

A scenic coastal landscape at sunset. A winding elevated highway bridge with concrete pillars spans across the ocean, curving from the foreground towards the horizon. The sky is filled with vibrant colors of orange, pink, and purple, transitioning into a darker blue at the top. The ocean is calm, reflecting the colors of the sky. In the foreground, there are green and brownish plants on a hillside. The background shows distant mountains and a coastline.

Envenomation & Environment

Single Choice Questions (SCQ) and Extended Match Questions (EMQ)

Emergency Medicine Fellowship Program

1. Which is true in anaphylaxis?

- a) iv antihistamines are a first line drug
- b) administration of glucagon has no role
- c) H2 antagonists should be given with H1 antagonists to maximize their effect
- d) The first choice route of administration of adrenaline in severe anaphylaxis is i.m.
- e) Steroids are considered acute first line drugs

2. How long should a patient be kept after receiving adrenaline for anaphylaxis?

- a) overnight
- b) 12 hours
- c) 10 hours
- d) 6-8 hours
- e) 4-6 hours

3. With regard to lightning injury which is not characteristic?

- a) keraunoparalysis
- b) initially mute and unable to move
- c) ventricular fibrillation
- d) feathering burns
- e) eye trauma

4. Which is true?

- a) the mortality of a lightning strike is 60%
- b) the victim should not be touched immediately after the strike as they are charged and dangerous
- c) lightning strike should be managed similarly to high voltage electrical injury
- d) if they survive the initial arrhythmia, hypoxic arrest may follow
- e) fixed dilated pupils is an indicator of death

5.If you are caught outside in a lightening storm, what should you NOT do?

- a) crouch on the ground
- b) stand beside the tallest object eg. Pole, but not touching it
- c) get in a trench
- d) keep your feet together
- e) avoid puddles

6.Which is NOT true with regard to electocution?

- a) death at the time of exposure is usually due to VF
- b) all patients should be cardiac monitored for 8-12 hours
- c) arrythmias occurring late are rare and usually self resolve
- d) AC current produces tetanic contractions
- e) The path of the current is unreliable when predicting injury

7.Which is false?

- a) blood vessels and nerves are the most conductive
- b) classical fractures from a tetanic contraction are in the vertebra and long bones
- c) when a shoulder dislocates it is often posteriorly
- d) in a pregnant lady the fetus experiences less damage than the mother
- e) the degree of deep tissue damage is proportional to the size of the burn

8.With regard to drowning which is false?

- a) 50% of teenage drownings involve alcohol
- b) death within 24 hours of suffocation after immersion is the definition
- c) the majority of drownings are 'wet' , involving aspiration
- d) the amount of fluid aspirated into the lungs is 50% of the lung volume
- e) electrolyte abnormalities in near drownings are rarely significant

9. Which of the modalities below are NOT of any benefit in the management of any drowning?

- a) oxygen
- b) steroids
- c) CPAP/PEEP
- d) CXR
- e) Antibiotics

10. Which is false?

- a) all patients with CXR abnormalities should be admitted
- b) all hypoxemic patients should be admitted
- c) an asymptomatic patient with a normal CXR should be observed for 24 hours
- d) exogenous surfactant therapy has recently been shown to be of no benefit
- e) hyperbaric oxygen therapy is of no benefit

11. Which is false with regard to high altitude medicine?

- a) the typical PaO₂ of a climber on mount everest (8848m) is <30mmHg
- b) at 3500m 30% of climbers will develop Acute Mountain Sickness
- c) AMS is primarily a neurological syndrome
- d) AMS is due to cerebral vasodilation and increased ICP
- e) AMS is predicted by underlying physical fitness

12. Which is false?

- a) AMS is directly related to rate of ascent and altitude reached
- b) AMS and HACE (high altitude cerebral oedema) are on a continuum
- c) HACE is characterized by severe truncal ataxia progressing to coma and death
- d) Rapid descent is not advocated as it can worsen symptoms
- e) Acetazolamide, dexamethasone and hyperbaric oxygen are all recognized as treatment .

