

Strychnine Poisoning



Strychnine is rapid and completely absorbed in the small intestine. It is metabolized in the liver by microsomal enzymes. The highest concentrations of strychnine are found in the blood, liver, and kidneys. Strychnine and its metabolites are excreted in the urine. Depending on the quantity ingested and treatment measures taken, most of the toxic dose is eliminated within 24-48 hr.

Strychnine inhibits competitively and reversibly the inhibitory neurotransmitter glycine at postsynaptic neuronal sites in the spinal cord and medulla. This results in unchecked reflex stimulation of motor neurons affecting all the striated muscles. Because the extensor muscles are relatively more powerful than the flexor muscles, they predominate to produce generalized rigidity and tonic-clonic seizures.

The onset of strychnine poisoning is fast. After oral exposure, clinical signs may appear within 30-60 min. Presence of food in the stomach can delay onset. **Early signs, which may often be overlooked, consist of apprehension, nervousness, tenseness, and stiffness. Vomiting usually does not occur. Severe tetanic seizures may appear spontaneously or may be initiated by stimuli such as touch, sound, or a sudden bright light.** An extreme and overpowering extensor rigidity causes the animal to assume a “sawhorse” stance. Hyperthermia (104-106°F [40-41°C]) due to stiffness and seizures is often present in dogs. The tetanic convulsions may last from a few seconds to ~1 min. Respiration may stop during the convulsions. Intermittent periods of relaxation are seen between convulsions but become less frequent as the clinical course progresses. The mucous membranes become cyanotic(purple), and the pupils dilated. Frequency of the seizures increases, and death eventually occurs from exhaustion or asphyxiation during seizures.

Strychnine is a colourless crystalline alkaloid used as a pesticide, particularly for killing small vertebrates such as birds & rodents. It can be injected either by accidental injection or malicious intent.

Strychnine poisoning is an emergency, and treatment must be instituted quickly.