

CARBON MONOXIDE POISONING... WHAT IS IT?



DEFINITION

Carbon Monoxide (CO) poisoning occurs when Carbon Monoxide gas is inhaled. Carbon Monoxide is a colorless, odorless, highly poisonous gas. It is found in automobile exhaust fumes, faulty stoves and heating systems, fires, and cigarette smoke. Some other sources are wood burning stoves, kerosene heaters, improperly ventilated water heaters and gas stoves, and blocked or poorly maintained chimney flues. It interferes with the ability of the blood to carry oxygen. The result is headache, nausea, convulsions, and finally death by asphyxiation.



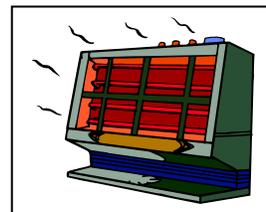
DESCRIPTION

Carbon Monoxide also known as coal gas, has been known as a toxic substance since the third century B.C. It was used for executions and suicides in early Rome. Today it is the leading cause of accidental poisoning in the United States. According to the Journal of the American Medical Association, 1,500 Americans die each year from accidental exposure to Carbon Monoxide, and another 2,300 from intentional exposure (suicide). An additional 10,000 people seek medical attention after exposure to Carbon Monoxide.

Anyone who is exposed to Carbon Monoxide will become sick. A developing fetus can also be exposed if the expectant mother breathes the Carbon Monoxide gas. Infants, people with heart or lung disease, or those with anemia may be more seriously affected. People such as underground parking garage attendants, who are exposed to car exhausts in a confined area are more likely to be poisoned by Carbon Monoxide. Firemen also run a higher risk of inhaling Carbon Monoxide.

CAUSES AND SYMPTOMS

Usually when a person breathes fresh air into the lungs, the oxygen in the air binds with a molecule called hemoglobin (Hb) that is found in the red blood cells. The oxygen/hemoglobin complex allows oxygen to be moved from the lungs to every part of the body and when it reaches a muscle where it is needed, the oxygen is released. Hemoglobin can be used over and over again to pick up oxygen and move it through the body.



The symptoms of Carbon Monoxide poisoning and the speed in which it appears depend on the concentration of CO and air, as well as the efficiency with which a person breathes. Heavy smokers can start off with up to 9% of their hemoglobin already bound to CO, which they regularly inhale in cigarette smoke. This makes them more susceptible to environmental

CO. OSHA has established a maximum permissible exposure level of 50 parts per million (ppm) over eight hours.

With exposure to 200 ppm for two to three hours, a person begins to experience headache, fatigue, nausea, and dizziness.

The symptoms of CO poisoning in order of increasing severity include:

- Headache
- Shortness of breath
- Dizziness
- Fatigue
- Mental confusion and difficulty thinking
- Loss of fine hand-eye coordination
- Nausea and vomiting
- Rapid heart rate
- Hallucinations
- Inability to execute voluntary movements accurately
- Collapse
- Lowered body temperature (hypothermia)
- Coma
- Convulsions
- Cardiac and respiratory failure
- Death



DIAGNOSIS

The main reason to suspect CO poisoning is evidence that fuel is being burned in a confined area (i.e.. A car running in a closed garage, a charcoal grill burning indoors, or an unvented kerosene heater in a workshop.) In the absence of some concrete reason to suspect CO poisoning, the illness is often misdiagnosed as migraine headaches, stroke, psychiatric illness, food poisoning, alcohol poisoning, or heart disease.

TREATMENT

Concrete confirmation of CO poisoning comes from a carboxyhemoglobin (COHb) test. This blood test measures the amount of CO that is bound to hemoglobin in the body. Blood is drawn as soon as possible after the suspected exposure.



Immediate treatment for CO poisoning is to remove the person from the source of the Carbon Monoxide gas and get them into fresh air. If the person is not breathing and there is no pulse, CPR should be started by a trained professional.

In severe cases of CO poisoning, patients are given hyperbaric oxygen treatments. This treatment involves placing the patient in a chamber breathing 100% oxygen. The increased pressure, which may be 2-3 times greater than normal, forces more oxygen into the blood.

PREVENTION

Carbon Monoxide poisoning is preventable. Specific actions that will prevent CO poisoning include:

- Stop smoking. Smokers have less tolerance to environmental CO.
- Have heating systems and appliances installed by a qualified contractor to assure that they are properly vented and meet local building codes.
- Inspect and properly maintain heating systems, chimneys, and appliances.
- Do not use a gas oven or stove to heat the home.
- Make sure there is good ventilation if using a kerosene heater indoors.
- Do not leave cars or trucks running inside the garage.
- Keep car windows rolled up when stuck in heavy traffic, especially if inside a tunnel.
- Use a Carbon Monoxide detector

Information was obtained from the Gale Encyclopedia of Medicine