13. With regard to High Altitude Pulmonary Edema (HAPE) which is false?

- a) The pulmonary artery pressures are raised
- b) it is cardiogenic in origin
- c) like AMS and HACE, the exact mechanism is unknown
- d) descent is associated with resolution of symptoms
- e) Nifedipine and other vasodilators are the drugs of choice

14. With regard to radiation accidents which is INCORRECT?

- a) management of life threatening injuries takes priority over complete and proper decontamination
- b) exposed victims to ionising radiation from X-ray equipment and accelerators are not a threat to others and do not need decontamination
- c) the most sensitive tissues to the effects of radiation are the haemopoietic system and the GIT
- d) X-rays and gamma rays are more penetrating than alpha and beta rays
- e) The RBC count in the first 48 hours is a marker of severity of exposure

15. Which of these is incorrect in respect to acute radiation exposure?

- a) There is a prodrome of nausea, vomiting, conjunctivitis and erythema
- b) There is a latent period of hours to weeks prior to the illness manifest period
- c) The neurovascular syndrome is seen prior to the haemopoietic syndrome and GIT syndrome
- d) Death is likely from the neurovascular, CVS and severe GIT syndrome
- e) Survival is likely from the haemopoietic and mild GIT syndrome

17. Which statement is incorrect?

- a) Boyle's law states that the volume of a gas is inversely proportional to its pressure at a given temperature
- b) Henry's law states that the amount of gas dissolved in a liquid is proportional to its partial pressure
- c) At sea level the absolute pressure is 1 atmosphere
- d) For every 10 metres you descend the pressure increases by 1 atmosphere
- e) The greatest change in gas volume over a given change in depth occurs the deeper you are

18. Which is incorrect with regard to pulmonary barotrauma?

- a) the treatment of a pneumothorax includes recompression therapy
- b) arterial gas embolisation usually occurs within 20 minutes of surfacing
- c) treatment of arterial gas embolism involves lying the pt flat, applying 100% oxygen and undergoing recompression therapy
- d) pneumomediastinum is treated with simple observation, not recompression therapy
- e) the second most common cause of diving death is arterial gas embolism, after drowning

19. Which statement is incorrect regarding decompression illness?

- a) Decompression Illness involves the liberation of inert gas, usually nitrogen, from solution into gas bubbles
- b) Its onset after surfacing is usually longer than that of arterial gas embolism
- c) Is more likely with multiple dives or if ascent to altitude soon after flying
- d) Classically it presents with joint pains, neurological abnormalities, audiovestibular symptoms or pulmonary symptoms
- e) Back pain soon after surfacing from a dive should be treated expectantly with NSAID's and reviewed in 24 hours

21. Which is incorrect with regard to hypothermia?

- a) If a pt is 26 degrees and in VF DCR should be attempted at 200 joules and if unsuccessful tried again when warmed 1 degree
- b) In severe hypothermia blood gases should be interpreted after adjusting for the patients temperature
- c) Core afterdrop is probably of little significance in the clinical setting
- d) most pts who are 32 degrees or above will endogenously warm themselves
- e) in a non arrested severely hypothermic pt left pleural lavage and cardiopulmonary bypass are not advocated

22. Which is incorrect with regard to hypothermia?

- a) the typical ECG appearance is a slow idioventricular rhythm
- b) the J or Osborn wave is the extra positive deflection after the normal S wave
- c) the J wave is best seen in leads 2, V3-V6
- d) rectal temperature is often used to assess core temperature though it is unlikely to be as accurate as oesophageal and right heart temperature

e) at a temperature less than 32 degrees shivering stops and an alter mental state is present

