K7 Cocaine Detection in Postmortem Samples Following Therapeutic Administration

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After viewing this presentation, attendees will understand the importance of a thorough investigation, medical records review, and interpretation of autopsy and toxicology results in postmortem cases in which controlled substances such as cocaine are detected following administration in a clinical setting.

This presentation will impact the forensic science community by emphasizing that the detection of illicit drugs in postmortem samples is not always indicative of abuse.

Cocaine is a drug which is notorious for its high potential for recreational abuse, and the detection of cocaine in postmortem samples would most often lead toxicologists and forensic pathologists to believe that the drug was abused. However, cocaine is an effective local anesthetic and vasoconstrictor of mucous membranes and has been used clinically in surgeries of the eye, ear, nose, and throat for over 100 years. The persistent popularity of the clinical use of this drug is clearly attributable to its unique ability to simultaneously limit epistaxis and induce local anesthesia. Therefore, it is important to note that the presence of cocaine and its metabolites in postmortem samples cannot always be attributed to abuse and that a thorough investigation and review of clinical records is warranted before an informed conclusion can be made.

Presented here is the case of a 54-year-old male who was involved in an altercation during which he suffered multiple injuries. Three days later, a surgical procedure involving closed reduction of bilateral nasal bone fractures was performed and the man was released from the hospital. Approximately eleven hours post-surgery, the man was found unresponsive in bed and EMS responded and pronounced him dead on the scene. Given the circumstances leading up to the demise, a full postmortem examination was performed in order to elucidate the contribution of external factors such as physical injury, surgical intervention, and/or drug use to his death. In addition to natural disease and injuries documented at autopsy, toxicological analysis revealed the presence of cocaine metabolites in the man's urine. A comprehensive review of subsequently received surgical records revealed that the man was administered cocaine during the procedure to repair his nasal bone fractures.

If not for this review of surgical records, the assumption of cocaine abuse might have otherwise been made and the well-known cardiotoxic effects associated with cocaine considered a contributory factor in certification of cause and manner of death. Additionally, an erroneous presumption of illicit drug use may have significant implications in a legal setting and may cause family members of the decedent undue anguish. Toxicology results, investigative reports, clinical records, and pathologic findings must be collectively taken into consideration to ensure accurate explanations for the presence of cocaine, as well as other drugs that may be administered clinically, in postmortem samples. **Postmortem, Cocaine, Therapeutic**

 ** Presenting Author*