

A Case of Intrathecal Digoxin Administration: Disaster in the Delivery Room

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Background: Digoxin is a cardioactive steroid with a narrow therapeutic index. Digoxin has an extensive historical involvement in medical errors but there is only one prior report of intrathecal digoxin administration.

Case: A 36-year-old woman undergoing a high-spinal block during a caesarian section for twin gestation had an inadvertent intrathecal administration of 375mcg of digoxin. The patient was unresponsive immediately after the procedure and was intubated without the need for sedation. The patient's mental status improved and, by day 6, the patient was extubated. Initially, the patient had no motor function below T10 but regained weak plantar and hip flexion by day 7. Magnetic resonance imaging on day 7 showed neuronal injury from T3 to the conus medullaris consistent with ischemia, demyelination or myelitis. Repeat MRI on day 10 showed injury only from T4 to T9. The serum digoxin level at 2 hours was 0.8ng/mL and trended downwards. She was given multiple doses of Digibind, starting on day 6.

A preliminary error investigation revealed a stocking error, as a vial of digoxin was placed where lidocaine should have been. The patient is still in rehabilitation with profound weakness in her lower extremities. Although her mental status is near baseline, she continues to have intermittent episodes of disorientation.

Discussion: Intrathecal digoxin administration resulted in severe paresis. Bagherpour et al. reported three cases of accidental intrathecal administration of digoxin presenting as paralysis, parasthesias and hyporeflexia in the lower limbs. However, in all cases, symptoms resolved within 24 hours. They proposed that high levels of digoxin may non-selectively inhibit neuronal sodium channels causing temporary paralysis. In addition to this mechanism, we postulate that digoxin or one of the excipients in the preparation caused prolonged vasoconstriction, resulting in neuronal ischemia and more lasting symptomatology.

Conclusion: Severe neuronal injury may result from intrathecal digoxin exposure.