23. Which statement is incorrect?

- a) heat exhaustion is largely secondary to a decreased intravascular volume
- b) pts with heat exhaustion differ from those with heat stroke in that they have normal neurological function
- c) classically people with heat stroke have a temperature above 41 degrees Celsius
- d) suxamethonium is safe to use in a hyperthermic pt in the first 8 hours
- e) in heat stroke shivering can be minimized by using chlorpromazine and benzodiazepines

1)C 2)D 3)C 4)D 5)B 6)B 7)D 8)D 9)E 10)C 11)E 12)D 13)B 14) E 15)C
17)E 18)A 19)E 21)B 22)A 23)D

1. Which of the following statements is true of hypothermia

- a) Immersion is the commonest cause
- b) J waves are common less than 34°C
- c) Infrared thermometers are the best to use in cold ambient temperatures
- d) Disseminated intravascular coagulation may result
- e) The commonest metabolic abnormality is a metabolic alkalosis

2. To control shivering during the treatment of heat stroke the best regimen is

- a) Diazepam 0.05mg/kg IV titrated to effect
- b) Chlorpromazine 25mg IV over ½-1 hour
- c) Rapid sequence induction with suxamethonium 1.5mg/Kg
- d) Cool H₂O (32°C) spray
- e) All of the above

3. Which creature is responsible for the most deaths in humans

- a) Great white shark
- b) Honey bee
- c) Funnel web spider

- d) Redback spider
- e) Brown snake

6. All of the following statements are true except

- a) Most current from a lightning strike flashes over the victim causing little harm
- b) The arrest rhythm most often seen after lightning strike is VF
- c) High voltage power cables are more likely to cause rhabdomyolysis than lightning strike
- d) Alkalinisation of the urine may be of benefit in the treatment of high voltage electrical injury
- e) Delayed cataracts are recognised after both lightning strike and high voltage power cable injury

9. The surgical registrar has inadvertently performed a KUB on a 12/40 pregnant woman in the course of a work up for abdominal pain. A KUB exposes the foetus to 0.1RAD (0.1REM). What is the threshold radiation dose for foetal mental retardation?

- a) 0.05 RAD
- b) 0.5 RAD
- c) 5 RAD
- d) 50 RAD
- e) 500 RAD

10. Which of the following patients would be most able to cope with conditions and be in least danger at a remote ski resort at 2500m

- a) A 55yr male with unstable angina
- b) A 34 week pregnant female
- c) A 23yr male with sickle cell disease
- d) A 75yr female with stable COAD
- e) A 70yr male with stable CHF

1. D 2. A 3. B 6. B 9. C 10. D

123. Which of the following best describes the mechanism known as the “hunting response” as a protection against frostbite?

- (A) Vasospasm of cold injured tissue to keep core temperature up
- (B) Venodilation of threatened tissue to keep temperature of tissue up
- (C) Arteriodilation of threatened tissue to maintain tissue temperature
- (D) Arteriole to venule shunting of blood in threatened tissue
- (E) Preferential recruitment of antioxidants to the tissue to inhibit damage at the cellular level

124. A 48-year-old firefighter with a history of hypertension presents to the emergency department after fighting a fire in a small home for 1 hour. His complaints include slight headache and lightheadedness. On initial evaluation you notice that he is alert and awake and there is no visible area of burn. His pulse oximeter reads 99% on room air and other vitals are within normal limits. You administer hi-flow oxygen by mask and observe him for 30 minutes. His symptoms resolve and he is released to return to the station. Four hours later, he returns to the emergency department with a severe headache and epigastric discomfort. His ECG reflects frequent premature ventricular contractions but no ischemic changes. What is the best explanation for the firefighter’s current presentation?

- (A) Phosgene poisoning
- (B) Acute myocardial infarction
- (C) Viral syndrome
- (D) Cyanide toxicity, delayed
- (E) Carbon monoxide toxicity

125. Which of the following is responsible for the “hypoxic ventilatory response” during an abrupt high altitude ascent?

- (A) Atrial stretch receptors sense the increase in cardiac output
- (B) Carotid body senses atrial oxygenation and relays information to the central respiratory center
- (C) Atrial natriuretic factor secretion causes excess volume excretion leading to metabolic alkalosis

(D) Metabolic alkalosis causes attenuation of the central respiratory center in the medulla

(E) Acute hypercarbia

126. Which of the following is the LEAST likely to occur following a scorpion bite from the species *Centruroides exilicauda*?

