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Poisoning with atropine-based eye drops: An almost perfect murder?

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Aim

A 56-year-old man was found unresponsive in his bathroom by his daughter, and declared dead by the mobile emergency and resuscitation service (SMUR). There were no signs of tampering or an intervention by a third party. However, in the absence of the deceased's wallet and identification documents, the emergency doctor cannot certify the death as natural. Thus, the Public Prosecutor's Office launched an investigation and a forensic doctor was required at the scene. The man was known to be an alcohol addict and numerous licit drugs were prescribed. The deceased had a new friend since 6 months.

Method

An external examination and an autopsy were done by a forensic pathologist. A systematic toxicological analysis (STA) was performed on blood, urine and gastric content. In addition, other investigations such as financial data, mobile phone transcripts, etc. were initiated.

Results

A rectal temperature of 41.2 °C, bilateral mydriasis and the absence of traumatic lesions was observed during the external examination of the body. The autopsy revealed hepatic steatosis, chronic dilated cardiomyopathy, acute pulmonary edema and a vesical globe. STA was positive for alcohol, alprazolam, venlafaxine, bisoprolol and atropine. Despite a therapeutic atropine blood concentration (23 ng/mL), this compound turns out to be the main element of this case. With its short half-life, atropine intoxication cannot be excluded, certainly in the event that a significant period of time has elapsed between the intake of atropine and death. Dose estimates of consumed atropine were made on the basis of the STA urinary concentration and the volume of urine in the bladder noted during the autopsy. Depending on the route of administration, the dose of atropine consumed would be at least 20 times higher than in a therapeutic setting.

Conclusion

Research concerning the new friend of the deceased revealed some interesting findings: (a) a search of medical prescriptions of the friend revealed two prescriptions for Isopto-Atropine®, the day before or the day of death, delivered in two different pharmacies, (b) a third prescription was dispensed four months earlier, (c) the mobile phone transcripts raised suspicion of another poisoning. This person was hospitalized but fully recovered. The urine sample collected at the hospital of this third person was sent for STA. This sample revealed the presence of four drugs identical to those identified in the deceased, namely alprazolam, venlafaxine, bisoprolol and atropine. After a consistent denial of committing a crime on the second day of the trial, the accused admitted having emptied two bottles of Isopto-Atropine® into the beer of the deceased victim. This confirmed what we had calculated as dose.

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