- Sichuan Provincial Medical Center, China
- National Clinical Key Specialties of China
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- Sichuan Provincial Clinical Medical Research Center for Digestive System Diseases, China

The Efficacy of Metabolic Bariatric Surgery in the Treatment of Recurrent hypertriglyceridemia-induced Acute Pancreatitis

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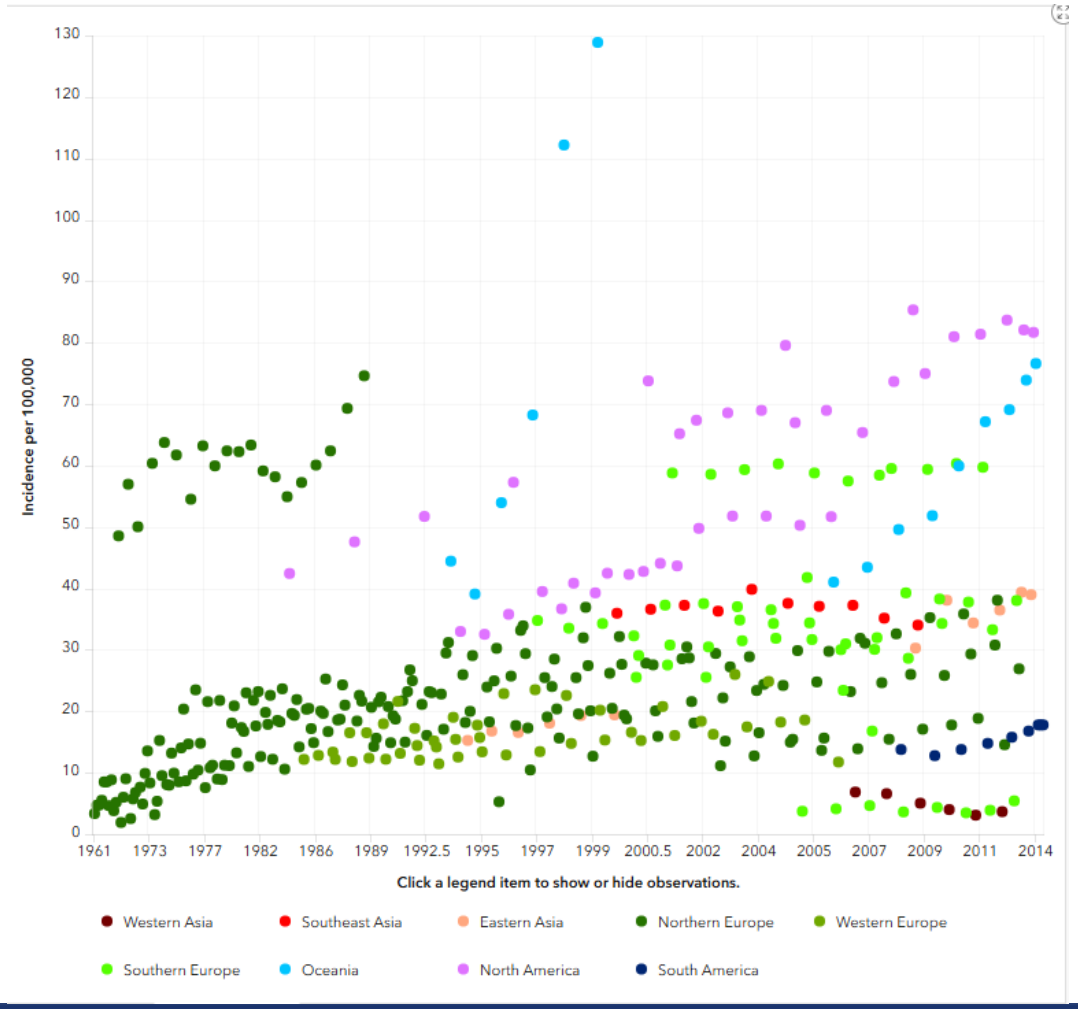
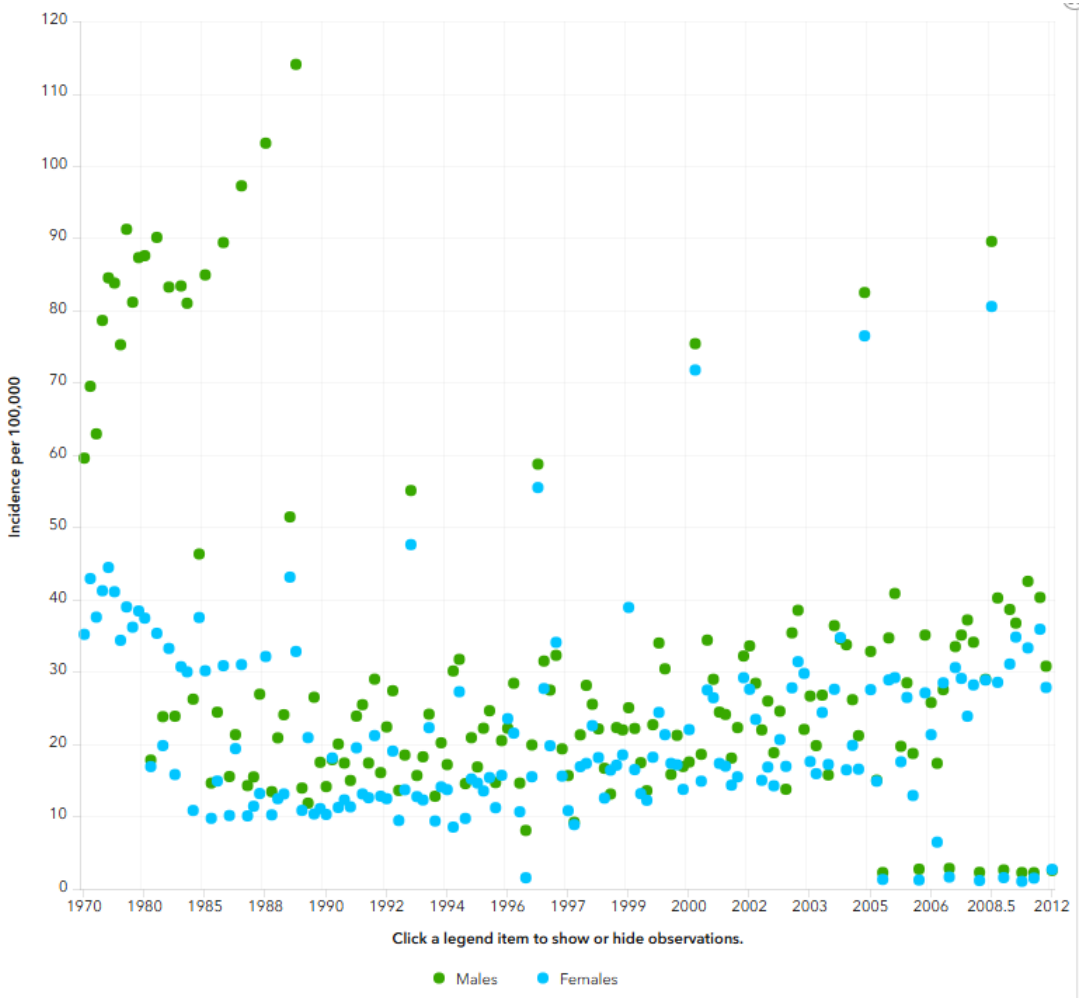
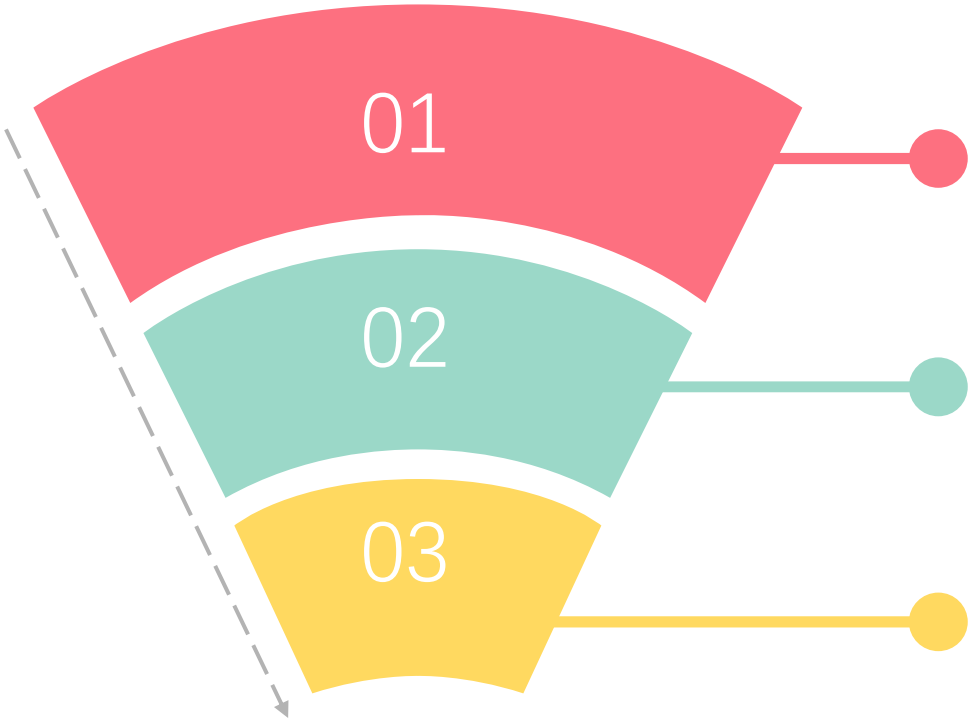
The global incidence of pancreatitis has been increasing annually





