

Carbon Monoxide Poisoning

By KI5YAJ

Tonight's training is being borrowed from Harris Counties ARES library. I thought that with the seasons changes we are now experiencing, it might be a good time to bring these topics up that deal with cooler winter weather conditions.

CARBON MONOXIDE POISONING

Carbon monoxide (CO) is a colorless, tasteless, and nearly odor free gas. Like a few other gases, CO is more readily absorbed by the red blood cells (hemoglobin) than is oxygen. In fact, CO binds irreversibly to hemoglobin. As a result, oxygen is displaced by carbon monoxide which can lead to tissue damage, suffocation and death. CO is highly poisonous to humans and animals.

Appliances, vehicles, equipment, etc. that are fueled by gasoline, natural gas, liquefied petroleum gas (LPG), oil, kerosene, coal, wood, charcoal, etc. produce CO because of incomplete combustion and is assisted with poisoning by improper ventilation.

Examples:

- Fuel-burning space heaters
- Furnaces
- Charcoal grills
- Wood burning stoves
- Generators
- Car and truck engines
- Lawn mowers

The accumulation of CO in a poorly ventilated space is where danger occurs. Many people die each year from CO poisoning which is easily preventable if precautions are taken. The signs of CO poisoning can be subtle and different depending on the concentration levels, length of exposure, and a person's health. CO exposure quickly becomes a life-threatening medical emergency, and immediate medical care must be given to someone with CO poisoning.

Symptoms

Initial symptoms are similar to the flu, without the fever. They include:

- Dull headache.
- Weakness
- Dizziness
- Nausea
- Vomiting
- Shortness of breath
- Confusion
- Blurred vision
- Loss of consciousness

CO causes people to be sleepy and if they are asleep, it prevents them from waking up. The exposure to CO can become fatal before anyone is even aware there is a problem so it is imperative that precautions around any appliance that burns fuel be taken.

Risk factors

Carbon monoxide exposure may be more dangerous for:

- Unborn babies. The fetal hemoglobin absorbs CO more readily than an adult.

- Children. Young children breathe more frequently than adults.
- Older adults may be more likely to have brain damage.

Permanent brain and heart damage can lead to complications years after the poisoning has occurred.

Treatment

If you suspect you or someone else has been exposed to carbon monoxide, get them into fresh air immediately and seek emergency medical care. Medical staff will want to know the source of the CO, the signs and symptoms and when they start plus any mental impairment, confusion, memory problems, loss of consciousness, other medical conditions the person may have. Medical treatment may involve:

- Breathing pure oxygen.
- Spending time in a pressurized oxygen chamber. Hyperbaric oxygen therapy may be used in severe cases of carbon monoxide poisoning or if the person is pregnant.

Prevention

Install a carbon monoxide detector in your home. The simple and common sense prevention is to never run a carbon monoxide producing device in a confined space without proper ventilation.

Amateur Radio Operators

How does this apply to amateur radio? Where can we become exposed to CO while assisting with emergency communications?

- First of all, your family/home. You may be away helping someone else so make sure you family members are aware of the danger and how to prevent an incident. Teach them how to safely run a generator and other devices.

- In temporary emergency communication shelters, make sure there is proper ventilation and that the generator is far enough away and the wind direction such that you are protected from drifting/blowing CO. Some adjustments may need to be made as the wind direction changes. Venting CO upwards high enough to clear obstructions and into the breeze helps disperse it in the air.
- In permanent buildings using portable generators, make sure the exhaust does not get pulled in through building vents, windows, etc.
- Running your vehicle to charge your battery which is powering your radio can produce a CO buildup.

The effects of carbon monoxide poisoning have been well understood since 1850. The public has been warned but there are still hundreds of deaths each year. Some common sense, good ventilation and providing a warning system, a CO detector, while you sleep are the keys to preventing disasters.

That concludes tonight's training.

Thanks, this is KI5UAJ, back to net control.