
K13 An Extremely Rare Suicidal Intoxication With Sodium Azide: A Case Report

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After attending this presentation, attendees will show the importance of interplay between the on spot investigation performed by the forensic-doctor and the lab work for the identification of the causes of death.

This presentation will impact the forensic science community by the presentation of a rare suicidal intoxication case and also the importance of crime scene investigation in forensic toxicology.

A 23-year-old female doctor in biochemistry was discovered dead on the floor of her home by her work colleagues. A computer displaying web pages regarding suicide and a hand written note that said "...be careful because the poison I used can produce toxic gas in contact with acid in the stomach..." were found. A cup filled with a white liquid and a can containing traces of a white powder were noticed by the forensic-doctor and were collected. The external inspection of the cadaver didn't show any signs of external lesions. A brown material stained the mouth and nose.

At autopsy, the aforementioned brown material was found in the upper and lower airways; the stomach was remarkably stretched by gas and full of beige granular semi-fluid material; and the organs were all congested. Blood, bile, urine, and gastric content samples were collected, as well as lung, kidney, and liver specimens.

All the samples were tested for routine toxicological analysis: Gas Chromatography/Mass Spectrometry (GC/MS), a targeted screening method by Liquid Chromatography/Tandem Mass Spectrometry (LC/MS/MS) and Gas Chromatography With Flame Ionization Detector (GC/FID) for alcohol and other volatile substances were all used on the blood and on the gastric content; colorimetric tests for the identification of cyanide and other common poisons were performed on gastric content. Nonetheless all the analytical procedures didn't provide any conclusive results.

Finally, going through the objects retrieved on the scene, it was proposed to analyze the powder inside the can. An Infrared (IR) and an Atomic Absorption Spectroscopy (AAS) analysis were performed, identifying with the former the presence of azide ions (confirmed by High-Performance Liquid Chromatography (HPLC)), and with the latter the presence of sodium. Azide is a highly toxic substance that causes several effects in the body, such as oxidative enzymes inhibition, blockage of oxygen transport and hypotension. A liquid chromatograph analysis using reverse phase (C18) column, isocratic mode, using a mobile phase consisting of a mixture of acetonitrile and water (1:1), with the Diode Array Detector (DAD) operating in the range 200-400nm, was performed on both the powder and the gastric content. The results were confirmed through the method of standard addition on the powder and in the gastric content. The powder was a pure preparation of sodium azide (\square 100%). The gastric content had azide in it, but the concentration could not be evaluated due to the lack of data regarding gastric content weight. An attempt to measure azide was also carried out on the blood, but the results were negative.

Suicide, Sodium Azide, Crime Scene Investigation