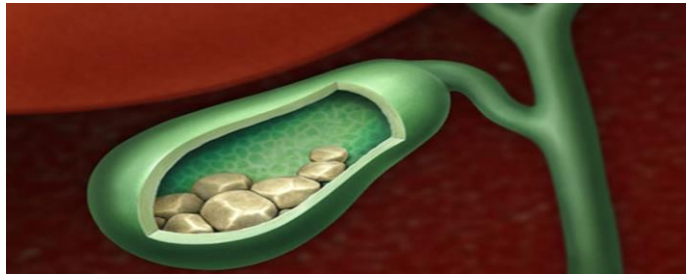
Hyperlipidemia accounts for one of the top three etiologies of acute pancreatitis in China



Cholelithiasis

Alcohol intake

Hypertriglyceridemia (HTG)



Zhu Y, Pan X, Zeng H, et al. A study on the etiology, severity, and mortality of 3260 patients with acute pancreatitis according to the revised Atlanta classification in Jiangxi, China over an 8-year period. Pancreas. 2017;46(4):504–9.

Research Gaps

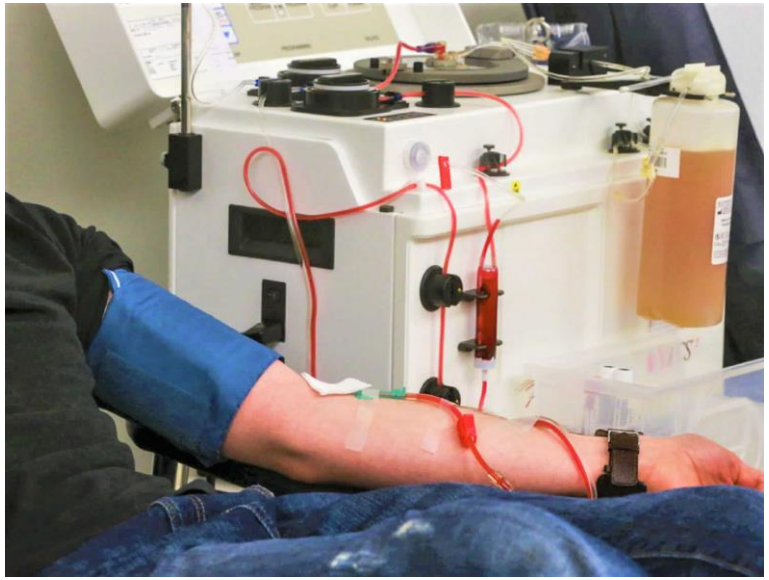
Current conventional treatment modalities struggle to achieve long-term effective control over recurrent hypertriglyceridemia-associated pancreatitis

Dietary Restrictions

Lip[illegible] Lo[illegible] M[illegible]ications

BUT?

