NAS Associated with Antenatal Tianeptine Exposure: A Case Report

Francesca Damus MD, MPH, Kaleb Freeman DO, Candace Murbach DO, Palmer Johnston MD
Memorial Health University Medical Center

Background

- There are increasing number of non-FDA regulated substances available to the general public for self-management of chronic pain, mood, or recreational use
- A substance of growing concern is Tianeptine. It is easily available at herbal shops, online stores, convenience stores and gas stations
- Unfortunately, ingestion of Tianeptine during pregnancy with abrupt cessation may contribute to neonatal abstinence syndrome (NAS)
- We report the use of tianeptine during pregnancy in the form of Pegasus Gold retrospectively deemed the cause of unexpected NAS despite a negative maternal drug urine screen.

Clinical Presentation

This case is of a 0-day term infant transferred to NICU at 13 hours of life for poor feeding, worsening nasal congestion, and increased irritability. Patient with tachypnea, hypertonia, tremors and sneezing on exam. Upon transfer she was initiated on 2 L of NC for tachypnea, IV fluids, and NG/PO feeds. Despite initial efforts, infant continued to demonstrate symptoms concerning for opioid withdrawal. Of note, infant meconium drug screen was negative. Upon questioning mother, she admitted to consuming a supplement named Pegasus Gold Extra Strength that she obtained from an herbalist store. This medication contains Tianeptine as an active ingredient. Mother admitted she discontinued the Pegasus Gold weeks prior to her delivery and noted nausea, abdominal pain, vomiting, diarrhea for 3-4 days. It was proposed that the infant's symptoms were likely associated with tianeptine withdrawal as this medication acts as an agonist at the mu opioid receptor. NICU team administered a few prn doses of morphine on day of life 1 per Eat, Sleep Console scoring tool. One on one monitoring was initiated, and infant continued to improve. On NICU day 9, infant tolerated oral intake for 48 hours, she was deemed safe for discharge home with parents with close follow up with pediatrician. There was no morphine administration for 7 days prior to discharge.

Mechanism of Action/Common Adverse Effects

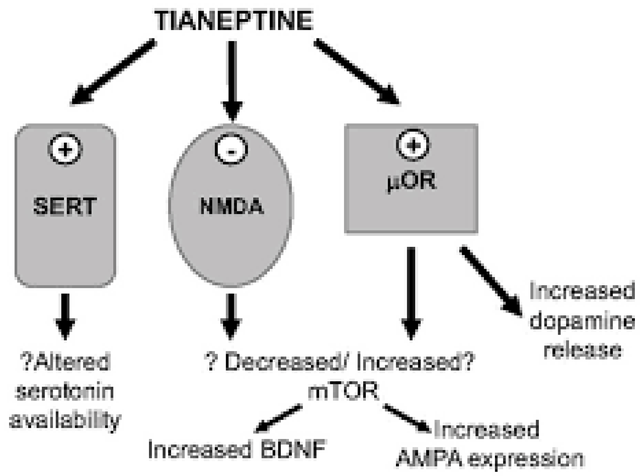

Figure 1. Mechanism of action.

https://www.eurekaselect.com/article/83676

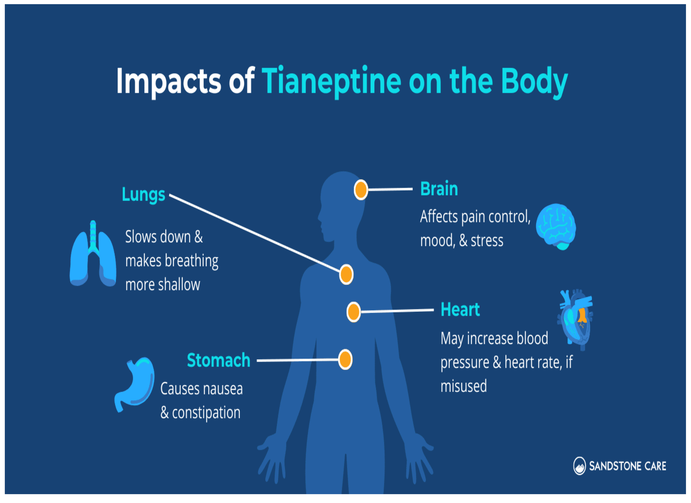

Figure 2. Common adverse effects.

https://www.sandstonecare.com/blog/tianeptine-zaza-drug/

Discussion

- Providers treating NAS secondary to antenatal tianeptine use should consider:
  - Morphine or buprenorphine (oral or IV)
  - Eat, sleep, console or other forms of NAS scoring
  - Transfer of care to NICU
  - Parental education and counseling on effects of antenatal tianeptine use
- Neonatal withdrawal syndrome in this situation was treated with eat, sleep console with the patient discharged after 9 day stay in the NICU
- The patient meconium drug stain was negative, there is active investigation into detecting tianeptine exposure through evaluation of umbilical cord samples (not feasible at all institutions).
- There is limited data on effects of antenatal tianeptine exposure, during the literature review, limited articles involving Tianeptine in pregnancy were discovered, (3 case reports, one cohort study).

Conclusion

- Recreational drug toxicity can be difficult to diagnose as standard toxicology screens do not assess for many abused substances
- This case report increases the awareness of NAS in infants secondary to Tianeptine ingestion
- More investigation is needed to aid healthcare providers in the diagnosis and management of NAS secondary to non-FDA regulated medications.

References

1. Camille Bence, Alexandre Bonord, Camille Rebillard, Pascal Vaast, Charlotte Alexandre, Renaud Jardri, Benjamin Rolland; Neonatal Abstinence Syndrome Following Tianeptine Dependence During Pregnancy. Pediatrics January 2016; 137 (1): e20151414. 10.1542/peds.2015-1414
2. Gupta S, Wallace R, Sloshower J. Online Sales of Unscheduled Pharmaceutical Agents: A Case Report of Tianeptine Use in the United States. J Addict Med. 2017 Sep/Oct;11(5):411-412. doi: 10.1097/ADM.0000000000000342. PMID: 28742625.
3. Kelechi Ikeri, Alexandria Anderson, Fabien Eyal, Richard Whitehurst; Neonatal Opioid Withdrawal Syndrome Following Prenatal Use of Supplements Containing Tianeptine. Pediatrics February 2024; 153 (2): e2023062382. 10.1542/peds.2023-062382
4. Samuels BA, Nautiyal KM, Kruegel AC, Levinstein MR, Magalong VM, Gassaway MM, Grinnell SG, Han J, Ansonoff MA, Pintar JE, Javitch JA, Sames D, Hen R. The Behavioral Effects of the Antidepressant Tianeptine Require the Mu-Opioid Receptor.
5. Trowbridge P, Walley AY. Use of Buprenorphine-Naloxone in the Treatment of Tianeptine Use Disorder. J Addict Med. 2019 Jul/Aug;13(4):331-333. doi: 10.1097/ADM.0000000000000490. PMID: 30550394.
6. Wagner ML, Pergolizzi J Jr, LeQuang JAK, Breve F, Varrassi G. From Antidepressant Tianeptine to Street Drug ZaZa: A Narrative Review. Cureus. 2023 Jun 20;15(6):e40688. doi: 10.7759/cureus.40688. PMID: 37485121; PMCID: PMC10359047.

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.