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AIMS: Despite oxycodone is widely prescribed in USA, there is limited data on post-mortem oxycodone concentrations. Moreover acute intoxications with oxycodone seem to be very rare in France. The aim of this presentation is to assess the contribution of oxycodone among psychotropic drugs, other opioids and alcohol in suicide cases.

METHODS: We reviewed all the forensic cases we received in our laboratory for the years 2000 to 2006, to point out cases with oxycodone exposure as a leading cause of death. In all the cases the bodies were subjected to a full autopsy and subsequent samples (blood, urine, gastric content, bile and hair if available) were taken in order to perform a complete toxicological examination. Standard analysis for screening were performed by GC-MS and LC-DAD for blood and urine. Blood alcohol concentration was determined by HS-GC-FID. Hair was segmented in 2-cm segments, decontaminated then cut into very small pieces with scissors. Fifty milligrams were incubated overnight at 56°C in HCl 0.1N. Extraction was performed on C-18 SPE column. BSTFA was used as derivatization agent (80°C, 15 min). Determinations of oxycodone and metabolites were then achieved by GC-MS, as for blood and/or urine, using oxycodone-d₃ as internal standard.

RESULTS: Four cases were pointed out (3 male, 1 female). In all the cases circumstances clearly indicated suicide committed at home. Case #1 Heart blood concentrations were as follow: oxycodone 4 µg/mL, ethanol 0.30 g/L. Oxycodone, oxymorphone and ibuprofen were detected in urine. Case #2 Heart blood concentrations were : oxycodone 8 µg/mL, ethanol 0.22 g/L, acetaminophen 8.8 µg/mL, trazodone 0.3 µg/mL. Oxycodone and acetaminophen were detected in bile; tablets with "OC 40" imprint were found in the stomach and identified as oxycodone (Oxycontin® LP). Case #3 Concentration of oxycodone in heart blood was 0.78 µg/mL. Concentrations of the other drugs were as follow: ethanol 0.15 g/L, codeine 4.1 µg/mL, methadone 3.2 µg/mL, nordazepam 4.2 µg/mL, bromazepam 0.3 µg/mL. Codeine, morphine, methadone, EDDP, nordazepam and oxazepam were detected in urine. Case #4 Concentration of oxycodone was 1.57 µg/mL in femoral blood and 2.58 µg/mL in heart blood. Other drugs were bromazepam 0.5 µg/mL, clonazepam 0.09 µg/mL, oxazepam 0.28 µg/mL, citalopram 0.18 µg/mL, mianserine 0.07 µg/mL and venlafaxine 0.08 µg/mL. Total oxycodone in urine was 47 µg/mL and among the metabolites of oxycodone, only oxymorphone was detected. All the drugs detected in blood were found also in urine. Tablets with "OC 40" and "OC 80" imprints were found in stomach and identified as oxycodone (Oxycontin® LP). Segmental hair analysis showed that oxycodone was usually taken (139 ng/mg in the 2cm-root segment, 154 ng/mg in the 2cm-tip segment). Unfortunately, the daily dosage was not known.

DISCUSSION AND CONCLUSIONS: In a 5-year survey, oxycodone was detected in 4 suicide cases and was the leading cause of death in three among four. Blood concentrations were at least in the potentially lethal range usually described in the literature (0.40 – 2.70 µg/mL, mean 1.00). In Case #3, other opioids (codeine and methadone) were the main toxic drugs. The oxycodone heart/femoral blood ratio of 1.6 confirm a potential post-mortem redistribution previously described by others authors. In France, the semisynthetic narcotic analgesic oxycodone was previously only available under suppository formulation. Since 2000, it is only available in oral formulations (normal capsules and controlled release tablets), and for very limited indications. A parenteral formulation will be marketed soon. Despite strong regulations, misuse of oxycodone, which is at least as toxic as other opioids, will certainly raise, as in others countries.

KEYWORDS: *Oxycodone, Suicide, Hair*

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