CHAPTER 12

Head and Spinal Injuries

Video – Serious Injuries
Lesson Objectives

1. List the signs and symptoms of head and spinal injuries.
2. Perform a physical examination of a victim with a head or spinal injury.
3. Describe the first aid for a victim with a possible brain injury.
Lesson Objectives continued

4. Explain why a victim with a possible spinal injury should not be moved unnecessarily.

5. Perform manual spinal motion restriction.

6. With other rescuers, perform a log roll of a victim with a spinal injury.
Head and Spinal Injuries

- May be life threatening
- May cause damage to brain or spinal cord
- Any trauma to head, neck or back may result in serious injury
- Injuries that cause unresponsiveness or loss of sensation likely to be serious
- Suspect neck or back injury with serious injury
Spinal Injury Statistics

- Motor vehicle crashes leading cause of head and spinal injuries in people < 65
- Falls leading cause of head and spinal injuries in people > 65
- Sports and recreation activities another cause of spinal injuries
Spinal Injury Statistics continued

• About 12,000 people have spinal injury each year.
• An estimated 259,000 people live with disability resulting from spinal injury.
• Motor vehicle crashes and falls are leading causes.
Prevention Guidelines

• Always wear safety belts and shoulder harnesses.
• Use approved car seats and install correctly.
• Wear appropriate safety helmets.
• Follow OSHA guidelines.
Prevention Guidelines continued

- Avoid risky activities.
- Ensure playground surface is shock-absorbing material.
- Store firearms in locked cabinet and ammunition in separate secure location.
- Do not dive into murky or shallow water.
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Preventing Falls

• Use a step stool with grab bar.
• Make sure stairways have handrails.
• Use safety gates at top and bottom of stairs with young children.
• Remove tripping hazards (area rugs, loose electrical cords).
• Use non-slip mats in tub and shower.
Preventing Falls \textit{continued}

- Install grab bars in bathroom.
- Get regular exercise.
- Get regular vision checks.
- Review your medications with health care provider.
Assessing Head and Spinal Injuries

- Consider mechanism of injury and forces involved.
- Focus on the physical examination.
- Recognize possibility of head or spinal injury.
Causes of Head and Spinal Injuries

- Motor vehicle crashes
- Falls from a height of more than a few feet
- Diving emergencies
- Skiing (and other sport) emergencies
- Any forceful blow to head, neck or back
Risk Factors for Spinal Injuries

- Victim age 65 or older
- Child older than 2 with trauma of head or neck
- Motor vehicle or bicycle crash involving driver, passenger or pedestrian
- Falls from more than the person’s standing height
Risk Factors for Spinal Injuries continued

- Victim feels tingling in hands or feet, pain in back or neck or muscle weakness or lack of feeling in torso or arms.
- Victim is intoxicated or not alert.
- Any painful injury, particularly of the head, neck or back.
General Signs and Symptoms of Head and Spinal Injuries

- Lump or deformity in head, neck or back
- Changing levels of responsiveness
- Drowsiness
- Confusion
- Dizziness
- Unequal pupils
• Headache
• Clear or bloody fluid from nose or ears
• Stiff neck
• Inability to move any body part
• Tingling, numbness or lack of feeling in feet or hands
Physical Examination of Head and Spinal Injuries

- Decide whether a victim may have a spinal injury, based on these factors:
  - Risk factors present
  - Cause of victim’s injuries
  - Observations of bystanders at scene
  - Immediately apparent injuries and wounds
  - Any observed sign of head or spinal injury
Physical Examination of Head and Spinal Injuries

- If victim is unresponsive and no life-threatening condition, do not perform physical examination.
- If unresponsive victim may have spinal injury, do not move victim unless necessary.
- Maintain spinal motion restriction to prevent head movement.
Physical Examination of Head and Spinal Injuries continued

• If victim responsive and injuries suggest spinal injury, carefully assess for signs and symptoms.
• If examination reveals problems, call 9-1-1.
Physical Examination of Head and Spinal Injuries continued

- Do not depend on any specific assessment to decide if victim has spinal injury.
- Do not assume victim without specific symptoms does not have possible spinal injury.
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Skill: Head and Spinal Injury Assessment
Skill: Head and Spinal Injury Assessment

1. Check the victim’s head.
2. Check neck for deformity, swelling and pain.
3. Touch toes of both feet and ask victim if the sensation feels normal.
4. Ask victim to point toes.
5. Ask victim to push against your hands with the feet.
Skill: Head and Spinal Injury Assessment continued

6. Touch fingers of both hands and ask victim if the sensation feels normal.
7. Ask victim to make a fist and curl (flex) it in.
8. Ask victim to squeeze your hands.
Skull Fracture

- Check for possible skull fracture before applying direct pressure to scalp bleeding:
  - Direct pressure could push bone fragments into brain.
- Skull fracture is life threatening.
First Aid: Skull Fracture