(A) Restlessness

(B) Hyperactivity

(C) Fasciculations

(D) Bradycardia

(E) Excessive salivation

127. Type II blast injuries include

(A) tympanic membrane rupture with subsequent permanent hearing loss

(B) injuries from inhalation of debris, toxins, or thermal burns

(C) damage from "spalling," which produces fragmentation of the medium through which the shock wave traveled

(D) those secondary to being struck by flying debris

(E) bowel rupture as a result of environmental pressure change

128. Below what temperature does the risk for cardiac arrhythmias begin?

(A) 92 °F

(B) 34 °C

(C) 86 °F

(D) 80 °F

(E) Temperature is not a factor in risk for cardiac arrhythmias

129. A 40-year-old man is brought to the emergency department by paramedics after being found down behind a motel. He wears a medical alert bracelet indicating a history of diabetes. The paramedic reports that the patient has been combative and smells of alcohol. His glucose check in the field was 300 mg/dl. What is the significance of the rhythm strip shown here?

Double click button to view illustration

- (A) Hyperkalemia
- (B) Right bundle branch block
- (C) Hypothermia
- (D) Hypocalcemia
- (E) Profound acidosis

130. A 4-year-old child is brought to the emergency department complaining of intense rhythmic pain that began immediately after being stung by a puss caterpillar. You note imbedded spines and local edema at the sting site along with a red blotchy rash. What is the appropriate treatment?

- (A) Removal of spines with tweezers; beta blockers for symptoms
- (B) Excision of spines and tissue; local vasoconstrictor
- (C) Use of scalpel to scrape off spines; calcium channel-blocker for symptoms
- (D) Cellophane tape removal of spines; IV calcium gluconate
- (E) Local wound care; oral diphenhydramine

131. All of the following are indicators of poor prognosis in the near-drowning patient EXCEPT

- (A) submersion greater than 25 minutes
- (B) coma on arrival to emergency department
- (C) pulmonary edema within first hour
- (D) initial pH less than 7.1

(E) resuscitation for longer than 25 minutes

132. A 40-year-old man presents to the emergency department complaining of fever, profound myalgias, and diffuse body cramping. His wife tells you that he has not been feeling well since this afternoon after his outpatient hernia repair. His oral temperature is 41 °C and you note muscle rigidity on examination. Which of the following is the MOST critical intervention?

- (A) IV gentamicin
- (B) Oral acetaminophen
- (C) Cooling blanket
- (D) IV dantrolene
- (E) IV lorazepam

133. At what amperage will pain, fainting, exhaustion, and mechanical injury occur when a 60-cycle current passes through the body?

- (A) 5 mA
- (B) 10 to 15 mA
- (C) 50 mA
- (D) 100 mA
- (E) 6 A

134. All of the following are part of the management of myoglobinuria following acute electrical injury EXCEPT

- (A) fluid resuscitation
- (B) mannitol
- (C) bicarbonate
- (D) intravenous pyelography (IVP)
- (E) monitoring urine output

135. All of the following statements concerning the tissue heating effects of electrical current injuries are true EXCEPT

- (A) resistance heating can cause vascular spasm and thrombosis
- (B) tissue damage is typically lower in body areas with less cross-sectional area
- (C) the most severe cutaneous tissue damage generally occurs at the entrance and exit wound sites
- (D) cutaneous burns provide a false estimate of the extent of underlying tissue damage
- (E) the pathway taken by the current determines the severity of the injury

136. Which of the following is true regarding CT bites?

- (A) Less than 1% become infected
- (B) *Pasteurella multocida* is responsible for the infection in over 90% of cases
- (C) Dicloxacillin alone is appropriate treatment for mild infection
- (D) They occur with approximately half the frequency of dog bites
- (E) *Pasteurella* infection can lead to osteomyelitis, septic arthritis, and meningitis

137. A 25-year-old woman presents after suffering a squirrel bite while at the local park. She states that her husband and a friend were able to capture the squirrel. She is told that rabies is not endemic to her area. Nevertheless, she would like to know if she has contracted rabies. How should this patient be treated?

