NINDS Cerebral Hypoxia Information Page

Synonym(s): Hypoxia, Anoxia
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Table of Contents (click to jump to sections)

What is Cerebral Hypoxia?

Cerebral hypoxia refers to a condition in which there is a decrease of oxygen supply to the brain even though there is adequate blood flow. Drowning, strangling, choking, suffocation, cardiac arrest, head trauma, carbon monoxide poisoning, and complications of general anesthesia can create conditions that can lead to cerebral hypoxia. Symptoms of mild cerebral hypoxia include inattentiveness, poor judgment, memory loss, and a decrease in motor coordination. Brain cells are extremely sensitive to oxygen deprivation and can begin to die within five minutes after oxygen supply has been cut off. When hypoxia lasts for longer periods of time, it can cause coma, seizures, and even brain death. In brain death, basic life functions such as breathing, blood pressure, and cardiac function are preserved, but there is no consciousness or response to the world around.

Is there any treatment?

Treatment depends on the underlying cause of the hypoxia, but basic life-support systems have to be put in place: mechanical ventilation to secure the airway; fluids, blood products, or medications to support blood pressure and heart rate; and medications to suppress seizures.

What is the prognosis?

Recovery depends on how long the brain has been deprived of oxygen and how much brain damage has occurred, although carbon monoxide poisoning can cause brain damage days to weeks after the event. Most people who make a full recovery have only been briefly unconscious. The longer someone is unconscious, the higher the chances of death or brain death and the lower the chances of a meaningful recovery. During recovery, psychological and neurological abnormalities such as amnesia, personality regression, hallucinations, memory loss, and muscle spasms and twitches may appear, persist, and then resolve.

What research is being done?

The NINDS supports and conducts studies aimed at understanding neurological

Hypoxia

(from an Air Force manual)

Hypoxia

Hypoxia is a state of oxygen deficiency in the body which is sufficient to cause an impairment of function. Hypoxia is caused by the reduction in partial pressure of oxygen, inadequate oxygen transport, or the inability of the tissues to use oxygen.

In brief, being drunk is kind of the same as being exposed to high altitude. In both cases, oxygen to your brain and muscles is reduced.

Hypoxic Hypoxia is a reduction in the amount of oxygen passing into the blood. It is caused by a reduction in oxygen pressure in the lungs, by a reduced gas exchange area, exposure to high altitude, or by lung disease. [This is the hypoxia that is a hazard to aviators.]

Hypemic Hypoxia is defined as a reduction in the oxygen carrying capacity of the blood. It is caused by a reduction in the amount of hemoglobin in the blood or a reduced number of red blood cells. A reduction in the oxygen transport capacity of the blood occurs through blood donation, hemorrhage, or anemia. A reduction in the oxygen carrying capacity of the blood occurs through drugs, chemicals, or carbon monoxide. [This hypoxia usually experienced by smokers.]

Stagnant Hypoxia is an oxygen deficiency due to poor circulation of the blood or poor blood flow. Examples of this condition are high "G" forces, prolonged sitting in one position or hanging in a harness, cold temperatures, and positive pressure breathing. [This hypoxia usually experienced when sitting for hours in a boring class.]

Histotoxic Hypoxia is defined as the inability of the tissues to use oxygen. Examples are carbon monoxide and cyanide poisoning. Certain narcotics, chewing tobacco, and alcohol will prevent oxygen use by the tissues. [This hypoxia usually experienced after drinking too much.]

Return to 'Jumping from 30,000 feet'

G6-2