to the scene package and rapidly transport the patient by toboggan to the aid room to await an ambulance. Ten minutes after arriving in the aid roo*m, the man begins to complain that his chest "feels tight" and that it is becoming harder for him to breathe. As you again listen to his lungs, you hear diminishing breath sounds on the left side of the chest at the nipple level. You note that the rider's chest is beginning to swell, just lateral to the left nipple.

You start taking the snowboarder's blood pressure every few minutes, and note that the gap between his systolic and diastolic blood pressure values seems to be narrowing. Moreover, his pulse rate is gradually increasing.

QUESTIONS

1. Given the mechanism of injury and your assessment, what do you think is most likely wrong with this patient?
2. List his probable injuries in priority of importance.
3. What is cardiac tamponade; what causes it; how do you recognize that it might be developing; and what do you, as a BLS provider, do for this patient?
4. How would you transport and care for this patient?

NOTES

POINTS TO PONDER

An unstable sternal fracture in combination with complete rib fractures may produce serious underlying or adjacent organ injury. If the force of injury to the sternum tears or lacerates vessels within the mediastinum, bleeding into the pericardial sac around the heart occurs. This condition is called pericardial tamponade.

If the bleeding is progressive, the pressure on the heart becomes significant, which in turn prevents the heart from filling during the diastolic phase of cardiac contraction. This subsequently diminishes the amount of blood pumped to the body, resulting in decreased blood pressure. Ultimately, as blood accumulates within the pericardial cavity, it compresses the heart until it can no longer function, and the patient goes into cardiac arrest.

If fractured rib ends move substantially with respiration, the underlying lung may be punctured and a pneumothorax is created. In this condition, air enters through a hole in the surface of the lung or in the chest wall as the patient attempts to breathe, causing the lung on that side to collapse. As a result, any blood that passes through the lung is not oxygenated, and hypoxia will develop. Depending on the size of the hole and the rate at which air fills the cavity, the lung may collapse in a few seconds or over several hours.

VITAL VOCABULARY

dyspnea Shortness of breath or difficulty breathing.

hemoptysis The spitting or coughing up of blood.

myocardial contusion A bruise of the heart muscle.

pericardial tamponade Compression of the heart due to a buildup of blood or other fluid in the pericardial sac.

pericardium The fibrous sac that surrounds the heart.

tachypnea Rapid respirations.

ONLINE OUTLOOK

Interested in a more in-depth review of pericardial tamponade or other chest injuries? Go to www.OECzone.com and click on the link to Chapter 22 in the Online Outlook section.

Scenario IV

You and several of your colleagues on the patrol have been asked by resort management to provide emergency care for a mountain bike race that is being held at your area. Race day is sunny, with a temperature of 70°F.

You are stationed at a corner that drops sharply to the left, leading to a section of the course that includes several obstacles, including rocks and roots. The day is going well, as the faster riders of the pro and expert classes have no trouble with the difficult area. However, as the recreational riders begin to filter through the course, you see that several competitors are choosing to get off and push their bikes rather than ride this challenging stretch of terrain. This becomes an issue as many riders of varying skill levels find themselves negotiating the technical section at the same time.

About midway through the race two riders nearly collide right in front of you, which forces one of the cyclists to veer off course at a relatively high rate of speed while the other continues down the trail. As the first racer, who appears to be about 20, attempts to regain control of his bike, he unclips his left foot from the pedal and continues precariously off course. Soon his foot becomes caught between the ground and a slightly elevated branch, causing him to crash.

You run to the racer's aid and, upon questioning him, learn that he heard and felt his left leg "snap." Experiencing severe pain in the mid-tibial region, he cries out and says his foot feels "tingly and cold" and is becoming numb.

You note on assessment that the man has suffered an obvious open midshaft fracture of the tibia and fibula, with the foot angulated laterally and externally rotated. The open wound is oozing blood, and the bone ends are visible. The pulse is 100 and bounding, and the respirations are 22 and deep.

QUESTIONS

1. What injuries do you suspect in light of the mechanism of injury and chief complaint of the racer?
2. Describe, in the order of priority, the emergency care you would provide for this patient.
3. Would your care of this patient differ if the same injuries occurred on a warm day of spring skiing?
4. What extrication/transportation issues can you foresee? How would you handle this situation at your ski area?

NOTES

POINTS TO PONDER

Tibial fractures are common in snowsports and cycling, and because the bone is subcutaneous throughout 80 percent of its length, the possibility of the fracture being open is very real. The chance for major blood loss from an open tibial fracture at any place along the length of the bone, or the potential for this bleeding injury to cause subsequent hypovolemic shock, is almost nonexistent.

The complication of concern thus becomes the chance that virulent bacteria were introduced into the open wound and that serious bone infection could result. Therefore, prompt transport to the aid room is in order so that the wound can be adequately exposed in a *clean environment*, where a sterile compression dressing can be applied.

When a lower leg fracture is "complete," both the tibia and fibula are broken. Depending on the force and the direction of that force, an angulated fracture of the midshaft can occur, which produces a subsequent external rotation of the foot. These deformities must be corrected before a quick splint or other immobilization can be applied. This corrective maneuver

will be discussed at the 2007 refresher.

VITAL VOCABULARY

closed fracture A fracture in which the overlying skin is not broken.

displaced fracture A fracture in which bone fragments are separated from one another and not in anatomic alignment.

open fracture Any break in a bone in which the overlying skin has been violated.

tibia The larger of the two lower leg bones responsible for supporting the major weight-bearing surface of the knee and ankle; the shinbone.

fibula The outer and smaller bone of the two bones of the lower leg.

ONLINE OUTLOOK

Interested in a more in-depth review of musculoskeletal injuries or assessment and care of bone and joint injuries? Go to www.OECzone.com and click on the link to Chapters 24 or 25 in the Online Outlook section.