Plasmapheresis



SG and RYGB have shown good results in the treatment of Hypertriglyceridemia-Associated Pancreatitis

Obesity Surgery
https://doi.org/10.1007/s11695-018-3446-y

ORIGINAL CONTRIBUTIONS

The Effects of Laparoscopic Sleeve Gastrectomy on Obesity-Relate Hypertriglyceridemia-Induced Acute Pancreatitis

Yongyan Song[1] · Huan Deng[2] · Jie Zhou[3] · Ji Sun[3] · Xiaoming Zhang[4] · Yixing Ren[3]

Abstract

Background Hypertriglyceridemia-induced acute pancreatitis (HTG-AP) is a significant clinical problem an high recurrence rate compared with non-HTG-AP. The objective of this study was to investigate the effects of

Obesity Surgery
https://doi.org/10.1007/s11695-020-04466-8

LETTER TO THE EDITOR

RYGB in Treating Patients with Obesity, Hypertriglyceridemia-Induced Acute Pancreatitis, and Diabetes: Kill Three Birds with One Stone?

Yixing Ren[1] · Ming He[1] · Yin Xian[1] · Huirun Zeng[2] · Yongyan Song[3]

Introduction

Obesity is closely linked to a cluster of metabolic disorders, such

that diabetes was caused by obesity or HTG-AP, or both in this group of patients. Several studies [3, 4] demonstrated that Roux-en-Y gastric bypass (RYGB) was an effective treatment not only

NEW QUESTIONS:

