K5 Strychnine Poisoning

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The goal of this presentation is to present a case of strychnine poisoning as it is not a common or easily diagnosed.

This presentation will impact the forensic science community by demonstrating the difficulties encountered by the forensic medical doctor during investigations of homicide or suicide by strychnine poisoning.

Introduction : In Europe and North America, Strychnine is commonly known as a restricted use pesticide. In France, its use as a pesticide is forbidden. Historically, intoxications were rare and causes were generally accidental, sometimes suicidal and in limited cases homicide-related. The mechanism of neurotoxicity of strychnine is well understood and the management of strychnine poisoning is well documented. There are data about survival after strychnine poisoning and the kinetics of elimination of strychnine. Strychnine concentrations in fluid samples of fatalities have been reported. Strychnine poisoning is uncommon and often difficult to diagnose; many times toxicological analyses is performed on a few fluid samples.

Materials and Methods: This presentation reports a case of a 58 year- old man who ingested a potential poison or medication in order to commit suicide. The autopsy did not reveal a traumatic cause of the death. An autopsy was performed and samples of cardiac blood, femoral blood, gastric content, bile urine and vitreous humour were analyzed. Moreover some kind of “balls” were found in the gastric contents. From these samples, ethyl al- cohol (GC) and other toxins (EIA, LC/DAD, GC/MS) were investigated in order to determine the origin of the death.

Results: Ethyl alcohol was found in urine (0.14 g/L), in gastric content (1.14 g/L) and bile (0.31 g/L). Regarding other toxins, none were found in the samples. A high concentration of strychnine in both cardiac (7 µg/mL) and femoral blood (0.64 µg/mL), in gastric content (130.5 µg/L) and bile (21.9 µg/L) was detected. A bottle containing 10 g of white powder was also received. The bottle was found on the victim’s bed table. The content of this bottle was also analyzed by chromatography which confirmed the bottle contained strychnine. The death was determined to be a fatal intoxication by strychnine.

Discussion: When investigating a toxic death, strychnine intoxication is not the first hypothesis of most death investigators. A background check of the decedent is sometimes helpful in the final death determinations. In this case the man was a gamekeeper and could readily obtain strychnine. The bottle on his table confirmed the suspicion. Fluids taken during autopsy al- lowed for strychnine determination of several fluids that are not typically reported in the literature. Toxicology confirmed the strychnine poisoning which was recent because of the high concentration in gastric content and the low urine concentration. In the blood, the concentration was lethal (more than 10x the commonly lethal dose). In the literature, the blood is always analyzed, sometimes the gastric content and in very few occasions the urine is also analyzed.

This case demonstrates a fatal and acute strychnine poisoning with the presence of high strychnine concentrations in different fluids.

Strychnine, Poisoning, Toxicology

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