K33 The Quantitation of Sildenafil (Viagra®) and its Metabolite (UK-103,320) in Postmortem Specimens Using LC/MS/MS/MS

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Attendees will be briefed on an analytical method for the quantitation of sildenafil and its active metabolite in postmortem fluid and tissue specimens.

This presentation will impact the forensic community and/or humanity by demonstrating an introduction to applicable LC/MS methodology.

During the investigation of fatal civil aviation accidents, postmortem samples from accident victims are submitted to the FAA's Civil Aerospace Medical Institute for toxicological analysis. The FAA Laboratory develops analytical methods for the identification and quantitation of compounds that may be encountered. This presentation describes a rapid and reliable method for the identification and quantitation of sildenafil (Viagra®) and its active metabolite, UK-103, 320, from postmortem tissues and fluids. This procedure incorporates solid-phase extraction and LC/MS/MS/MS utilizing an atmospheric pressure chemical ionization (APCI) ion trap mass spectrometer (MS) in the positive ionization (PCI) mode. Solid-phase extraction provided an efficient sample extraction yielding recoveries of approximately 80%. This method is highly selective and sensitive, having a limit of detection of 1 ng/mL for both compounds. Sildenafil and UK-103, 320 were found to have a linear dynamic range of 2-800 ng/mL and 4-800 ng/mL, respectively. This procedure showed intra-day (within day) relative errors of £ 6% and relative standard deviations (RSDs) within 4% for both 50 ng/mL and 200 ng/mL controls. The inter-day (between day) relative errors were £ 4%, while the RSD was within 12% for both control concentrations. Sildenafil and UK103,320 were shown to be stable in blood for at least one week at 4°C. This method was applied to fluid and tissue specimens collected from two separate fatal aviation accident victims. The concentrations of these two compounds in various specimens will be discussed.

Sildenafil, LC/MS, Postmortem

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