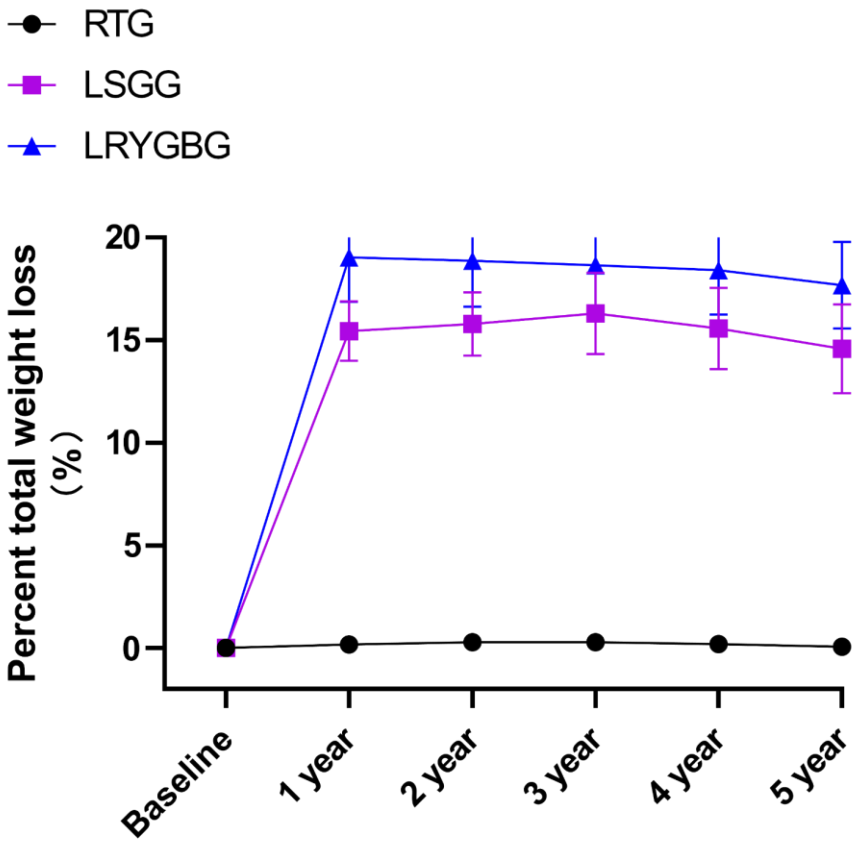
01

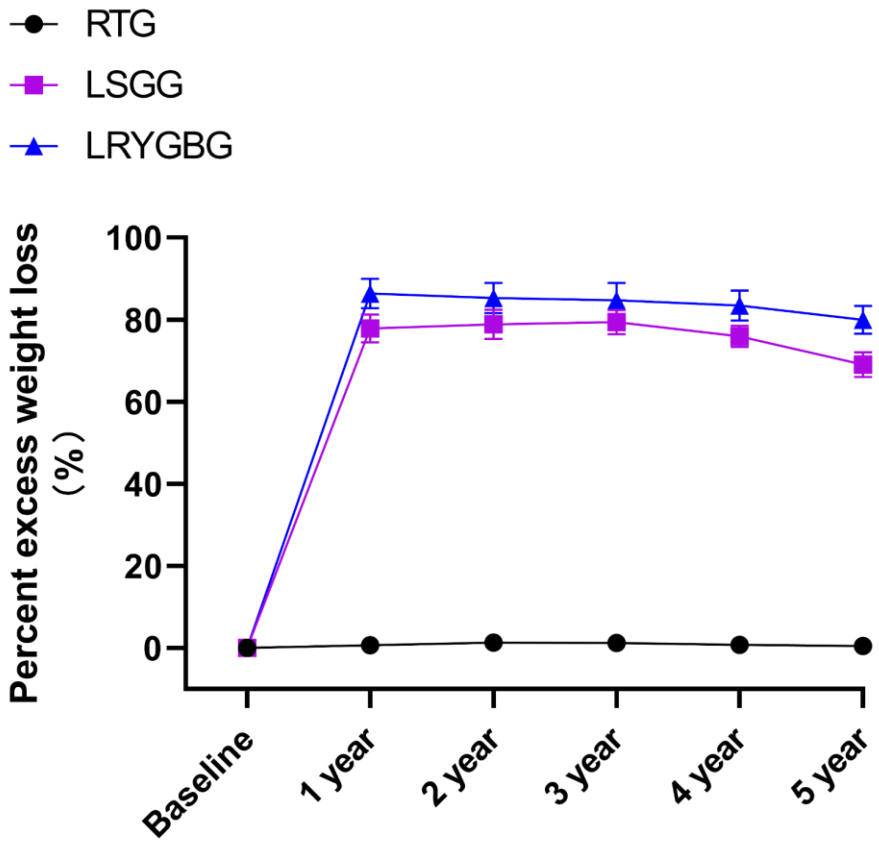
How effective are Metabolic Bariatric surgeries in controlling the mid to long-term recurrence of hypertriglyceridemia-induced acute pancreatitis?

02

What are the differential therapeutic effects of Laparoscopic Sleeve Gastrectomy (LSG) versus Laparoscopic Roux-en-Y Gastric Bypass (LRYGB) on patients?

A Five-Year Efficacy Analysis Comparing Metabolic Surgery to Conventional Treatment.

