



Intramuscular Cobinamide Sulfite in a Rabbit Model of Sublethal Cyanide Toxicity

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INTRODUCTION

Cyanide were first used as chemical weapons in World War I. Small amounts of cyanide are found in nature and in the products we eat and use on a daily basis. Cyanide can be produced by certain bacteria, fungi and algae. Cyanide is also found in cigarette smoke, car exhaust, and foods such as spinach, bamboo shoots, almonds, lima beans, fruit pits, and tapioca. Cyanide has several chemical forms. Hydrogen cyanide is a pale blue or colorless liquid at room temperature and a colorless gas at elevated temperatures. It smells like bitter almonds. Sodium and potassium cyanide are white powders that may smell like bitter almonds. Other chemicals called cyanide can produce cyanide. Cyanogen chloride is a colorless, liquefied gas that is heavier than air and has a pungent odor. Some cyanide compounds have a distinctive odor, but smell is not a good way to tell if cyanide is present. Some people don't smell cyanide. Others can also smell it at first, but over time they get used to it. In the past, hydrocyanic acid was used as a chemical weapon. Cyanide and cyanide-containing compounds are used in pesticides and fumigants, plastics, electroplating, photo processing, and mining. Dye and pharmaceutical companies also use cyanide.

DESCRIPTION

Some industrial processes such as steel production, the chemical industry, and wastewater treatment can produce cyanide. Cyanogen chloride may be produced in small amounts during the chlorination of water. People can be exposed to low levels of cyanide in their daily lives through food, smoking, and other sources. Eating or drinking foods that contain cyanide can

affect your health. Breathing cyanide gas, especially in poorly ventilated spaces, is most likely to cause harm. Fatal exposure to cyanide can only occur by accident or deliberate act. Because cyanide acts rapidly, it can be used as a means of terrorism. After exposure, cyanide quickly enters the bloodstream. The body processes small amounts of cyanide differently than large amounts. In small amounts, cyanide is converted in the body to thiocyanate, which is less harmful and excreted in the urine. In the body, cyanide combines with small amounts of another chemical to form vitamin B12, which supports healthy nerves. When taken in large amounts, it overwhelms the body's ability to convert cyanide to thiocyanate. Large amounts of cyanide prevent cells from consuming oxygen and eventually they die. The heart, respiratory tract, and central nervous system are most susceptible to cyanide poisoning. Moving away from the exposure site and into fresh air is an important first step in treating cyanide exposure.

CONCLUSION

Cyanide poisoning can be treated further by a medical professional. Oxygen is often given to patients. Two types of antidotes (sodium nitrite and sodium thiosulfate) are commonly used to stop the effects of severe cyanide poisoning. Other medications may be needed to control additional health effects of cyanide, such as seizures. People with severe signs and symptoms, especially those who "faint" or are unconscious, should seek immediate medical attention. Delay can lead to death. Elevated levels of cyanide in the blood may indicate that someone has been exposed to cyanide, but laboratory testing for cyanide exposure does not help determine emergency treatment.

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