K42 Homicide by Propofol

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After attending this presentation, attendees will understand how medications such as propofol can be used to murder individuals, and the investigative techniques available to identify such deaths.

This presentation will impact the forensic science community by describing a unique and difficult to investigate method of homicide.

In November 2005, a 24-year-old previously healthy woman was found dead in her residence in Gainesville, Florida after her boyfriend had been unable to reach her. She was found prone, facedown in the bed, and was fully clothed. No drugs or drug paraphernalia were found in the residence, and there were no signs of a struggle or other interpersonal violence. At autopsy, the body had fixed lividity on the ventral surfaces, with blanched areas on the forehead, nose, chin, and across the chest corresponding to the left arm under the body. A single, minute pinpoint puncture wound was identified on the left antecubital fossa, directly overlying a prominent subcutaneous vein in the antecubital fossa. Minimal hemorrhage was present in the intervening soft tissues. No other abnormalities were observed during the autopsy. Blood, urine, vitreous humor and tissue specimens were obtained and submitted for toxicological and histological studies.

Law enforcement personnel in attendance at the autopsy alerted those at the scene regarding the puncture wound, and subsequently, the investigation widened to include inspection of garbage containers outside of the residence. Investigators found vials of propofol, etomidate, midazolam, and saline, along with needles and intravenous prep materials.

The medications and medical paraphernalia were traced back to a local hospital and linked to a male acquaintance of the victim. The male acquaintance, who apparently was infatuated with the young woman, was an ICU nurse who coincidentally was terminated from his position shortly after the young woman's body was found. Although he was suspected to have involvement in this victim's death, several months passed before DNA evidence definitively linked him to the crime. During this intervening time, he left the region, and subsequently fled the country for Ireland.

Postmortem blood and urine specimens were subjected to comprehensive drug analysis including volatiles and over-the-counter, prescription and illicit drugs. The blood was positive for propofol (4.3 mg/L), phentermine (0.64 mg/L), and diphenhydramine (trace). In addition, 15 mg/L of GHB was detected in the urine.

Propofol is an intravenous anesthetic agent with rapid-onset of action and is primarily used for the induction and maintenance of anesthesia in surgical procedures, as well as a sedative in various clinical settings. Blood concentrations of propofol at approximately 4 mg/L are typically achieved for maintenance during major surgery, and individuals at these concentrations require mechanical ventilation.

With these results, in addition to the absence of significant anatomic findings, the death was certified as propofol intoxication, and the manner of death was certified as homicide. Pursuant to the conclusion of the medicolegal death investigation, a warrant was issued for the male acquaintance's arrest. Eventually he was captured in Senegal, extradited to the U.S., and formally charged and tried for the death of the young woman. The male acquaintance was found guilty of first-degree murder and sentenced to life without parole.

Homicide, Propofol, Death Investigation

 ** Presenting Author*