Understanding common complications after Spinal Cord Injury

Chapters 3, 4 & 11 in SCI Reference Manual
Have you had any of the following?

- Dizziness with changes in position
- Difficulty warming up after you get cold
- Difficulty coughing
Objectives

• To understand and learn how to manage some of the early changes following a SCI, including:
  - changes in blood pressure
  - changes in temperature control
  - changes in respiratory function
Who has had dizziness with a change in position?
A sudden change of position may cause dizziness

• This is called orthostatic hypotension
  – Orthostatic = changing position
  – Hypotension = low blood pressure

• A drop in your blood pressure from a change in position

• It can cause dizziness, lightheadedness, nausea and fainting
Why do people with SCI get orthostatic hypotension?

• Why does it happen?
  – If you have a spinal cord injury, your resting blood pressure is usually lower than before your injury
  – When you change position quickly, your blood pressure drops and you feel lightheaded or dizzy

• More common with higher injuries
• More common earlier after injury
How can you prevent orthostatic hypotension?

- Elevate the head of your bed slowly and gradually
- Take short rests in between positions
- Sit keeping legs up on the bed
- Slowly bring the legs over the edge of the bed
- Wear abdominal binders, compression stockings
- Stay well hydrated
- Your doctor might prescribe medications to help with your blood pressure such as midodrine or fludrocortisone
Who has had an episode of autonomic dysreflexia or AD?
What is autonomic dysreflexia?

• A sudden rise in blood pressure due to a noxious stimulus
  – Anything that would cause pain or discomfort, whether you can feel it or not
• It can happen to people with spinal cord injuries at T6 or higher
• It can be a MEDICAL EMERGENCY if not treated immediately, leading to complications, even death
Why does your blood pressure go up in AD?

• Your body experiences an irritating stimulus
• Below the level of your injury, your sympathetic nervous system goes into overdrive
  – Your blood vessels constrict making your blood pressure rise
• Above the level of your injury, your body tries to compensate for the increase in blood pressure
  – Your heart rate drops
• Once you remove the irritant, your blood pressure will return to normal
How will you know if you are having an episode of AD?
Signs and symptoms of autonomic dysreflexia

- Pounding headache
- Change in heart rate
- Flushed skin above level of injury
- Sweating above or below level of injury
- An “aura”
- Anxious feeling
- Blurred vision
- Stuffy nose
- Shivering above level of injury
- Goose bumps below level of injury
- Pale skin below level of injury

**IF YOU HAVE ANY OF THESE SYMPTOMS, HAVE SOMEONE CHECK YOUR BLOOD PRESSURE!**
What are some of the causes of AD?
The most common cause of AD is a full bladder

**Common causes**
- Full bladder
- Bladder infections
- Bladder stones
- Bladder procedures
- Full bowel or constipation
- Menstrual cramps
- Genital stimulation or pressure
- Ejaculation
- Ingrown toenails
- Pressure ulcers
- Tight shoes or clothing

**Other causes**
- Abdominal causes
  - Gallstones, appendicitis, kidney stones
- Labour and delivery
- Fractured bones
What should you do if you are having an episode of AD?
To treat AD, look for the cause and remove it

- Sit up if lying down
- Loosen any tight clothing, leg bag, shoes
- Check your bladder
- Check your bowel
- Check your skin
- Seek medical attention if unable to find a cause
Try to prevent AD from happening in the first place

• Do regularly scheduled bladder and bowel programs
• Do routine skin checks and nail care
• Avoid extreme temperatures (hot and cold)
• Take prescribed medications
Spread the word about AD

• Educate your health care team about AD
  – Family members
  – Family physicians
  – Health care providers
    • Attendants, home care nurses
  – Emergency technicians
    • Ambulance attendants, etc
Have you ever had difficulty warming up on a cold day?

Have you ever overheated on a hot day?
Temperature changes

• Sonny has just returned to the unit after attending an afternoon baseball game. The game was great. The weather was beautiful. Hot and sunny.

• When he gets back to the unit, the nurses check his temperature and it is 39 degrees.

• What do you think has happened?
What changes in temperature control can happen after SCI?

- After a spinal cord injury, the ability to control body temperature may be affected.
- It depends on the level of injury and the completeness of injury.
- Your body temperature often reflects the outdoor temperature—fevers on hot days and difficulty warming up on cold days.
- Cold legs, different temperature legs, swelling/edema can all be caused by changes in circulation.
What can you do to help manage your temperature?

- Dress for the season
- Wear layers so you can adjust your clothing
- Make sure you drink enough on hot days
- If you are too hot, consider misting yourself with water—you will cool off as it evaporates
- If you are too cold, don’t use heating pads
  - You can put a blanket in a dryer to warm it up
  - Heating pads can cause burns
Who has had difficulty coughing?
How does a spinal cord injury affect your breathing?

