



K19 Oxycodone Blood Concentrations in Seventy Postmortem Cases

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The goal of this presentation is to assist the forensic pathologist and toxicologist in evaluation of postmortem oxycodone blood concentrations.

This presentation will impact the forensic community and/or humanity by assisting forensic pathologists and toxicologists in assessment of the role of oxycodone in sudden and unexpected deaths.

The authors present the postmortem blood oxycodone findings in 70 deaths: 4 cases of fatal intoxication due solely to oxycodone (3 men, ages 22, 23, 46 yrs; 1 woman, 21 yrs); 38 cases of multiple drug intoxication involving oxycodone (22 men, mean age 37 yrs, ranging from 19 to 78 yrs, and 16 women, mean age 39 yrs, ranging from 20 to 61 yrs); 28 cases of natural causes of death where oxycodone was an incidental finding (19 men, mean age 35 yrs, ranging from 18 to 79 yrs, and 9 women, mean age 39 yrs, ranging from 35 to 63 yrs). Oxycodone was isolated from blood by solid phase extraction with n-butyl chloride/acetonitrile mixture. Acetyloxycodone derivative was prepared with acetic anhydride/pyridine and analyzed by GC/MS with separation on a HP-5MS column (30m x 0.25mm id x 25 μ m film thickness) at the following temperatures: initial, 60°C; ramp, 20°C/min; final 280°C; with a retention time of 14.52 min for oxycodone and deuterated oxycodone (IS). Ions monitored in SIM mode for acetyl-oxycodone, and acetyl-d₃-oxycodone was 357,358,314 m/z and 360,317m/z, respectively. The calibration was linear from 0.10 - 2.0mg/L. Oxycodone blood values are given in Table 1.

	N	Oxycodone Blood Mean, mg/L (Range, mg/L)
Sole agent	4	0.50 (0.23 – 0.76)
Mixed drug	38	0.42 (0.06 - 1.6)
Natural	28	0.19 (0.10 – 0.6)

Acetaminophen (APAP) was present in 12 of the 38 deaths due to multiple drugs indicative of ingestion of oxycodone/APAP combination tablets. Commonly encountered drugs in the multiple drug deaths were; benzodiazepines, 13 cases; carisoprodol, 13 cases; cocaine, 8 cases; and antidepressants, 4 cases. In addition to oxymorphone, a metabolite of oxycodone, other opiates present were fentanyl, 3 cases and methadone in 2 cases. While tolerance is a major consideration in the interpretation of postmortem oxycodone concentrations, these data are consistent in that therapeutic blood values are expected to be less than 0.25 mg/L, and toxic or lethal blood concentrations would be expected to be greater than 0.40 mg/L.

Oxycodone, Fatal Poisoning, GC/MS