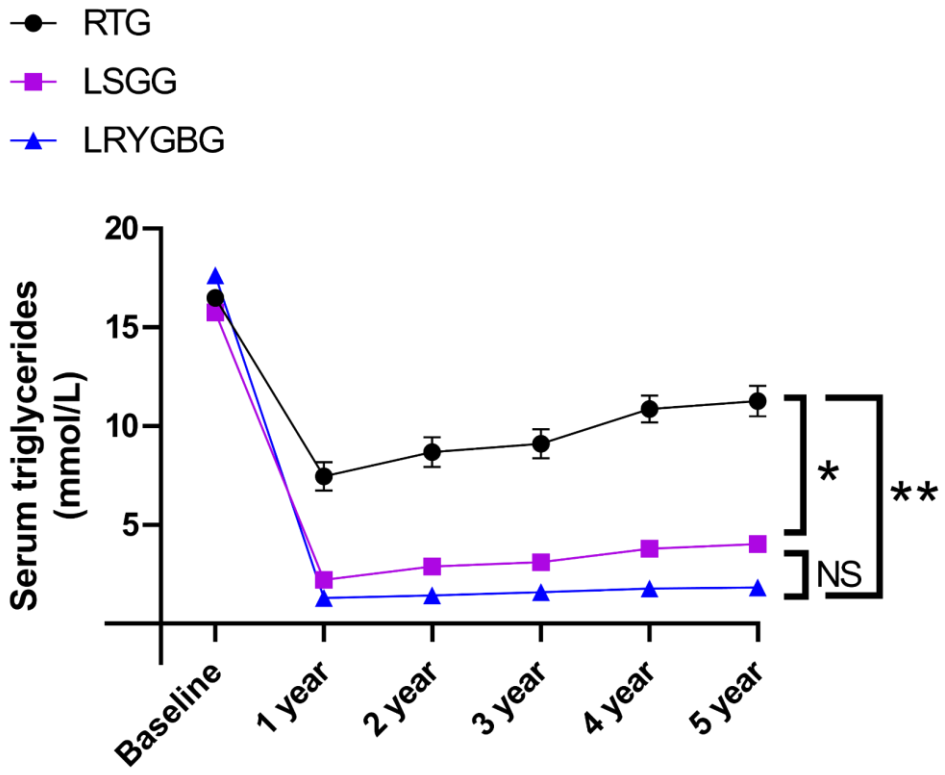




Comparison within the Same Time Period：

RTG VS LSGG:P < 0.05； RTG VS LRYGBG:P < 0.05； LSGG VS LRYGBG:P > 0.05

The Five-Year Trend of Serum Triglyceride Changes Among Three Groups



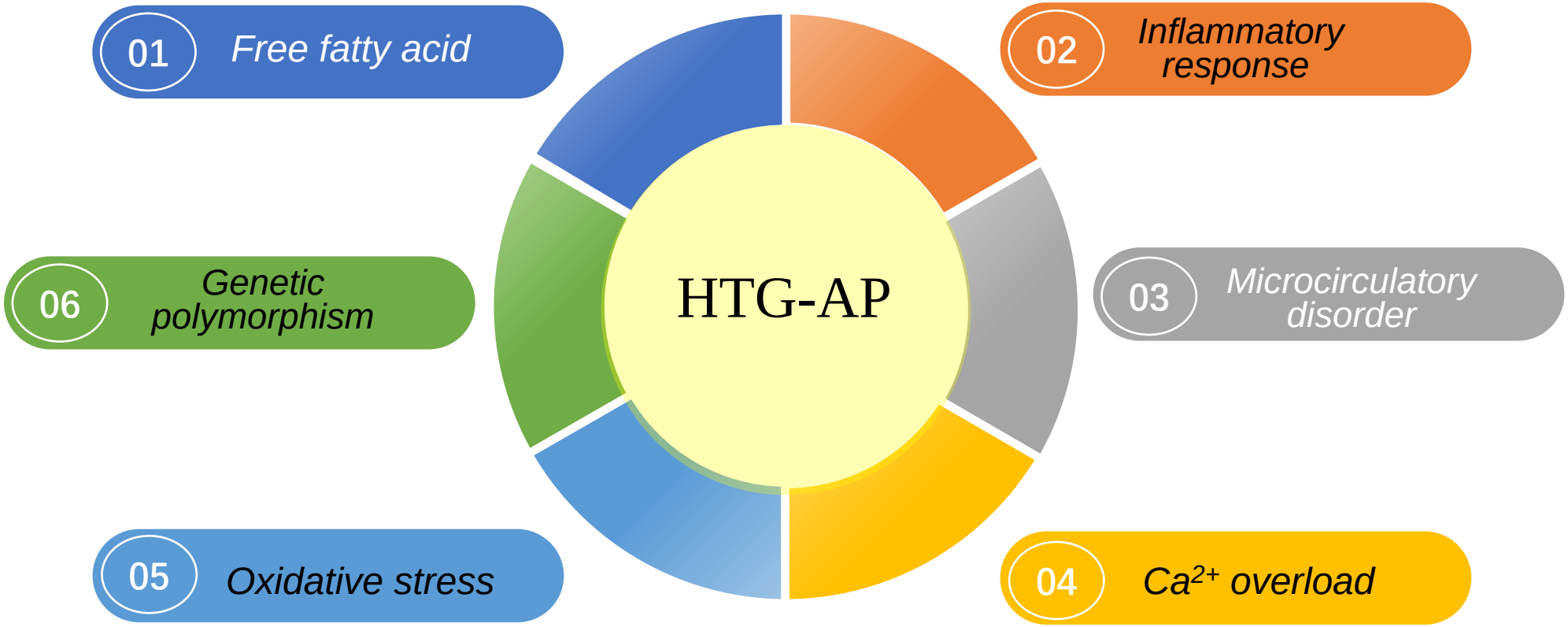
- **Serum Triglyceride Variations in Three Groups of Patients Over a Five-Year Period at Years 1, 2, 3, 4, and 5.**
- Comparison between LSGG and RTG, with a P-value of less than 0.05.
- Comparison between LRYGB and RTG, with a P-value of less than 0.01.
- Comparison between LRYGB and LSG revealed a P-value greater than 0.05, indicating no statistically significant difference.