• The muscles you use for breathing can be affected
• The diaphragm is the main muscle used in inspiration (breathing in)
• The abdominal muscles are the main muscles used in expiration (breathing out)
• The neck and intercostal (chest wall) muscles help further with breathing
Remember, after a spinal cord injury, anything below the level of injury may be affected

- The higher the injury, the more breathing and coughing are affected
- Individuals with very high spinal cord injuries (above C4) may have a weak diaphragm
- They may need a ventilator to assist with breathing
- They will need help to cough
Patients with tetraplegia

- Individuals with injuries in C5 and below have weak neck muscles, intercostal (chest wall) muscles and abdominal muscles, but a strong diaphragm.
- It will still be hard to take deep breaths.
- They will need help to cough.
Patients with paraplegia

- Individuals with lower injuries between T1 and T12 will have weak intercostal and abdominal muscles.
- If the injury is high, they may still have difficulty with deep breathing.
- They may need help to cough unless their injury is very low (L spine or lower).
How is respiratory function affected after spinal cord injury?

• Decreased vital capacity
  – Cannot take as big a breath
• Decreased coughing ability
• Increased risk of pneumonia
• Increased risk of sleep apnea
What is pneumonia?

- Pneumonia is an infection of the lung tissues
- Can be bacterial or viral
- How will you know if you have pneumonia?
Signs and symptoms of pneumonia

• Shortness of breath
• Fever and chills
• Increased secretions
• Change in sputum colour
• Fatigue
What can you do to improve your respiratory health?

• Don’t smoke (anything!)
• Get your annual flu shot and a one-time pneumovax shot
• Do your breathing exercises
• Learn how to direct assisted coughs
• Drink enough fluids
• Know the signs and symptoms of pneumonia
  – Shortness of breath, cough, fever, increased secretions, change in colour of sputum
• Use your CPAP machine if you have sleep apnea
Other impacts of SCI

• Spinal Cord Injury is an individual experience that affects the body, mind and soul
• Speak to your Social Worker about how your injury is impacting you
• Remember your resources can include psychologist, psychiatrist, peer mentor & spiritual care, peers (SCI-BC) and community resources
What was the most interesting point that you learned or discussed today?

- Changes in blood pressure
  - Orthostatic hypotension (too low)
  - Autonomic dysreflexia (too high)
- Changes in temperature control
- Changes in respiratory function

Is there anything that you are going to change or do differently?
Questions?
Aging with spinal cord injury

• Bone health
  – Osteoporosis

• Cardiovascular/heart health
  - increased risk of diabetes mellitus
  - cholesterol changes
  - metabolic syndrome
  - atypical chest pain
  - weight control
Osteoporosis

• Osteoporosis means “brittle bones”
• Osteoporosis is a condition that causes the density of the bones to decrease making the bones less strong.
• After SCI, osteoporosis occurs in the bones below the level of injury
  – bones need the pull of muscles to keep strong and when the muscles are paralyzed, the pull doesn’t happen.
How can you maintain healthy bones?

• Talk to your physician about calcium and vitamin D
• Avoid caffeine
• Don’t smoke
• There may be other methods to help maintain your bone strength depending on your injury
  – Talk to your doctor
How do you keep a healthy heart?

• Don’t smoke
• Maintain a healthy body weight
• Eat a heart healthy diet
• Exercise can be difficult with a spinal cord injury
  – Explore your options for regular cardiovascular exercise
• Know the signs and symptoms of a heart attack or stroke
  – They may be different for you because of your injury
  – Chest pain may not be “typical”
Where can you learn more about aging with a spinal cord injury?

• Talk to your team members
• Read your manual
  – Including some useful websites
What have we learned?

• David is a 23 year old with a C6 spinal cord injury who lives in Yaletown
• After an evening out with his friends, he returns home and realizes he has a bad headache and is sweating
• What do you think it might be?
• What should he do?
• Sarah is a 48 year old woman with a C5 spinal cord injury living in Kamloops
• Over the past few days, she has noticed an increased need for assisted coughs
• Her sputum has changed from clear to yellowish
• What do you think is happening?
• What should she do?
Questions?

• SCI-BC/peer experiences
Autonomic Nervous System

Parasympathetic
- Stimulates flow of saliva
- SLOWS heartbeat
- Constricts bronchi
- Stimulates peristalsis and secretion
- Stimulates release of bile
- Contracts bladder

Sympathetic
- Dilates pupil
- Inhibits flow of saliva
- ACCELERATES heartbeat
- Dilates bronchi
- Inhibits peristalsis and secretion
- Conversion of glycogen to glucose
- Secretion of adrenaline and noradrenaline
- Inhibits bladder contraction