

Tranexamic Acid Associated Seizures: A Case Report

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Introduction

- Tranexamic Acid (TXA) is commonly used for intraoperative prevention of blood loss via inhibition of fibrinolysis. Guideline recommended dosing of IV TXA in hip replacement is a single dose less than 20 mg/kg (or ≤ 1 g). Higher and more frequent dosing has been utilized but not clearly proven to be beneficial.¹
- Dose-dependent seizures have been associated with TXA administration; however, research shows a single 20 mg/kg dose is safe in total hip and knee replacement.²
- We present the case of a patient who received intraoperative TXA and experienced tonic-clonic seizures following surgery.

Hospital Presentation

- A 63-year-old female weighing 75 kg with significant PMH for hip pain over two years presented for left hip replacement surgery. The patient had no personal or family history of seizures.
- The patient was assessed by the surgical team and underwent the procedure without complications.
- One hour post-op, as the anesthesia wore off, the patient developed tonic-clonic seizures in the post-anesthesia care unit.
- Subsequent laboratory results were unremarkable. A head computerized tomography scan, magnetic resonance imaging, and an electroencephalogram were all negative for abnormalities.
- Without a clear cause, the surgery team initiated her on medication management for her seizures.

Hospital Course

Post-Op Day 1

- The patient was administered 4 mg lorazepam IV and levetiracetam 1500 mg IV followed by 750 mg IV twice daily for maintenance.
- The patient was arousable but could not speak. Pharmacy was consulted to identify drug-induced causes and optimizations.



Pharmacy Findings Post-Op Day 1

- Our automated medication dispensing system report showed two vials of 1000 mg per 10 mL TXA were dispensed during surgery.
- The surgeon endorsed administering 1600 mg of TXA intravenously and the remainder of the second vial topically, exposing the patient to ~27 mg/kg or 2 g, above the guideline suggested dose.
- The recommendation was made to discontinue seizure medications and monitor for improvement. TXA has a short half-life and clearance of the drug should resolve seizures.



Post-Op Day 2-3

- The patient was awake and alert without exhibiting seizure activity. She conversed with the surgical team and was able to request meals with no memory of post-op day 1.
- Repeat imaging showed no abnormal results. Levetiracetam was discontinued and the patient remained at baseline mentation through post-op day 3.
- The patient was discharged with plans for neurology to follow up in the outpatient setting.

Discussion

- Due to interdepartmental care planning and coordination, the patient recovered swiftly with no major complications. The pharmacy's intervention prevented unnecessary anti-epileptic medication use.
- TXA-induced seizures are not uncommon and are associated with higher cumulative doses. This case has a Naranjo score of 6, probable.
- Fortunately for the patient, her New Jersey driver's license was not suspended for six months due to her seizure. As the patient's seizures were drug-induced, she is unlikely to suffer from repeat events. Neurology advised the patient to restrict her driving temporarily out of concern for her safety and to reassess her driving status as an outpatient.

Conclusion

This case demonstrates the pivotal role of a pharmacist in the management of cases with potential drug-induced disease. The expertise of pharmacists is indispensable to secure optimal outcomes and refine medication therapy for patients.

References

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