- (A) Give first dose of human rabies immune globulin
- (B) Give first doses of human rabies immune globulin and human diploid cell rabies vaccine
- (C) Give full course of human diploid cell rabies vaccine alone
- (D) Observe the animal and treat patient with local measures only
- (E) Sacrifice the animal and search for evidence of rabies

Environmental

123	D	124	E	125	B	126	D
127	D	128	C	129	C	130	D
131	D	132	D	133	C	134	D
135	B	136	E	137	D		

Environmental Emergencies

Each question below contains five suggested responses. Select the ONE BEST response to each question.

06-123 All of the following are predisposing factors for hypothermia EXCEPT

- (A) Wernicke's disease
- (B) alcoholism
- (C) hyperglycemia
- (D) severe burns
- (E) extremes of age

[Show Answer](#)

06-124 Which of the following statements regarding heat-related illness is FALSE?

- (A) Adult patients with a core temperature of 40°C (104°F) require aggressive cooling measures
- (B) Salicylate ingestion may induce hyperpyrexia
- (C) Elderly and psychiatric patients are at increased risk for heat stroke
- (D) The body acclimatizes to heat exposure by gradually decreasing the sodium and chloride concentration in sweat
- (E) Oral rehydration inadequately compensates for fluid losses

[Show Answer](#)

06-125 All of the following are true of chemical burns EXCEPT

- (A) acids cause deeper tissue injury than do alkalis
- (B) most chemical burns should be copiously irrigated with water
- (C) calcium gluconate is a specific antidote for hydrofluoric acid burns
- (D) Neosporin ointment is useful for removing tar from skin
- (E) time of exposure is the most important factor in determining the extent of tissue damage

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06-126 Which of the following types of electrical injury is correctly paired with its resultant complication?

- (A) Low-voltage alternating current (AC) and ventricular fibrillation
- (B) lightning and ventricular fibrillation

- (C) high-voltage AC and superficial burns
- (D) lightning and compartment syndrome
- (E) high-voltage AC and tetanic contraction

[Show Answer](#)

06-127 All of the following statements are true regarding cold-related injury EXCEPT

- (A) chilbains (pernio) is more common in women
- (B) dry heat is the best method for rewarming frostbite
- (C) early surgical intervention is contraindicated for severe frostbite
- (D) body parts affected by cold injury are more sensitive to reinjury
- (E) trench foot may result in irreversible damage

[Show Answer](#)

06-128 What is the MOST common finding in a patient with a brown recluse spider bite?

- (A) Severe itching
- (B) Severe muscle cramps
- (C) Anaphylaxis
- (D) Local tissue necrosis
- (E) Respiratory failure

[Show Answer](#)

06-129 A 25-year-old man complains of pain and swelling in the hand and forearm, perioral numbness, and vomiting after trying to catch a rattlesnake. Blood pressure is 90/60 mm Hg. All of the following are appropriate therapies EXCEPT

- (A) fluid resuscitation
- (B) administration of 10 vials of antivenin
- (C) measurement of coagulation factors and platelets
- (D) immediate fasciotomy of the arm
- (E) pain medication

[Show Answer](#)

06-130 All of the following are signs and symptoms of acute altitude mountain sickness EXCEPT

- (A) headache
- (B) ataxia
- (C) vomiting
- (D) fatigue
- (E) peripheral edema

[Show Answer](#)

06-131 A 22-year-old otherwise healthy diver sustains a wound while diving in the Gulf of Mexico and presents with a temperature of 100.6°F and a draining leg wound with surrounding warmth, redness, tenderness, and swelling. Which of the following antibiotics is LEAST appropriate?

