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B12 Deficiency and Catatonia: A Case of Intrigue

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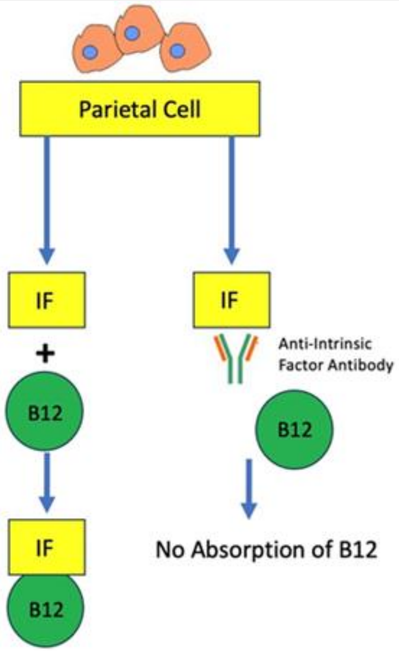
Background

- Vitamin B12 deficiency: 12-40% of the general population
- Pernicious anemia: 0.1% of the population.
- Impact of B12 deficiency on brain function theorized to:
  1) **Disrupt axon demyelination**
  2) **Upregulate oxidative stress**
  3) **Deficiency in folate and 1-carbon metabolism**
  4) **Hyperhomocysteinemia and demethylation of DNA**
- Neuropsychiatric presentations related to B12 deficiency include: **depression, apathy, memory loss, hallucinations, persecutory delusions, and confusion.**
- Literature related to the pathophysiology of catatonia in B12 deficiency is sparse. Presentations of catatonia related to B12 deficiency are exceedingly rare, with < 10 case report publications.



Case

- 48-year-old male with a past medical history of hypertension and hypothyroidism and **no past psychiatric history**, who was admitted to the University of Chicago Medical Center for altered mental status. Psychiatry was consulted with concern for catatonia.
- Pt presented with tachycardia, abdominal pain, hypotensive episodes, ataxia, apraxia, dystonia, and paresthesia.
- Pt's medical evaluation **revealed B12 levels < 150** and **positive anti-intrinsic factor antibodies**. MRI revealed lesions in the cervical dorsal cord consistent with B12 deficiency.
- The patient's psychiatric symptoms included **paranoia, disorientation, agitation, and depressed mood**. Initial Busch-Francis Catatonia Rating Scale (BFCRS) was 14, with positive scores for immobility, posturing, staring, withdrawal, mutism, rigidity, withdrawal and impulsivity.
- After returning from MRI (received lorazepam 1 mg IV for urgent head imaging), his repeated **BFCRS decreased to 6**, with notable improvements in rigidity, posturing, mutism, immobility and withdrawal.

Symptom	Description of pathology
Stupor	decreased response to external stimuli, hypoactive behavior
Immobility	akinetic behavior, resistance to being moved
Waxy flexibility	slight resistance to being moved
Mutism	verbally unresponsive, refusal to speak
Posturing	purposely maintaining a position for long periods of time
Excitement	frantic, stereotyped or purposeless activity
Echolalia	senseless repetition of the words of others (echolalia)
Echopraxia	mimicking the movements of others
Staring	eyes fixed and open for long periods of time
Catalepsy	the passive adoption of a posture

Hospital Course: Pt **was scheduled on Lorazepam 2mg three times per day,** and by **day 3 had complete resolution in catatonia** symptoms and return to his psychiatric baseline prior to discharge. Pt received B12 supplementation during his hospital stay and was **discharged to acute rehabilitation to assist with continued improvement in neurological symptoms.**

Discussion

- Pernicious anemia is notably rare, with **catatonic presentations related to B12 deficiency exceedingly uncommon**. This case highlights the utility **in obtaining vitamin levels in patients with catatonia and other neuropsychiatric symptoms** to assist in evaluating reversible causes to their presentation and ensure a quick recovery.

Conclusion

- Frequently, Consultation-Liaison Psychiatrists are called to assess neuropsychiatric symptoms in context of an array of associated medical symptoms. It is essential that **nutritional and vitamin level evaluations remain a persistent component of our recommendations**, while maintaining a wide differential of possible medical etiologies to an acute catatonia presentation. **Treatment of catatonia urgently,** despite a known etiology, also remains essential for a patient's recovery. **Further study into the mechanisms of catatonic presentations in vitamin deficiencies is warranted** given limited published data.

References

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