



Medical Issues Associated with Brain Injury

A variety of medical issues can occur after brain injury (BI). Some of these issues are listed below. It is possible to experience some, none, or several of these.

Autonomic Problems

The autonomic nervous system controls many activities that take place automatically such as: breathing, blood pressure, heart rate, and temperature regulation. If the system isn't working properly, a person may experience blood pressure changes, irregular breathing, and unexplained fevers.

Bladder Control

A BI may interfere with messages between the brain and bladder. The person may not know when to urinate or may not be able to control starting or stopping urination. This results in leaking of urine, called "incontinence."

Incontinence can be upsetting or embarrassing. The nurses will set up a toileting schedule to help regain bladder control. A toileting schedule involves being taken to the toilet every two hours during the day and evening. At night, nursing will do something different to avoid waking a person multiple times. If controlling the bladder is especially difficult, the physician may have a catheter inserted. A catheter is a tube that goes inside the bladder and connects to another tube and a drainage bag. This drains the urine out of the bladder and into the bag. Using a catheter while the brain is healing decreases stress and allows energy to focus on other aspects of recovery.

Blood Clots

Injury and lack of movement can lead to blood clots in the arms, legs, and lungs. Some people may also have changes in the blood's clotting ability. A blood thinner medication may be needed to help prevent or treat blood clots.

Breathing

The breathing center of the brain may be affected, resulting in difficulty breathing without assistance or at a regular rate. A tracheostomy (trach), may be needed. This will help with breathing and help nursing and respiratory clean and remove secretions. If someone cannot breathe on their own, a mechanical ventilator or vent may be required to regulate breathing.

Digestive System and Bowel Management

BI can affect the digestive system in several ways. The brain may send confusing messages to the muscles that control swallowing. This may make it harder to eat and easier to choke on food and liquids. (Please refer to the section on Swallowing for more information).

BI can make it hard to recognize when it's time for a bowel movement. This can cause a bowel accident or involuntary bowel movement. The rehab team – especially nursing – will work to re-train the bowel, establish bowel control, and create a bowel program that will work for the individual. Bowel re-training may involve making sure bowel movements happen at the same time each day.

This may include:

- Establishing a daily bowel management routine
- Suggesting changes to a person's diet (teaching how much and when to eat and drink, and figuring out which foods help the bowels, and which do not)

Heterotopic Ossification (HO)

HO is a condition where extra bone forms in the soft tissue around a joint. This sometimes happens after a BI when a person is not able to move around as much. HO can decrease range of motion, flexibility, and cause pain. If HO is in the hips or legs, it can make it hard to sit comfortably. If located in the arm, HO makes it hard to eat, brush hair, bath, or get dressed. The physician will determine if medication could be helpful.

Hormones

Certain areas in the brain control hormones. If these areas are injured, a person may experience excessive thirst, hunger, frequent need to urinate, or changes in social behavior. In females, menstruation may stop temporarily, but will usually return within 6 months to one year.

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Liver Function

The liver changes food and medications into a form the body can use. Problems can develop if the brain doesn't direct the liver properly. Liver function may be monitored with blood tests.

Nutrition

Acute BI often causes greatly increased metabolism and protein needs. It is important to get adequate nutrition to prevent muscle wasting and improve overall outcomes. Good nutrition helps to fight infections and maintain strength. A feeding tube may be necessary if swallowing is unsafe. The tube can be inserted through the nose to the stomach, or surgically placed in the stomach to deliver food, water, or medications. Feeding tubes do not have to be permanent and can be removed when no longer needed.

Seizures

BI can increase the risk for seizures. Seizures may look different depending on the area of the brain that is injured. (See Section II: About Brain Injury). Some symptoms or signs of a seizure include uncontrolled movements (twitching, eye rolling, shaking of hands, feet or eye blinking), sudden changes in emotions, or they may stop engaging with their surroundings (staring into space or not responding to you). The physician can discuss how to treat them and prevent them from occurring.

Skin Care

Inactivity and body chemistry changes may lead to skin problems such as acne, rashes, or dandruff. These can be treated with medications. Lack of movement, lack of sensation, or being wet all increase the risk for skin breakdown and sores. The nursing staff will provide education on how to prevent skin breakdown by turning in bed, shifting weight while up in a wheelchair, and having good nutrition and hygiene.