- (A) Ciprofloxacin
- (B) Ceftriaxone
- (C) Cefazolin
- (D) Trimethoprim-sulfamethoxazole
- (E) Cefuroxime

[Show Answer](#)

06-132 A 55-year-old male diver begins complaining of back pain and urinary retention 1 h after a dive. What is the MOST likely diagnosis?

- (A) Barotrauma to the bladder
- (B) Lumbar strain
- (C) Neurotoxin from a marine envenomation
- (D) Nitrogen narcosis
- (E) Decompression sickness

[Show Answer](#)

06-133 Which of the following is LEAST important in the initial evaluation of a near-drowning victim?

- (A) Arterial blood gas (ABG)
- (B) Core temperature
- (C) Chest x-ray (CXR)
- (D) C-spine precautions
- (E) Electrolytes

[Show Answer](#)

06-134 Which of the following patients require admission to a burn-care facility?

- (A) A 35-year-old man with extensive partial-thickness burns on the back, shoulders, and buttocks
- (B) A 60-year-old diabetic with a full-thickness burn of the entire forearm
- (C) A 25-year-old woman with full-thickness burns of both hands and lower arms
- (D) A 40-year-old house-fire victim with multiple, small partial-thickness burns and wheezing
- (E) All of the above

[Show Answer](#)

06-135 All of the following are useful in determining the severity of radiation exposure EXCEPT

- (A) time to development of nausea and vomiting
- (B) lymphocyte count
- (C) type of radiation exposure (e.g., GAMMA vs. β)
- (D) presence of skin erythema
- (E) severity of symptoms

[Show Answer](#)

06-136 A 35-year-old man presents complaining of headache, weakness, nausea, and vomiting after working with paint remover in an enclosed space. Which of the following statements regarding management of this patient's problem is TRUE?

- (A) A special antidote kit is required
- (B) Carboxyhemoglobin level is not helpful in this case
- (C) Treatment must continue longer in patients with this exposure than from other sources
- (D) The patient's oxygen-hemoglobin dissociation curve is shifted to the right
- (E) Severe metabolic acidosis may be present

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(123) The answer is C

Hypoglycemia and Wernicke's disease may lead to hypothermia secondary to hypothalamic dysfunction. Other endocrine disorders such as hypothyroidism and hypoadrenalism predispose to hypothermia because of decreased metabolic rate. Severe burns and other dermal diseases may impair the ability of the skin to thermoregulate or prevent vasoconstriction. Patients at the extremes of age are more vulnerable to hypothermia. The use of any drug, including alcohol, that causes altered sensorium places a patient at higher risk for hypothermia.

(Chapter 186)

(124) The answer is A

Heat stroke is defined as a body temperature of greater than 40°C (104°F) accompanied by altered mental status and anhidrosis. Patients with heat stroke should be aggressively cooled to a temperature of 40°C (104°F), at which point cooling measures should stop to avoid overshoot hypothermia. Prognosis is related to the rate of cooling rather than to the initial temperature. Salicylates cause uncoupling of oxidative phosphorylation, which leads to increased heat production. Elderly and psychiatric patients are at increased risk for heat stroke because they are less likely to remove themselves from hot environments. Ingestion of psychiatric medications also increases susceptibility to heat stroke. The body is able to acclimatize to hot temperatures over time by various mechanisms including decreasing the concentration of sodium and chloride in sweat. In the acute situation however, the body is not accurately able to assess fluid losses and cannot compensate by oral rehydration. Athletes given free access to water when exercising in the heat will only drink 50 percent of their fluid losses.

