

Bilateral hearing loss after carbon monoxide poisoning

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Background:

Carbon monoxide (CO) binds to hemoglobin with greater affinity compared to oxygen, resulting in reduced blood oxygen-carrying capacity. Reversible and irreversible unilateral or bilateral hearing loss due to CO poisoning has rarely been reported. We present a case of an 18-year-old previously healthy male with bilateral hearing loss after severe CO poisoning.

Case Report:

An 18-year-old male presented to the emergency department (ED) unconscious with emesis after being found in his vehicle. His vital signs were significant only for tachycardia of 115 bpm. Initial workup revealed WBC 16,000/uL, glucose 195 mg/dl, and hs-troponin 131 ng/L. Electrocardiogram revealed sinus tachycardia with an incomplete right bundle branch block. Head CT and urine drug immunoassay were negative. Several hours later, it was reported that the vehicle had a problem with the exhaust system. His carboxyhemoglobin level returned at 9.5% six hours after presentation. A non-rebreather oxygen mask was applied, and he began waking up and complained of bilateral hearing loss with tinnitus. Three sessions of HBO2 were done in the first 24 hours. He remained symptomatic with minimal improvement over his hospitalization. A 3-day course of dexamethasone 10 mg daily was given. Six months after discharge, he continued to have mild tinnitus and hearing loss. His audiogram shows moderate hearing loss.

Discussion:

CO poisoning is a rare cause of hearing loss and tinnitus. The mechanism has not been identified, but is believed to be due to tissue hypoxia. The pattern of hearing loss after acute or chronic CO poisoning is typically sensorineural and could be unilateral or bilateral, reversible or irreversible. HBO2 is commonly used to treat severe CO poisoning, but has not been described for the sole purpose of treating CO-associated hearing loss. Corticosteroids have been shown to prevent delayed neuropsychiatric sequelae after CO poisoning, but no reported cases with CO hearing loss. Due to the potential benefits of these relatively benign interventions, the patient was treated with HBO2 and corticosteroids with improvement in symptoms.

Conclusion:

Hearing loss is a rare clinical manifestation of carbon monoxide poisoning. Resulting hearing loss may be unilateral or bilateral, and reversible or irreversible.