K23   Importance of Postmortem Adipose Tissue Analysis in an Olanzapine (Zyprexa) Suicide Case

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The goal of this presentation is to suggest the value of adipose tissue analysis for the identification of drug users is steadily gaining recognition. Adipose tissue analysis may be useful adjunct to conventional drug testing in toxicology. Specimens can be more easily obtained with less embarrassment and adipose tissue can provide a more accurate history of drug use. After attending this presentation, attendees will understand the importance of biological alternative matrices in postmortem toxicological analysis.

This presentation will impact the forensic community by demonstrating the utility of adipose tissue analysis in determining defensible cause of death to evaluate the pharmacological story. The objective of this presentation is to provide long-term information about an individual's drugs use, especially when the pharmacological history is difficult or impossible to obtain. A sensitive and specific GC/MS method for the determination of drugs in postmortem adipose tissue was used. The method combines acid extraction of analytes, alkalinization of the extract aqueous, purification on Extrelut NT columns and GC-MS analysis.

This case involves a 22-year old female who suffered from depression and was on benzodiazepines and antipsychotics: lorazepam, valproic acid, chlorpromazine, and sertraline. There was history of three previous attempted suicides. At the crime scene, a large number of antidepressants, antipsychotics and benzodiazepines packs (some of which were empty), and an empty olanzapine (Zyprexa) pack. Systematic toxicological analysis was performed on conventional biological samples for drug of abuse, alcohol, and other poisons. Urine immunochemical screening and GC/MS analysis detected all drugs prescribed, in therapeutic concentrations (lorazepam, valproic acid, chlorpromazine, and sertraline). Blood immunochemical screening and GC/MS analysis detected all drugs prescribed in therapeutic concentrations and a olanzapine (Zyprexa) concentration of $3.07\mu g/ml$, greater than the therapeutic concentration range of $0.01\text{-}0.05\ \mu g/ml$.

Toxicological analysis on adipose tissue confirmed the presence of all drugs prescribed (Lorazepam, valproic acid, chlorpromazine, and sertraline) and found at the crime scene, but did not reveal the olanzapine presence. The large presence of olanzapine, not prescribed drug, in the blood and not in adipose tissue is indicative of the olanzapine intake for suicide. Therefore, the death was ruled a suicide caused by olanzapine overdose. In conclusion, this study suggests the value of adipose tissue analysis for the identification of drug users and is steadily gaining recognition. Adipose tissue analysis may be useful adjunct to conventional drug testing in toxicology. Specimens can be more easily obtained with less embarrassment and adipose tissue can provide a more accurate history of drug use.

Adipose Tissue Analysis, Olanzapine, Suicide