(Chapter 187)

(125) The answer is A

Acids generally cause protein denaturation and coagulation necrosis that create a tough eschar, limiting the spread of the toxic compound. Alkalis cause liquifaction necrosis, allowing the agent to penetrate more deeply into the tissue and cause more extensive damage. The mainstay of therapy for all chemical burns is reducing the length of time of exposure to the compound by immediate copious irrigation with water. In addition, hydrofluoric acid burns should be treated with calcium gluconate. Neosporin contains polyoxyethylene sorbitan, an emulsifying agent that is useful for removing tar.

(Chapter 195)

(126) The answer is A

The type of injury pattern from an electrical burn depends on the source: high-voltage AC, low-voltage AC, or lightning. The most common initial rhythm in cardiac arrest is asystole from lightning strikes and ventricular

fibrillation from low-voltage AC. Low-voltage AC causes tetanic contraction of muscle and may cause victims to pull themselves closer to the source secondary by flexor muscle contraction. The immediate cause of death from high-voltage AC and lightning is apnea. Lightning causes superficial burns and a ferning pattern, whereas AC results in deep tissue burns and injury. Although minimal external signs of damage are present after this deep tissue injury, compartment syndrome requiring fasciotomy may develop. High-voltage AC is usually a single blast that throws the victim from the source. Lightning can also cause a blast effect.

(Chapters 196 and 197)

(127) The answer is B

Rapid rewarming is the primary therapy for frostbite. The injured part should be immersed in warm water (40-42°C). Dry heat from fires or car exhaust should be avoided because it may cause thermal damage in addition to the cold injury. Early surgical intervention is not indicated because the extent of injury is difficult to assess initially and areas of eschar may be protective to underlying healing tissue. Once affected by chilblains, frostnip, or other cold injury, the body part involved becomes more susceptible to reinjury. Trench foot develops from exposure to wet, cold, but nonfreezing conditions over hours to days. Early on, tissue damage is reversible but can become permanent if the foot is not removed from the cold environment.

(Chapter 185)

(128) The answer is D

The brown recluse species (*Loxosceles reclusa*) is one of the most common types of spider in the United States. A necrotic wound that may take weeks or months to heal often follows a bite. Wounds may be resistant to treatment and result in long-term disability. Severe muscle cramping, particularly of the abdominal musculature, is the hallmark of black widow spider envenomation. Anaphylaxis may result from insect stings, the most common being from yellow jackets. Respiratory failure may result from anaphylaxis and rarely from black widow spider envenomation, but it is not common after brown recluse spider bite.

(Chapter 188)

(129) The answer is D

The mainstay of treatment after rattlesnake bites is neutralization of the venom with antivenin. Large amounts of antivenin may be required. Coagulation factors and platelets should be checked in all snake-bite victims to help determine the severity of envenomation. Supportive care, including fluid resuscitation, is important for all patients with pit viper envenomation. If compartment syndrome is suspected, pressures should be measured. Fasciotomy should only be performed when compartment pressures remain above 30 mm Hg after medical treatment.

(Chapter 189)

(130) The answer is B

Acute mountain sickness can occur at altitudes as low as 6900 ft (2100 m). Susceptibility differs by individual and is also influenced by rate of ascent, altitude of usual residence, and sleeping altitude. Signs and symptoms resemble those of an alcohol hangover and include headache, nausea, and fatigue or weakness. Patients may exhibit fluid retention and mild peripheral edema. The presence of ataxia suggests a more serious condition, high altitude cerebral edema (HACE). HACE may progress to coma and death if the patient does not descend quickly to a lower altitude.

(Chapter 191)

(131) The answer is C

Infections from marine-acquired wounds require special care. The wound should be cultured for both aerobic and anaerobic bacteria, and antibiotic treatment should be initiated to include coverage for *Vibrio* species. This requires a second- or third-generation cephalosporin, ciprofloxacin, trimethoprim-sulfamethoxazole, or tetracycline. Fresh-water wound infections should be treated with antistaphylococcal and antistreptococcal antibiotics along with an aminoglycoside to cover *Aeromonas* species.