Five-year recurrence status

Variables	RTG（n=28）			LSGG(n=13)			LRYGB(n=9)		
	Baseline	5 years post-baseline	Recurrence rate	baseline	5 years post-baseline	Recurrence rate	baseline	5 years post-baseline	Recurrence rate
number of recurrences	—	16	57.14%	—	2	15.38%	—	1	11.11%

- Routine Treatment Group :57.14%（Four individuals have experienced more than three recurrences）
- Laparoscopic Sleeve Gastrectomy Group: 15.38%(Two cases of patients have experienced a single recurrence)
- Laparoscopic Roux-en-Y Gastric Bypass Group:11.11%（A single case of a patient has manifested a recurrence once）

The Pathogenesis of hypertriglyceridemia-induced acute pancreatitis（HTG-AP）



Potential Mechanisms of Metabolic Bariatric Surgery in the Treatment of HTG-AP

By reducing the inflammatory cascade

Studies have indicated that following metabolic weight loss surgery in patients, the reduction in levels of pro-inflammatory cytokines such as IL-6 and TNF-α has contributed to the alleviation of HTG-AP symptoms by decreasing the inflammatory cascades.

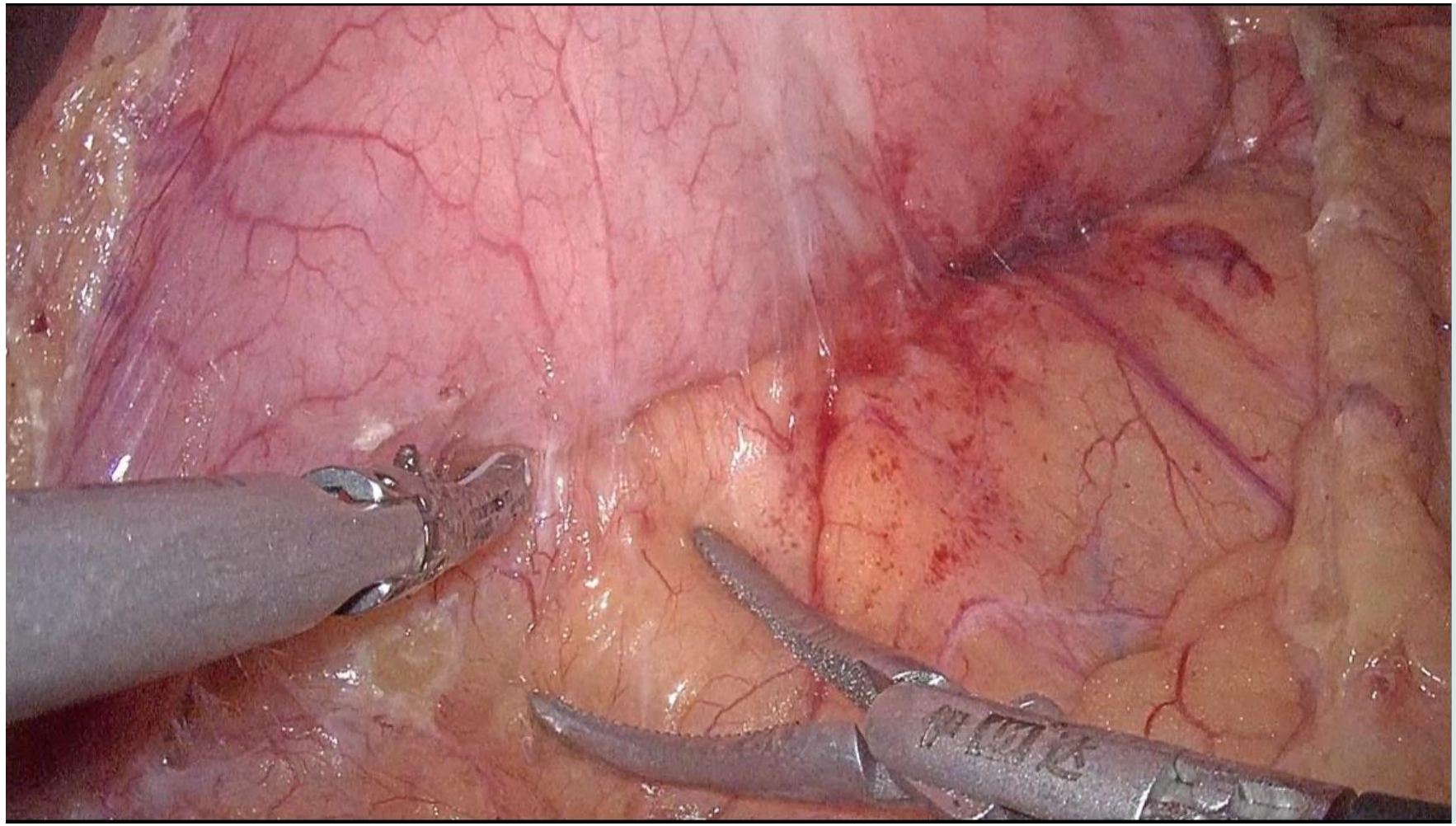
Reducing postprandial ghrelin levels in patients

Metabolic bariatric surgery can significantly reduce the levels of ghrelin, the hunger hormone. In non-obese individuals, ghrelin levels increase during fasting and rapidly decrease after meals. In contrast, obese patients often exhibit a lack of suppression in ghrelin levels postprandially, whereas patients who have undergone surgical treatment tend to have reduced ghrelin levels following surgery.

