Be prepared to adjust dosing of psychotropics after bariatric surgery

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Approximately 113,000 bariatric surgeries were performed in the United States in 2010; as many as 80% of persons seeking weight loss surgery have a history of a psychiatric disorder.1,2

Bariatric surgery can be “restrictive” (limiting food intake) or “malabsorptive” (limiting food absorption). Both types of procedures can cause significant changes in pharmacokinetics. Bariatric surgery patients who take a psychotropic are at risk of toxicity or relapse of their psychiatric illness because of inappropriate formulations—immediate-release vs sustained-release—or incomplete absorption of medications. You need to anticipate potential pharmacokinetic alterations after bariatric surgery and make appropriate changes to the patient’s medication regimen.

Pharmacokinetic concerns
Roux-en-Y surgery is a malabsorptive procedure that causes food to bypass the stomach, duodenum, and a variable length of jejunum. Secondary to bypass, iron deficiency anemia is a common nutritional complication.

Other changes that affect the pharmacokinetics of psychotropics after bariatric surgery include:
• an increase in percentage of lean body mass as weight loss occurs
• a decrease in glomerular filtration rate as kidney size decreases with postsurgical weight reduction
• reversal of obesity-associated fatty liver and cirrhotic changes.

With time, intestinal adaptation occurs to compensate for the reduced length of the intestinal tract; this adaptation produces mucosal hypertrophy and increases absorptive capacity.3

Medications to taper or avoid
The absorption and bioavailability of a medication depend on its dissolvability; the pH of the medium; surface area for absorption; and GI blood flow.4 Medications that have a long absorptive phase—namely, sustained-release, extended-release, long-acting, and enteric-coated formulations—show compromised dissolvability and absorption and reduced efficacy after bariatric surgery.

Avoid slow-release formulations, including ion-exchange resins with a semipermeable membrane and those with slowly dissolving characteristics; substitute an immediate-release formulation.

Medications that require acidic pH are incompletely absorbed because gastric exposure is reduced.

Lipophilic medications depend on bile availability; impaired enterohepatic circulation because of reduced intestinal absorptive surface causes loss of bile and, therefore, impaired absorption of lipophilic medications.

Medications that are poorly intrinsically absorbed and undergo enterohepatic circulation are likely to be underabsorbed after a malabsorptive bariatric procedure.

Lamotrigine, olanzapine, and quetiapine may show decreased efficacy because of possible reduced absorption.

The lithium level, which is influenced by volume of distribution, can become toxic postoperatively; consider measuring the serum lithium level.

References