



K34 Multiple Drug Intoxication in Impaired Drivers: Polypharmacy Challenges

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After attending this presentation, attendees will be able to recognize some of the common challenges involved in polypharmacy DUI casework.

This presentation will impact the forensic community and/or humanity by facilitating the comprehension of interpretive limitations faced by toxicologists.

Despite the prevalence of driving under the influence of drugs (DUID), these cases often provide a number of unique challenges compared with alcohol-related DUI. Toxicology results are often interpreted within the context of driving behavior, signs, symptoms and other observations made by law enforcement personnel or witnesses. The quality of this supporting documentation can influence the interpretive strategy, and subsequently, the outcome in a court of law.

Interpretive issues may be further complicated by the presence of multiple drugs in a driver. Combinations of drugs or “polypharmacy” DUI casework may pose additional challenges from a toxicological standpoint. Practitioners must go beyond the pharmacological classification of additive, synergistic and antagonistic effects when evaluating these cases. Laboratorians may overcome some of these challenges by appropriate choice of specimen, scope of testing and quantitative drug analysis. Although interpretation is rarely based upon quantitative drug results in isolation, quantitation may be particularly useful in polypharmacy casework to determine dominant drug factors or substances that are most likely to be responsible for the impairment. In some circumstances, quantitative analysis may also provide complementary information regarding approximate timeframe of drug use, history of drug use (habituation) or acute vs. chronic drug use based upon parent/metabolite concentration ratios. Caution should be exercised when classifying drug concentrations as sub-therapeutic, therapeutic, toxic or fatal in polypharmacy casework due to overlapping ranges, tolerance to the toxic effects of some drugs in habitual users and additive effects.

A series of ten cases involving drivers who tested positive for multiple drugs will be presented. Driving behavior, signs, symptoms and toxicology results will be discussed for cases involving combinations of central nervous system depressants, stimulants, opioids and cannabinoids. The series highlights some of the common challenges faced in polypharmacy casework such as additive and combination effects caused by drugs within the same or different drug classifications, the value of quantitative drug analysis to determine which drugs are most likely to be responsible for the observed impairment, the value of qualitative drug analysis for certain drugs, and the need for supporting documentation.

Drugs, Driving, Impairment