The postmortem redistribution phenomenon is an important factor in the interpretation of blood drug concentrations as a cause or factor in death. Intraosseous fluid (IOF) may serve as an alternative matrix for drug testing” Rodda et al (2017).

Abstract:

The postmortem redistribution phenomenon is an important factor in the interpretation of blood drug concentrations as a cause or factor in death. Intraosseous fluid (IOF) may serve as an alternative matrix for drug testing. Intraosseous fluid was collected from the left and right tibias and humerus of 29 decedents using the Arrow EZ-IO Intraosseous Vascular Access System.

Standard autopsy specimens including blood were also collected at the same time during autopsy. Blood and IOF specimens were screened by immunoassay for opioids, fentanyl analogs, oxycodone, methadone, cocaine, methamphetamine, amphetamines, phencyclidine, tricyclic antidepressants, benzodiazepines and cannabinoids, using commercially available enzyme-linked immunosorbent assay (ELISA) kits. Correlation between cardiac/central blood ELISA and IOF ELISA results was mostly 100% for drug targets. Further blood confirmation analysis was performed by gas chromatography mass spectrometry also showed comparable correlation to IOF screen results. There was no significant difference between the IOF sites or sides of the body. This novel study supports the use of IOF as an alternative postmortem specimen for toxicological investigations as a potentially less-compromised tissue in decomposed or traumatized bodies. Preliminary data is provided for the screening of common drugs of abuse in IOF that may show to be subject to alternative rates of postmortem redistribution than to that of other biological specimens in future studies that quantitate IOF drug concentrations.

Reference:


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