



Thyrotoxicosis After Ingestion of Canine Levothyroxine – Embracing Collaborative Care

Randhawa, Maneesha M.D., Ahmad, Shahzad D.O., VanBlaricum, Leah Beth M.D., Thomas-Fannin, Allie M.D.
Indiana University School of Medicine Psychiatry Residency, Good Samaritan Hospital

Abstract

In the presented case of thyrotoxicosis due to canine levothyroxine ingestion, the emphasis on collaborative care becomes particularly relevant. The involvement of the family and primary team was crucial in revealing the patient's history of medication experimentation, showcasing how interdisciplinary collaboration can lead to vital insights that inform treatment.

The National Institute of Mental Health (NIMH) supports collaborative care models, demonstrating that they significantly reduce hospital readmissions by addressing root psychological and social factors through team-based case management.

Background

- A study in *BMC Psychiatry* found that collaborative care models effectively enhance the identification of complex psychiatric needs by integrating insights from multidisciplinary teams, including psychiatry, nursing, social work, and family involvement. This comprehensive approach has been shown to improve the accuracy of assessing suicidal ideation and behavior, leading to more targeted interventions.
- Findings from *JAMA Psychiatry* show that collaboration between medical and mental health professionals facilitates the uncovering of underlying motives, such as medication misuse or substance experimentation, which may otherwise go unrecognized in routine evaluations.

Case

30-year-old Caucasian male with a past psychiatric history of MDD, polysubstance abuse, and ADHD presented to the ED with 2-day history of altered mental status and horizontal nystagmus. He was admitted to the intensive care unit for metabolic encephalopathy secondary to thyrotoxicosis.

Physical Findings

- Physical examination revealed tachycardia (143 bpm), hypertension (142/92), muscle weakness, horizontal nystagmus, warm, moist skin, diaphoresis, anxiety, irritability, and fatigue
- MMSE: positive for altered mental status
- Home meds: Desmopressin 0.1 mg qHS, Guanfacine 2 mg qAM, Remeron 15 mg qHS, Zyprexa 5 mg qHS, Zoloft 50 mg qD

Results

- UDS negative
- CBC: mildly elevated WBC and neutrophils otherwise unremarkable
- CMP, UA, lipid panel, A1C within normal limits
- TSH <0.01, Free T4 >12.0, Free T3 >20.0
- CT Head without contrast: No acute intracranial process identified

Management

Throughout the initial days of admission, the patient remained confused and disoriented. After ruling out potential sources of infection, the medical team initiated propranolol aimed at alleviating hyperthyroid symptoms. Communication barriers with the patient were overcome with assistance from their parents, who provided invaluable insights into the patient's medical history. They disclosed the patient's past experimentation with medications like bupropion and diphenhydramine in pursuit of achieving a "high". Consequently, they took measures to secure all medications in their home. They emphasized the absence of any suicidal tendencies or intentions to overdose by the patient.

Management (cont'd)

Despite these revelations, the cause of thyrotoxicosis remained elusive. Neither the patient nor their household members had been diagnosed with hypothyroidism or possessed thyroid medication that could explain the condition. It was only through meticulous inquiry and collaboration between the primary and psychiatric teams that the truth emerged: the patient had ingested levothyroxine tablets intended for their dog. As part of the treatment regimen before discharge, hydrocortisone was initiated. Subsequently, the patient was transferred to a tertiary facility for further evaluation by an endocrinology consult team.

Discussion

The patient's ingestion of a canine medication illustrates the potential dangers of medication misuse and the need for vigilant medication management and monitoring, particularly in individuals prone to substance experimentation or seeking altered states of consciousness (FitzGerald, 2009). This emphasizes the critical role of thorough medication history-taking, as well as the importance of involving family members or caregivers who may provide additional insights into the patient's behavior and potential substance use patterns (Gorman, 2023).

While the primary care team initially focused on managing the patient's acute medical condition, including stabilizing thyroid hormone levels and addressing associated symptoms, collaboration with psychiatric specialists allowed for a deeper exploration of the patient's psychiatric history, substance use patterns, and underlying motivations for medication misuse. While an inpatient psychiatric admission would have been beneficial, it was hindered by the necessity for additional management from an Endocrinology team, further highlighting the critical importance of collaboration.

Conclusion

In this case, our collaborative effort was essential in uncovering the underlying reasons for the patient's unusual presentation, integrating insights from his psychiatric history and physical symptoms. Given the patient's impaired ability to communicate effectively due to altered mental status, we relied heavily on information from multiple sources, including family members and interdisciplinary teams. This is particularly crucial in psychiatric settings, where patients may be unable to articulate their experiences accurately. Our collaborative approach not only enriched our understanding of the patient's condition but also highlighted the importance of thorough communication and history-taking to ensure accurate diagnosis and effective treatment strategies in complex cases, particularly for patients with psychiatric histories or substance misuse behaviors.

References

- Bauer, S., Fennell, M. J. V., & Hohendorff, J. (2019). The role of collaborative care models in improving the identification of complex psychiatric needs. *BMC Psychiatry*, 19(1), 1-12.
- FitzGerald, R. J. (2009). Medication errors: the importance of an accurate drug history. *British journal of clinical pharmacology*, 67(6), 671-675.
- Gorman, L. S., Littlewood, D. L., Quinlivan, L., Monaghan, E., Smith, J., Barlow, S., et al. (2023). Family involvement, patient safety and suicide prevention in mental healthcare: ethnographic study. *BJPsych open*, 9(2), e54.
- Shields, M. C., et al. (2022). The need to prioritize patient-centered care in inpatient psychiatry as a matter of social justice. *JAMA Health Forum*, 3(2), e211-4461.

In relation to this presentation, I declare that there are no conflicts of interest.