

# The One With The Confusion:

## Tics? Toxic? COVID?

Aisha Ansar MD , Jonathan E Fliegel MD

University of Wisconsin – Madison  
School of Medicine and Public Health,  
Department of Pediatrics

### CASE

- An 8 year old male with ADHD, Tourette’s Syndrome and Autism Spectrum Disorder was admitted with altered mental status
- Prior to admission, patient abruptly became “panicked, tearful and fearful” with episodes of atypical behavior
- Each 15-20 minutes episode included being unable to recognize his parents, nonsensical babbling, vulgar expletives, blank staring and agitation
- In between episodes, patient had waxing and waning mentation and described his episodes as a “scary dream”
- Prior to admission patient had developed new onset headaches for the past month without aura, vomiting or neurologic symptoms
- Patient was reported to have worsening tics prior to presentations and had been compliant with his home medications including risperidone and guanfacine

### SUMMARY

- ◆ Unintentional ingestion of medications remains a common cause of acute altered mental status in children
- ◆ Topiramate is widely used for migraine prophylaxis
- ◆ Symptoms of somnolence, agitation, inappropriate speech, amnesia and memory loss have been reported in patients taking topiramate therapeutically
- ◆ These symptoms are more common with first doses, are transient and usually resolve within 24-48 hours

### Physical Examination

Afebrile, normal vital signs. Oriented to person but not hospital or year with some nonsensical responses. Full PE including neurologic exam was normal.

### Work Up

- CBC, CMP normal
- Negative urine drug screen
- Negative blood ethanol, aspirin & acetaminophen levels
- SARS CoV2 PCR and Ab negative
- Normal ASO & DNAase AB, TSH, T4, Ammonia and ceruloplasmin
- Normal Brain MRI & 24 hour EEG
- Urine for GC/MS positive for topiramate

### DIFFERENTIAL DIAGNOSES

- Seizure
- Sleep disorder
- Autoimmune or infectious encephalitis
- COVID-related psychiatric symptoms
- PANS
- Behavioral or functional disorder
- Toxicity due to his medications or topiramate

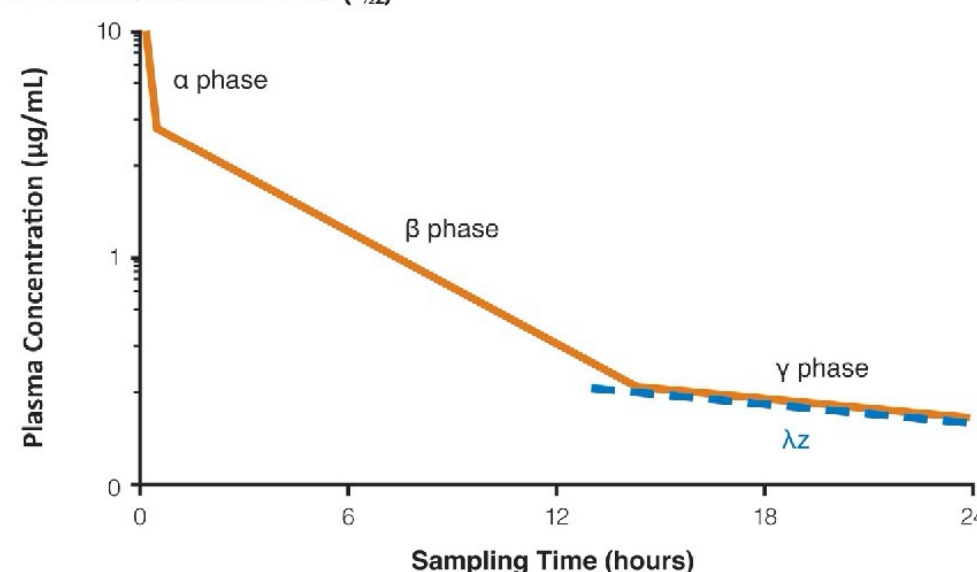
### DISCUSSION

- Patient’s mother had a history of migraine headaches and was taking prescribed topiramate for prophylaxis
- Parents were insistent that there were no topiramate pills missing and that he would not have taken any
- Symptoms of somnolence, agitation, inappropriate speech, amnesia and memory loss have been reported in patients taking topiramate therapeutically (more commonly with first doses) or in acute overdose
- Elimination half life of topiramate is 19 to 23 hours & symptoms are usually transient
- Given positive urine screen for topiramate, classic symptoms of acute overdose and resolution within hours with return of normal mentation, patient’s symptoms were likely secondary to acute topiramate overdose
- Hospitalists must remain vigilant regarding drug toxicities and obtain extended testing, especially with less common toxidromes

### REFERENCES

- Gidal, B., Annie M. Clark, B. Anders and F. Gilliam. “The application of half-life in clinical decision making: Comparison of the pharmacokinetics of extended-release topiramate (USL255) and immediate-release topiramate.” *Epilepsy Research* 129 (2017): 26-32.
- Lin G, Lawrence R. Pediatric case report of topiramate toxicity. *Clin Toxicol (Phila)*. 2006;44(1):67-9. doi: 10.1080/15563650500357552. PMID: 16496496.
- Traub, Stephen J., Mary Ann Howland, Robert S. Hoffman, and Lewis S. Nelson. "Acute topiramate toxicity." *Journal of Toxicology: Clinical Toxicology* 41, no. 7 (2003): 987-990.

A. Elimination Half-Life ( $t_{1/2}$ )



B. Effective Half-Life ( $t_{1/2\text{eff}}$ )

