

Poster 67

## Sodium nitrite poisoning: an emerging trend in Forensic Toxicology

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### Abstract

**Background:** Sodium nitrite ( $\text{NaNO}_2$ ) is an odorless, white crystalline powder soluble in water, and like common salt in appearance and taste. It can be toxic for humans and can cause methemoglobinemia [1]. Its mechanism of toxicity mainly consists in the oxidation of ferrous iron ( $\text{Fe}^{2+}$ ) to ferric iron ( $\text{Fe}^{3+}$ ) of one of the four heme structures in hemoglobin [2]. This is a growing topic due to the consecutive increase in the number of reported intoxication cases in recent years, mainly of suicide attempts by ingesting this powder. **Objective:** This study aims to summarize and characterize intentional and accidental sodium nitrite intake cases in what concerns to age, gender, and outcome (in particular mortality). **Methods:** A literature search was carried out on January 3, 2023, on PubMed. Only articles published in the last 5 years from the date of the search were selected. After excluding duplicate, off-topic, or no-access articles, 23 articles were selected, including 8 case reports, 8 case series and 6 review articles. **Results:** Of the 34 victims reported in the articles studied, 21 were male and 13 are female. The age range of the victims was from 16 to 70 years. 29 cases had an intentional character, while only 5 were caused by food poisoning. The amount of  $\text{NaNO}_2$  ingested was from 0.75 to 113 g. **Conclusions:** A patient presenting with cyanosis and unresponsive without respiratory disease should raise suspicions of sodium nitrite poisoning. There was a higher mortality rate for older victims, so age should be a conditioning factor for the victim survival/death [1]. In 48.3% of the cases,  $\text{NaNO}_2$  was obtained from the internet and online suicide forums. Thus, there should be limitation of this information on the internet and more control on  $\text{NaNO}_2$  sales. These measures are being implemented in some countries, such as Canada [3].

**Keywords:** sodium nitrite; suicide attempts; methemoglobinemia; food poisoning

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