Khatua B, El-Kurdi B, Singh VP. Obesity and pancreatitis. Curr Opin Gastroenterol. 2017;33:374–82.

van Loenen MR, Geenen B, Arnoldussen IAC, Kiliaan AJ. Ghrelin as a prominent endocrine factor in stress-induced obesity. Nutr Neurosci. 2022;25:1413–24.

Advantages of LRYGB over LSG in the Management of HTG-AP



During Laparoscopic Sleeve Gastrectomy (LSG), the posterior gastric wall is prone to adhesions with the pancreas.

Discussion and Future Perspectives

1. To the best of our knowledge, this investigation represents a rare instance where metabolic bariatric surgery has been incorporated into the therapeutic repertoire for hyperlipidemia-induced acute pancreatitis. Over the course of a five-year follow-up period, metabolic bariatric surgery has demonstrated commendable therapeutic efficacy, exhibiting the potential to effectively manage recurrent episodes of hyperlipidemia-associated acute pancreatitis.

2. This study, while pioneering in its approach, acknowledges a limitation inherent to its modest sample size, which may constrain the generalizability of the findings. The scope of patient demographics is correspondingly restricted, underscoring the necessity for future research endeavors.

3. Moving forward, it is essential to concurrently delve into the pathophysiological mechanisms of HTG-AP. Basic experimental research should be conducted to explore the deeper mechanisms by which MBS treats HTG-AP. This approach may enrich and refine the theoretical understanding within this field.


THANKS ALOT