FAST FACTS AND CONCEPTS #373
PALLIATIVE MANAGEMENT PEARLS FOR POST-BARIATRIC SURGERY PATIENTS
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Background  Bariatric surgery is becoming increasingly more common (1). This Fast Fact provides pearls on providing symptom management for seriously ill patients who have undergone bariatric surgery.

Basics of bariatric surgery (2-5)  There are multiple types of bariatric surgeries.
- Gastric banding is a reversible procedure which involves the placement of an adjustable silicone band around the upper portion of the stomach; it can lead to band erosion (~5%), band slippage / gastric prolapse (~10%), esophageal dilatation, and esophagitis.
- Sleeve gastrectomy involves the removal of up to 90% of the stomach and the creation of a small remnant ‘sleeve’; it can present late with sleeve stenosis (gastric outlet obstruction), and GE reflux.
- Roux-en-Y gastric bypass (RYGB) is both restrictive and malabsorptive as it involves the creation of a gastric pouch about the size of an egg, which is then attached to a limb of jejunum. Complications include stomal stenosis, marginal ulcers, symptomatic cholelithiasis, fistulas, ventral hernias, small bowel obstruction, dumping syndrome, nutritional deficiencies, and alterations in drug absorption.

Pharmacokinetic changes after bariatric surgery (6-7)
- Decreased gastrointestinal (GI) surface area, especially after a RYGB, can limit drug bioavailability, particularly for extended-release, delayed-released, and enteric- or film-coated oral formations.
- Decreased GI surface area results in diminished time available for medication and B12 absorption, decreased intrinsic factor availability, decreased gastric acid, and increased gastric pH.
- Protein malabsorption and hypoalbuminemia can occur resulting in decreased binding of highly protein bound acidic medications. This can lead to increased free drug and potential toxicity.

Palliative management pearls in patients who have undergone bariatric surgery
- Tablets, especially those > 10 mm in diameter, can get stuck and remain undissolved in the gastric pouch of RYGB patients. Capsules, liquid formulations, and soft gels are preferred (6-7).
- Immediate-release dosage forms are generally preferred over extended- and delayed-release and enteric- or film-coated product preparations. Notably, however, no dose adjustment seems to be needed for extended-release morphine nor venlafaxine when prescribed for RYGB patients (7-9).
- Marginal ulcers can occur after all types of bariatric procedures but are far more common after RYGB (reported in up to 25% of RYGB patients) (3). It is recommended to avoid NSAIDs after all bariatric procedures due to the increased risk of anastomotic ulcerations and perforations (2-4). If an oral NSAID cannot be avoided, celecoxib, a cyclooxygenase-2 inhibitor, is preferred because it has a lower risk of causing upper gastrointestinal bleeding and perforations compared with other NSAIDs and should be co-administered with a proton pump inhibitor (2). Similarly, glucocorticoids should be avoided in these patients (2). Aspirin should only be used when strongly indicated should be co-administered with a proton pump inhibitor.
- The bioavailability of serotonin reuptake inhibitor antidepressant medications and second-generation antipsychotics are reduced after RYGB (9-12). Increased risk of suicide has been reported in post-bariatric surgery patients (11). Patients with depression may be at risk for acute depressive symptoms after surgery and should be monitored closely.
- Common deficiencies include folic acid, iron, calcium, thiamine, vitamin B12, fat soluble vitamins (A, D, E, K), copper, and zinc. These levels should be monitored yearly unless prognosis is short, and goals of care are comfort, but even then, these deficiencies should be considered in the differential if unusual symptoms emerge (14-15). In RYGB patients with symptoms of neuropathy or fatigue, vitamin B12, iron, and TSH levels should be assessed. Bioavailability of levothyroxine is altered after RYGB, so patients receiving levothyroxine need TSH levels monitored more closely.
- The risk of osteoporosis is higher in RYGB patients (14-18). Fragility fractures should be considered in patients who complain of bone pain/back pain.
Abdominal pain is extremely common after RYGB and has a unique differential diagnosis, including marginal ulcers, dumping syndrome, a fistula, dysmotility, obstruction, and hernia development (4).

Ranitidine is recommended by experts for patients who experience delayed gastric emptying or mechanical bowel obstruction, though never specifically studied in the bariatric population (19).

Summary

Patients with serious illnesses who have undergone bariatric surgery will have alterations in the gastric emptying time, pH and mucosal exposition, which can affect absorption of orally administered drugs, and have unique long-term complications.

References

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Conflicts of Interest: None

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