Psychiatric Manifestations of Micronutrient Deficiency in a Post-Operative Bariatric Surgery Patient on Semaglutide

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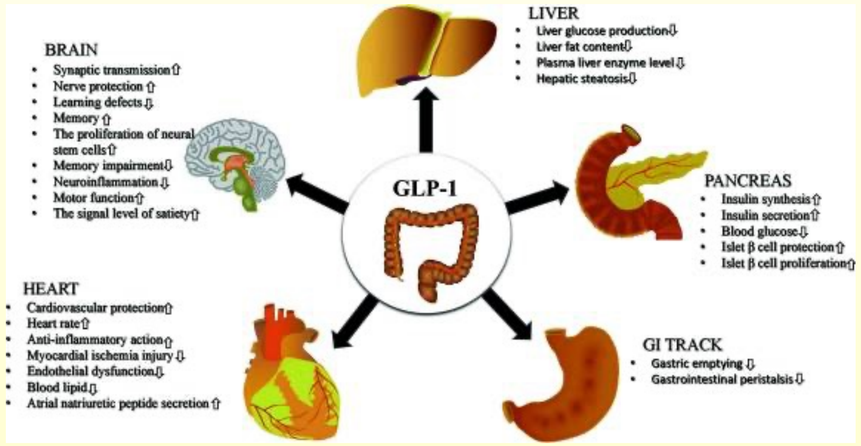
Background

While rigorous standards exist for nutritional care after bariatric surgery, there are no similar standards for the use of anti-glycemic agents like semaglutide, often used for weight loss[1,2]. Use of semaglutide can lead to micronutrient deficiencies and consequential psychiatric manifestations as proposed by this case report. We describe a post-bariatric patient, who took semaglutide for weight loss, leading to altered eating habits, micronutrient deficiencies and neuropsychiatric symptoms.

We are highlighting the need for close follow-up, similar to post-bariatric care, to optimize the use of semaglutide while also protecting patient's nutritional and neuropsychiatric status.

Case Presentation

- 53-year-old F with a past medical history of obesity status post Roux-en-Y in 2010 and **no past psychiatric history** who was admitted for malnutrition and failure to thrive.
- She had been transferred from a physical rehabilitation facility, where she was being treated for functional decline after a 62-pound weight loss following one year of taking semaglutide.
- Psychiatry was consulted to **evaluate for a depressive disorder contributing to poor oral intake**.
- On evaluation, patient reported several months of **nausea**, **dysgeusia**, **issues with concentration** and **memory**, and **fatigue**. She also showed physical signs of functional decline likely from protein calorie malnutrition and micronutrient deficiency.
- Endoscopy and colonoscopy were unremarkable. MRI unremarkable.
- Vitamin levels on admission: **vitamin D 21 ng/mL** (12-99 ng/mL), **selenium 51 ug/L** (110-165 ug/L), **vitamin A 15.6 ug/dL** (32.5-78 ug/dL), **zinc 53 ug/dL** (60-106 ug/dL), **copper 22 mcg/dL** (77-206 mcg/dL), **vitamin B6 3 ug/L** (5-50 ug/L), folate within normal limits (WNL), vitamin E WNL, vitamin B12 WNL and methylmalonic acid WNL.
- MoCA 12/30; patient diagnosed with major neurocognitive disorder due to severe nutrient deficiency
- After vitamin repletion and tube feeds were started, her mentation returned to baseline and she regained physical strength.
- She was ultimately discharged to a physical rehabilitation facility.



[3]Image taken from Zhao et al 2021

Discussion

- The Food and Drug Administration (FDA) has approved GLP-1 receptor agonists (e.g. liraglutide, semaglutide) for the use in weight management[2].
- Current guidelines recommend regular nutritional monitoring every three months for the first year after bariatric surgery, every six months in the second year, and annually after that[1].
- There is a dearth of data regarding the nutritional and related neuropsychiatric effects of GLP-1 agonists in bariatric surgery patients.

Conclusions

- We highlight nutritional deficiencies, likely exacerbated by semaglutide use, in a post-operative bariatric surgery patient with resultant neuropsychiatric symptoms.
- We emphasize the **need for close nutritional surveillance** with GLP-1 agonist use in this patient population.

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References

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