

## Findings of the neuromuscular blocking agent rocuronium in blood from deceased subjects several months after exposure: A report of two cases

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The nondepolarizing neuromuscular blocking agent rocuronium has been in general use in anesthesia for decades, and may induce lethal neuromuscular effects without concomitant supportive treatment. We detected low levels of rocuronium in several forensic autopsy cases, which instigated further toxicological investigations. In particular, we scrutinized two cases with no recent exposure to the drug, but who had been administered rocuronium on either three occasions 2–4 months prior to death or one occasion 2,5 months prior to death.

For quantification of rocuronium, a method based on liquid chromatography coupled to a tandem quadrupole mass spectrometer was established.

In the first case, a 58-year-old male who was found dead at a nursing facility after recent hospitalization for burn injuries, an extensive hematoma in the cerebellum was revealed at autopsy, and considered the direct cause of death. Rocuronium was measured at a concentration of 0.003 mg/L in femoral blood, 0.002 mg/L in urine and 0.005 mg/L in vitreous fluid (autopsy samples).

In the second case, a 47-year-old female with a history of cardiovascular disease, recent gall bladder surgery and considerable drug consumption because of chronic pain was found dead at home. The most likely cause of death was initially considered to be of cardiac origin. Based on toxicological analysis, an alternative cause of death by intoxication with fentanyl was discussed in the pathologist's report. Rocuronium was measured at a concentration of 0.003 mg/L in femoral blood, 0.003 mg/L in urine and 0.007 mg/L in vitreous fluid (autopsy samples).

In neither case, the cause of death was considered to be related to the exposure to rocuronium. Scrutiny of the case histories and the existing literature on rocuronium pharmacokinetics led us to the conclusion that low levels of rocuronium may be retained in humans for prolonged periods of time.