1. Call 9-1-1 and stay with the victim.
2. Put breathing unresponsive victim in recovery position unless spinal injury is suspected. Monitor breathing and be ready to give CPR.
3. Do not clean wound, press on it or remove impaled object.
4. Cover wound with sterile dressing.
First Aid: Skull Fracture continued

5. If bleeding, apply pressure only around edges of wound. Use a ring dressing.

6. Do not move victim unnecessarily.
Brain Injuries

- May occur with blow to head
- Likely with skull fracture
- Cause range of signs and symptoms
- Call 9-1-1
- Signs and symptoms may seem mild but may progress and become life-threatening
- Suspect spinal injury
Late Signs and Symptoms of Brain Injuries

• Seek medical attention immediately if:
  • Nausea and vomiting
  • Severe or persistent headache
  • Changing levels of responsiveness
  • Lack of coordination, movement problems
  • Problems with vision or speech
  • Seizures
First Aid: Brain Injuries

For a responsive victim:

1. Have victim lie down.
2. Keep victim still and protect from becoming chilled or overheated.
3. Call 9-1-1.
4. Support head and neck if you suspect spinal injury.
For an unresponsive victim:

1. Call 9-1-1.

2. Monitor the victim’s breathing without moving the victim unless necessary.

3. Suspect a spinal injury and restrict movement of the head and neck.

4. Control serious bleeding and cover any wounds with a dressing.
Concussion

- Brain injury involving temporary impairment
- Usually no head wound or signs and symptoms of more serious head injury
- Victim may have been “knocked out” but regained consciousness quickly
- Second impact syndrome can be very severe or fatal
Signs and Symptoms of Concussion

- Headache
- Temporary confusion
- Memory loss about event
- Brief loss of responsiveness
- Mild or moderate altered mental status
- Unusual behavior
First Aid for Concussion

- Difficult to determine seriousness.
- Seek medical care for all suspected brain injuries.
- Call 9-1-1 and keep victim still, give supportive care.
- Victim should never continue with activity (second impact syndrome).
Spinal Injuries

• Fracture of neck or back always serious:
  • Possible damage to spinal cord
  • Effects of nerve damage depend on nature and location of injury.
  • Movement of head or neck could make injury worse.
Spinal Injuries continued

- Perform spinal motion restriction.
Spinal Injuries continued

- Support victim’s head in position found:
  - Do not move victim’s head to move it in line.
- If unresponsive victim must be moved to give CPR, keep head in line with body.
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Skill: Spinal Motion Restriction
Skill: Spinal Motion Restriction


2. Hold victim’s head and neck with both hands in the position found to restrict movement.
3. Monitor the victim’s breathing and be ready to provide BLS.
Skill: Spinal Motion Restriction continued


5. Reassure a conscious victim and tell him or her not to move.

6. Continue to stabilize the head and spine and monitor the victim’s breathing until help arrives.
First Aid: Spinal Injuries

1. Assess a responsive victim.
2. Stabilize victim’s head and neck in position found.
3. Monitor victim’s breathing, and be ready to give CPR, if needed.
4. Send someone to call 9-1-1.
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Skill: Rolling a Victim with Spinal Injury (Log Roll)
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Skill: Rolling a Victim with Spinal Injury (Log Roll)

1. Hold victim’s head with hands on both sides over ears.
2. The first aider at the victim’s head directs others to roll the body as a unit.
Skill: Rolling a Victim with Spinal Injury (Log Roll) continued

3. Continue to support head in new position on side.
Injuries to Lower Back

- Some may not damage spinal cord or be serious
- Usually results from stressful activity (not traumatic injury)
- Muscle or ligament may be strained, or disk may be damaged
Injuries to Lower Back continued

• Usually not an emergency
  • But still require medical attention

• Signs and symptoms include:
  • Pain in lower back
  • Stiffness
  • Reduced movement in back
  • Possible sharp pain in 1 leg
Chapter – Opening Scenario

You have stopped by a neighborhood school on your way home to see a friend who helps coach the girls’ gymnastic team. While talking in a corner of the gym, you are horrified to see a young girl on the uneven bars attempt a release move and miss the bar. You run to her and find that she is unresponsive.

What should you do?
A coworker slips on ice in the parking lot, smashing his head against the side of a car. You rush over and ask him how he feels, and he says he’s dizzy. He seems disoriented and is staggering, and then he suddenly vomits.

What should you do?
Scenario 2

While skiing, you come across another skier who has fallen at the edge of the trail, apparently after having hit a tree. He is lying in the snow on his back, unresponsive. Several people have gathered around. His skis have been removed. From the bruise on his forehead, you think that he hit his head against the tree. You check and find that he is breathing. Suddenly he vomits.

Describe what you should do (and how to do it safely).
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Discussion and Questions