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Case Report

Sodium Valproate-Induced Hyperemesis in a Patient Post-Bariatric Surgery

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Abstract:

Long-term treatment of patients with medications is associated with adverse drug reactions and continues to be a challenge. Sodium valproate is commonly used to treat bipolar disorder and epilepsy. It can induce adverse gastrointestinal effects, and its absorption may vary depending on the excipient used. In this case study, a middle-aged woman with a history of bipolar disorder developed hyperemesis after the use of a generic sodium valproate formulation. The patient had undergone gastric sleeve surgery 3 years ago and lost weight. Using generic formulation of sodium valproate stimulated vomiting 3 years after the patient had been tolerating the branded medication. Her symptoms resolved 3 weeks after switching back to the branded formulation. This case emphasizes the importance of monitoring therapeutic drugs and prescription consistency, as well as of taking precautions while rotating formulations to ensure drug tolerance and efficiency in patients who have undergone bariatric surgery patients.

Keywords: Sodium valproate, gastric sleeve, adverse drug reactions, pharmacokinetic

1. Introduction

Adverse drug reactions (ADRs) remain a challenge in modern healthcare, particularly given the increasing complexity of therapeutics, and multimorbidities. These reactions can be of an unforeseen severity or life-threatening, constituting a major barrier to a complete treatment response, which in turn also affects compliance. Many ADRs can be avoided with proper planning and monitoring; however, some may occur unpredictably.

This case report describes a patient with bipolar disorder who experienced severe vomiting each time sodium valproate (an anticonvulsant and a mood stabilizer) was administered. Despite comprehensive history- taking and a thorough physical examination, the underlying cause of the vomiting could not be determined. Sodium valproate is an anticonvulsant drug that is effective in the management of acute mania and is frequently used in the maintenance treatment of bipolar disorder (1). However, the use of even well-

tolerated drugs can sometimes lead to unanticipated side effects, such as gastrointestinal disturbances, making treatment more difficult. It is important to note that the common adverse effects of valproic acid are linked to its effects on pregnancy, including nausea, vomiting, and abdominal discomfort. While these side effects are usually easily manageable, during the initial parts of treatments, they amay become more concerning in the late stages (2), because they could interfere with stable long-term treatment. Thus, more thorough research is needed to identify the actual underlying causes of these side effects, which may include drug interactions, formulation changes, or even sudden changes in a person's physiology.

Pharmaceutical excipients require close monitoring because they have a big impact on how well a treatment works. Although the active component in a generic medication may be the same as that in the original, the excipient contents (such as binders, fillers, and coatings) may differ (2). In patients with altered gastrointestinal physiology, such as those who have undergone bariatric surgery, these substances may change drug absorption, bioavailability, and tolerance despite their seemingly relative passivity. A few studies have found that patients who switched from brand-name sodium valproate to its generic form, even when the excipient content was the same, reported some side effects or a decrease in efficacy (3). Here, we report the case of a 35-year-old woman with bipolar disorder who developed hyperemesis after switching from a brand-name sodium valproate formulation to its generic counterpart.

2. Case Presentation

A 35-year-old female patient presented with a 3-week history of acute vomiting. The patient was on maintenance medication for a previous diagnosis of bipolar disorder, which included risperidone and sodium valproate. She had also lost a significant amount of weight after undergoing gastric sleeve surgery 3 years ago; her weight decreased from 130 kg to 75 kg. The patient was able to tolerate the medications despite minor adverse effects such as gastrointestinal distress. However, her psychological state had deteriorated since vomiting started, and she started skipping some doses (Figure 1).

3. Results

A 37-year-old female patient with a history of gastric sleeve surgery developed severe emesis (6–8 episodes per day) after starting formal treatment with valproic acid. Physical examination revealed no fever or abdominal pain. Upper gastrointestinal endoscopy was performed owing to the possibility of surgical complications such as anastomotic leaks, strictures, and blockages. The anastomotic site and its surroundings showed no signs of leakage, strictures, or mechanical obstacles during the treatment. Despite negative endoscopic findings, the patient's symptoms persisted. Furthermore, as there were no clinical signs of infection, peptic ulcer, or gastroesophageal reflux disease (GERD), the possible contribution of sodium valproate to vomiting increased. As the patient mentioned, vomiting began immediately after switching to a different brand of sodium valproate, although it contained the same dose. This emerged after she substituted the medication with its generic form. Both medications contain the same active component, sodium valproate. Eventually, her symptoms start resolving within 72 hours of generic valproic acid discontinuation, suggesting a probable ADR. At the 3-week follow-up, the patient stated that vomiting had diminished over the first week of treatment and stopped entirely after 2 weeks.