(Chapter 190)

(132) The answer is E

Barotrauma is the most common affliction of divers and usually affects the ears, sinuses, lungs, and, rarely, the gastrointestinal tract. The bladder is not involved. Decompression sickness (DCS) is caused by formation of gas bubbles in tissues after ascent from a dive and results in vascular occlusion, usually in the venous circulation. DCS may have cutaneous manifestations including rash and pruritus. It classically causes joint and back pain and may be associated with neurologic symptoms secondary to spinal cord involvement. Patients with neurologic or other severe forms of DCS should be referred for hyperbaric oxygen therapy. Nitrogen narcosis is due to the anesthetic effects of breathing nitrogen at high partial pressures and causes divers to become altered on deep dives.

(Chapter 192)

(133) The answer is E

Near-drowning victims require aggressive resuscitation and evaluation. A core temperature must be obtained

because near-drowning patients are frequently hypothermic and require rewarming. Furthermore, hypothermic patients in cardiac arrest should continue to be resuscitated until the core temperature reaches at least 30°C. CXR may demonstrate pulmonary edema but may be initially normal. Patients with a normal CXR may still be hypoxic, and oxygenation should be measured by ABG or pulse oximetry. Because many near-drownings occur secondary to trauma, all victims need their C-spines evaluated for injury. Electrolytes are rarely abnormal in near-drowning victims unless a large amount of salt-water has been aspirated.

(Chapter 193)

(134) The answer is E

Burn-center admission criteria include: patients 10 to 50 years old with partial-thickness burns over an area greater than 15 percent of total body surface area (TBSA) or full-thickness burns greater than 5 percent TBSA; any patient younger than 10 years or older than 50 years with partial-thickness burns greater than 10 percent TBSA or full-thickness burns greater than 3 percent TBSA; any patient with partial- or full-thickness burns to the face, hands, feet or perineum, or circumferential limb burns; a patient with burns and inhalation injury; and any patient with burns and underlying medical problems. Percentage of TBSA can be calculated in adults by the rule of nines by using the size of the back of the patient's hand as 1 percent or a Lund and Browder burn diagram. Children have a relatively larger head size and smaller legs.

(Chapter 194)

(135) The answer is E

Although severity of symptoms does not correlate with dose of radiation received, time to onset of symptoms does. Skin erythema indicates skin exposure greater than 300 rem (3 Sv); seizures occur with central nervous system exposure greater than 2000 rem (20 Sv). Lymphocyte counts greater than 1200/ μ L 48 h after exposure suggest good prognosis, counts between 300 and 1200 indicate fair prognosis, and counts less than 300 indicate poor prognosis. The type of radiation exposure is important in determining the severity of injury. GAMMA Rays readily penetrate body tissues. ALPHA Particles do not penetrate skin, and β particles only barely penetrate the skin. Both ALPHA and β particles can cause damage if inhaled or ingested.

(Chapter 199)

(136) The answer is C

Carbon monoxide (CO) exposure occurs from many sources including fires, engines, home furnaces, and heaters. Methylene chloride, a chemical found in many paint removers, is inhaled and then converted to CO when metabolized by the liver. The elimination half-life of CO from methylene chloride is about twice that of inhaled CO because it is stored in tissues and gradually released. Carboxyhemoglobin levels guide therapy and may indicate severity of exposure. CO binds hemoglobin with a 250 times greater affinity than does oxygen.

Therefore, all patients should be treated with 100 percent oxygen therapy. Once bound, CO causes the hemoglobin molecule to hold more tightly to oxygen at the other binding sites, thus shifting the oxygen-hemoglobin dissociation curve to the left. The presence of a high carboxyhemoglobin level and a severe metabolic acidosis should suggest concomitant intoxication with cyanide, as can commonly occur in house or industrial fires. CO alone does not cause a severe metabolic acidosis.

(Chapter 198)