

H44 Considerations on Death Caused by Heroin Inhalation: A Literature Review

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After attending this presentation, attendees will better understand how death is caused by the depressing effects of heroin on the respiratory center of the brain after inhalation.

This presentation will impact the forensic science community by illustrating the results of a multidisciplinary collaboration, which is fundamental to understanding the cause of death of individuals who use heroin occasionally and only by inhalation.

The police report containing MP's statements reads that at 8:00 p.m. on a mid-July day in 2010, five men whose average age was 28 went to a secluded park area by the Sabato bridge in Benevento (southern Italy). They first drank two liters of wine and four liters of beer. After approximately one hour, KN took a half-liter plastic bottle, placed a pierced piece of aluminum foil on the mouth of the bottle, made a hole sideways into which he inserted a straw, and lit the dark-colored substance lying on the piece of foil. This phenomenon is known as *chasing the dragon*.^{1,2} All the men inhaled the fumes produced by the combustion through the straw. At midnight, the friends went away, leaving KN alone near the bridge. At 9:00 a.m. the next morning, at his mother's request, the police began looking for KN. They found him lifeless just where his friends had left him. The medical examiner arrived at the scene and, based on the thanato-chronological data he had collected, said that the victim had died approximately between 10:00 p.m. and midnight the previous day. He did not have any external skin and/or skeletal lesions except for some reddish fluid leaking from his right ear canal.

During the autopsy, the medical examiner found no signs of venipuncture nor any self- or other-inflicted injuries. The oral cavity was intact and free of contaminations. Instead, the medical examiner found minor signs of cerebral edema, severe pulmonary congestion with a serum-and-blood secretion discharging when pressed, and a general congestion of the internal organs caused by the inhibition of the breathing center. The medical examiner collected samples of blood, urine, and bile for toxicological testing. The blood tests were positive for morphine (252ng/ml) and traces of codeine. The urine was positive for morphine (2,392ng/ml), codeine (9ng/ml), cannabinoids (53ng/ml), and ethyl alcohol (1.09g/l). The bile was positive for morphine (120ng/ml), 6-monoacetylmorphine (17ng/ml), and codeine (11ng/ml).

In conclusion, the absence of signs of venipuncture on KN's body, the presence of morphine, codeine, and alcohol in his blood, and morphine and codeine in the urine were proof that KN had taken drugs by inhalation. This scenario suggests that he died due to an overdose of morphine resulting from heroin inhalation. Through the literature review, the study can affirm that death caused by heroin inhalation, associated with apparent low levels of morphine in the blood, is due to a low drug tolerance and to interactions with other Central Nervous System (CNS) depressants or other systemic factors that have not yet been identified.³⁻⁵

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