4. Discussion

Our case sheds light on the intricate relationship between bariatric surgery and pharmacological management, particularly in patients who require chronic psychiatric treatment. Our focus is on a patient with bipolar disorder who experienced severe vomiting after changing from a branded to a generic sodium valproate formulation. A patient's history of gastric sleeve surgery is crucial, because it fundamentally alters drug metabolism and absorption (Figure 2). In addition, stomach capacity is usually reduced, pH levels are changed, and the secretion of bile acids and intrinsic carrier proteins is altered. Changes in long-term medication regimens after bariatric surgery should be anticipated and managed in an appropriate and timely manner. The absorption of hydrophilic drugs may increase after surgery, whereas that of highly lipophilic drugs frequently decreases (4, 5). These physiological changes and the various excipients used in the generic formulation may have contributed to the unpredictable alteration in sodium valproate absorption. Thus, it is important to closely monitor patients' medication use after bariatric surgery to prevent any harmful effects.

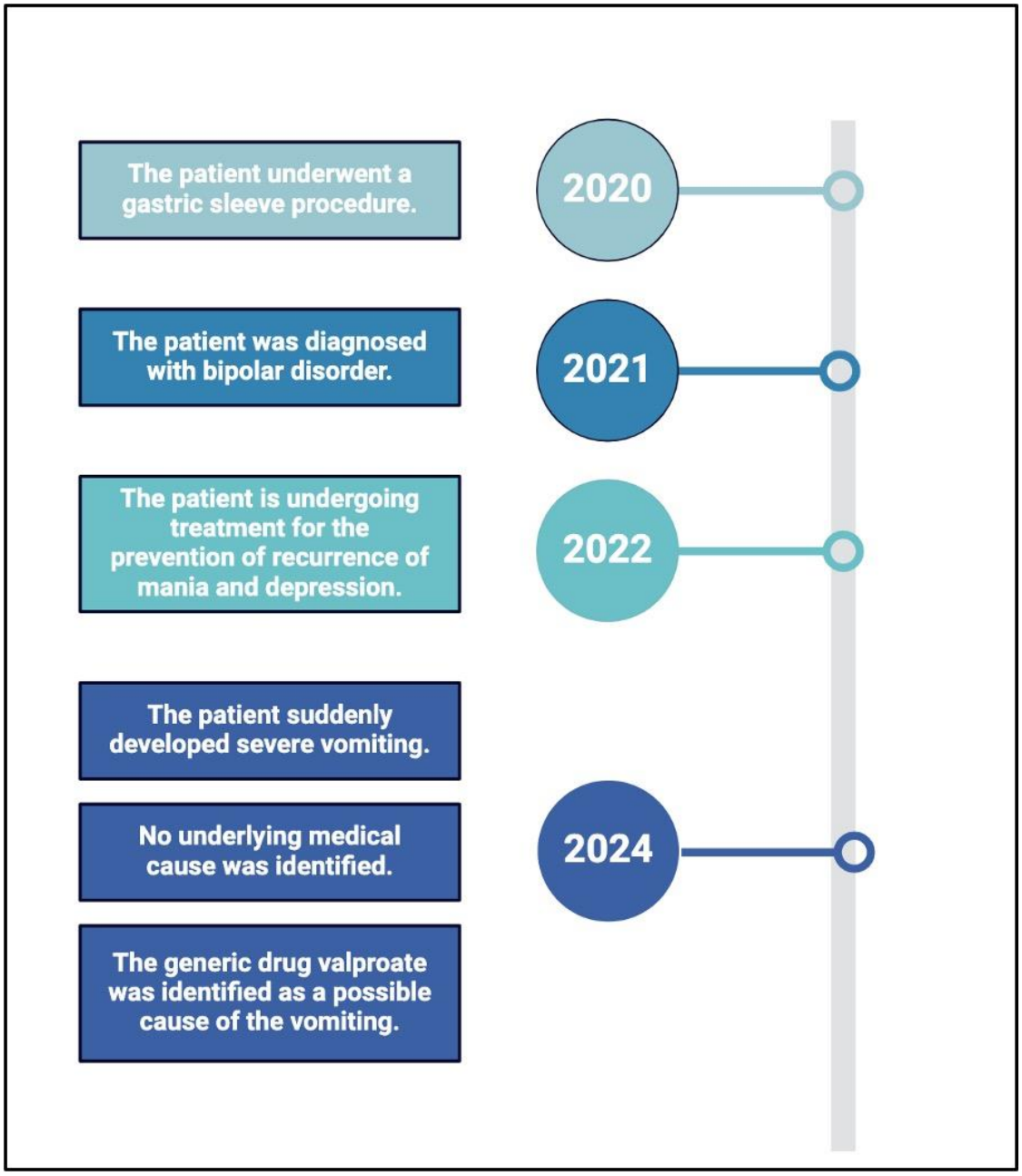

Figure 1. The timeline illustrates the key medical events for a 35-year-old female patient with bipolar disorder who experienced severe vomiting in 2024. It details her medical journey starting from a gastric sleeve procedure in 2020, through her diagnosis of bipolar disorder in 2021, as well as ongoing psychiatric treatment from 2022. The vomiting began 3 weeks prior to April 2024 and was subsequently linked to her use of valproate. No other medical causes were identified.

In instances like our case, when pharmaceutical formulation changes coincide with anatomical changes produced by surgery, comprehensive therapeutic drug monitoring is required. Regular monitoring of a drug's plasma levels provides a firm foundation for appropriate dosage adjustments to ensure therapeutic efficacy while avoiding negative effects. This method is particularly important for drugs with narrow therapeutic indices because even minor deviations from the optimal plasma concentration can have major clinical consequences (6). To avoid disturbing seizure control, the current recommendations for epilepsy management suggest maintaining consistency when cycling between oral valproate formulations.

