Literature Review of Psychotropic Medication Recommendations for Patients with History of Bariatric Surgery

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Statistics and Background

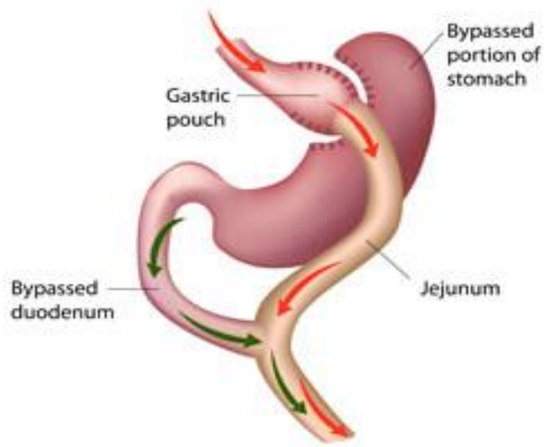
•In the United States, approximately 228,000 patient underwent bariatric surgery in 2017. Of those patients, 20-50% had previously been diagnosed with a mood disorder.

•Psychiatric consult teams and primary outpatient psychiatrists are commonly tasked with the responsibility of modifying psychotropic dosages following such surgeries.

•The three most common bariatric surgeries are the gastric sleeve (59%), Roux-en-Y gastric bypass (18%), and the laparoscopic adjustable gastric band (2.77%).

•Of these three procedures, the Roux-en-Y gastric bypass has been the most heavily researched in regards to pharmacokinetic changes occurring after bariatric surgery.

•Roux-en-Y gastric bypass: Surgeon creates a gastric pouch allowing approximately one ounce of food vs typical allowance of two-three pints of food. This pouch bypasses the proximal 50-150cm of small intestine and attaches to the jejunum further distally in the small intestine.



Changes Seen Status-Post RYGBP

	Acute Physiological Effect	Mechanism	Long-Term Compensation
Gastric Emptying Rate	↑	Decreased effective size of stomach pouch	↓ Normalizes as newly formed pouch expands
Rate of Drug Absorption	↑	Increased gastric emptying rate → increased transit to site of absorption (jejunum)	↓
First Pass Metabolism	↓	Removal of proximal 50-150cm small intestine = decreased CYP availability	↑ Decrease in adipose tissue = decrease in inflammatory markers = increased CYP activity
Drug Bioavailability	↑	Resultant from decreased first-pass metabolism	↓ Increased CYP activity and normalized gastric emptying rate

Disclaimer

The views expressed are those of the presenters and do not reflect the official views or policy of the Department of Defense or its Components.

Enzyme Changes Post-Bariatric Surgery

	Initial Activity	Eventual steady-state activity
CYP3A4	↓	↑
CYP1A2	No change	No change
CYP2D6	No change	No change
CYP2C19	No change	↑

Conclusion / Considerations

•There is limited research regarding specific drug levels pre and post surgery for individual antidepressants or antipsychotics. Currently "marker molecules" are used and results are extrapolated to medications with similar pharmacokinetic characteristics.

•First pass metabolism seems to be a large factor in immediate changes s/p RYGBP, however compensatory mechanisms resultant from weight loss confound or counteract many of these early changes.

•In the case of the majority of studied drugs, an increased absorption rate was observed early after RYGBP.

•The effect on systemic exposure allows for a low degree of extrapolation, including between drugs subjected to the same major metabolic and transporter pathways.

•On the basis of current understanding, predicting the pharmacokinetic change for a specific drug following RYGBP is challenging.

•Post - op adaptation processes occur in the GI tract over time, so visible changes in drug absorption during the first few months may only be transient

•Close monitoring of each individual drug is therefore recommended in the early postsurgical phase. (On clinical basis, not necessarily serum basis).

•For medications which undergo a high-degree of first-pass metabolism such as those extensively metabolized by CYP3A, it may be beneficial to utilize either liquid formulations or enteric-coated (extended release) formulations as these are more resistant to variations in first-pass metabolism.