Postmortem Cases: Five Pearls for Attorneys

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Interpreting postmortem drug levels is complex and is not as simple as take the level, check a reference table (or two), and voila! …the cause of death is now crystal-clear. I know these tables exist. However, as a seasoned toxicologist, I also know they have several limitations including: their data can be from living patients (who are different than deceased patients in more ways than one – principles related to drug "pharmacokinetics" no longer apply after death) and the ranges cited may not correspond to actual published cases. Also, there are many inter-patient variables such as tolerance, disease states, and co-existing drugs (just to name a few) that put interpreting a level in isolation on a slippery slope.

"If all you have is a drug level, all you have is a drug level." There are other pieces to the story and toxicologists analyzing postmortem cases need more than just those numbers. Things we need to know: time of survival after intoxication, the presence of other drugs, medical history (drug therapies, disease states), trauma, bystander reports (who last saw the decedent alive? What was the decadent's behavior/appearance prior to death?), police/EMS reports, full autopsy report (not just the toxicology analysis), state prescription drug monitoring reports, and scene investigation data (just to name a few).

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The postmortem redistribution (PMR) of drugs can result in postmortem drug levels that are misleading. PMR refers to the process by which some drugs "shift" around more in the body after death to different compartments of the body (leading to a falsely elevated blood level). Fentanyl is an example of such a drug (like postmortem interpretation of fentanyl levels wasn't complex enough).

The body fluid tested for toxicology analysis matters. You'll see femoral blood, heart blood, vitreous fluid ("eyeball fluid"), urine, and possibly body tissues (such as liver tissue). Levels mean different things based on where they were obtained. Levels from multiple body fluids/tissues can sometimes be helpful (as opposed to just one source). This is complex.

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If you have postmortem toxicology results from more than one laboratory, make sure you are comparing apples to apples. One lab may be using a different minimum detection limit than the other (resulting in a "negative" result at one lab but a "positive" at another) or is testing for different substances all together. I'm going to sneak in a 6th tip here: make sure you also have the toxicology analysis sheet along with the postmortem testing results. This is the "menu" of what they were testing for.

As you now know, many variables are taken into consideration when interpreting postmortem drug levels. And sometimes, we cannot determine what the drug levels mean or don't mean. If only the dead could talk to us…

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