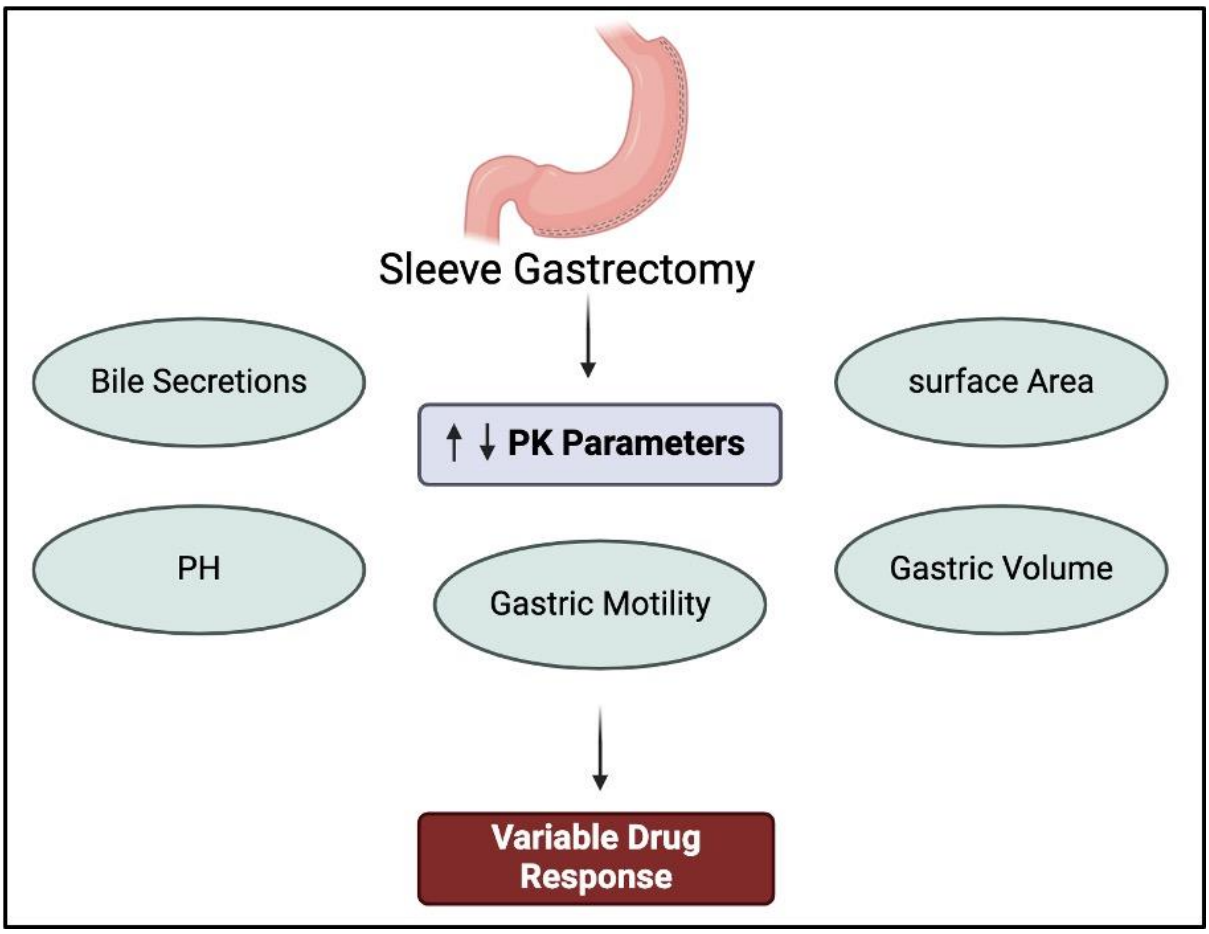

Figure 2. This diagram depicts the physiological changes that occur after a sleeve gastrectomy and their impact on drug pharmacokinetics (PK) and response. The procedure reduces gastric volume and surface area, which in turn affects gastric motility, bile secretions, and gastric pH. These alterations lead to modifications in PK parameters such as drug absorption and distribution, ultimately resulting in variable drug responses.

Therefore, decisions regarding the use of a specific brand-name or generic product should have a clinical basis (2). In a related case, levetiracetam was reported to induce a severe cutaneous reaction in a patient following a switch between trade and generic formulations (7). The authors attributed this reaction to an excipient present in the generic drug. However, reports on patients experiencing ADRs after gastric sleeve surgery are limited.

Our case emphasizes the importance of modifying chronic pharmaceutical regimens in response to significant physiological changes, such as those experienced following weight-loss surgery. Our patient's significant weight loss from 130 kg to 70 kg likely had a substantial impact on the pharmacokinetic profile, changing how her body processed and responded to drugs (8). Medication doses should be adjusted based on the ongoing weight and gastrointestinal changes to maintain treatment efficacy and safety.

