H139 The Outbreak of Fentanyl-Related Deaths in Cook County, Illinois, Between October 2015 and December 2017: A Retrospective Study and a Comparison With Previous Data

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Learning Overview: After attending this presentation, attendees will better understand the prevalence of fentanyl-related deaths in Cook County, IL, and what drugs are being used with fentanyl.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by illustrating the recent increase of fatalities due to fentanyl intoxication compared to previous data obtained in the same area.

Fentanyl is a synthetic μ-agonist, a phenylpiperidine derivative with a structure closely related to that of meperidine. It is a potent narcotic used for anesthesia and analgesia. Individuals who are prescribed fentanyl for pain are prone to abuse or become addicted to the drug.

Moreover, fentanyl is made illegally and used as a recreational drug, often mixed with heroin or cocaine, since low production costs encourage suppliers to "cut" recreational drugs with it.

Previous research in Cook County found that a cluster of deaths from fentanyl intoxication appeared in late 2005. The study was conducted by Denton et al. between September 2005 and April 2007 and showed approximately 350 fentanyl-related deaths occurred in Cook County.[1] This epidemic had a peak in the middle of 2006, then drastically terminated in early 2007. In recent years, a new epidemic of fentanyl-related fatalities has been observed in Cook County.

To estimate the number and features of deaths due to fentanyl intoxication during the new epidemic, the electronic database of the Cook County Medical Examiner's Office in Chicago was examined for cases of people dying from fentanyl toxicity or combined drug toxicity, including fentanyl, between October 2015 and December 2017. A research using the keyword "fentanil" was also performed in the same period. The data were reviewed for age, sex, race, and cause and manner of death. The fentanyl-related deaths were then subcategorized as to the presence or absence of other drugs. No limits were imposed.

A total of 27,131 cases were identified in the studied period. Among these, 1,256 cases contained the keyword "fentanyl" and 4 cases contained the keyword "fentanil" as a primary cause of death. This study detected 112 cases of fentanyl deaths without other drugs or substances, 147 cases of fentanyl + heroin, 54 cases of fentanyl + ethanol, and 37 cases of fentanyl + cocaine. The remaining 900 cases included multiple drug intoxications (more than two drugs) with fentanyl synthetic analogues and other less frequent drug combinations. In four cases, the death was due to a combination of drugs including carfentanil but no fentanyl. A thorough discussion of the results, including demographic data and the comparison with the previous epidemic, will be shown to attendees.

After a first epidemic between 2005 and 2007, fentanyl intoxications significantly reduced, then reappeared in the recent years. Knowledge about this new outbreak could be useful for public health in monitoring and quickly diagnosing and treating acute intoxication when fentanyl is involved. Moreover, knowing the extent of the current problem could be useful for public safety purposes, while the analysis of the recreational drugs usually combined with fentanyl can contribute to a better-informed public policy that helps reduce risk for intravenous drug abusers.

Reference(s):

1. Denton J.S., Donoghue E.R., McReynolds J., Kalelkar M.B. (2008). An Epidemic of Illicit Fentanyl Deaths in Cook County, Illinois: September 2005 Through April 2007. *J Forensic Sci* 53:452–4541.

Fentanyl, Toxicity, Synthetic Opioids