The importance of systematic follow-up in the management of patients undergoing bariatric surgery on long-term drug regimens should be emphasized. These evaluations are critical to avoid complications such as drug toxicity or insufficient therapeutic effects caused by the altered pharmacokinetic environment following surgery. In our patient, attentive follow-ups aided in the diagnosis and management of the adverse reactions to the generic formulation, which led to the resolution of the patient's vomiting and stabilization of her condition.

5. Conclusions

This case study highlights several important issues. First, it highlights how patients who have undergone major surgical procedures, such as bariatric surgery,

require close observation and individualized medication adjustments. Additionally, it demonstrates the possible effects of inactive pharmaceutical components, particularly in patients with altered gastrointestinal systems. Finally, this case emphasizes the importance of proactive patient monitoring in tailoring treatment programs and improving overall treatment outcomes.

Author Contributions:

All authors contributed to the study conception and design. Study preparation and Data collection were performed by Khalid H. Alharbi. Data analysis and interpretation were performed by Mohammed H. Alsubhi and Bandar D. Alrehaili. The first draft of the manuscript was written by Mohammed H. Alsubhi and Bandar D. Alrehaili.and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript." All authors have read and agreed to the published version of the manuscript. Authorship should be restricted to individuals who have made significant contributions to the work reported.

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Informed Consent Statement: Written informed consent has been obtained from the patient(s) to publish this paper.

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