

Lipid Profile Comparison-Pre & Post Op between Laparoscopic Sleeve Gastrectomy and Laparoscopic Mini Gastric Bypass.

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Conflict Of Interest Disclosure

- **I have no important conflict of Interest to Report**

Introduction: *Clinical Question*

- Laparoscopic mini gastric bypass (LMGB) and laparoscopic Sleeve gastric (LSG) are the two commonly performed surgical procedures used to reduce weight in morbidly obese patients. These patients tend to have many other comorbid conditions. Dyslipidemia is one of those major conditions which may subsequently lead to other serious health problems.
- **Objective: Assess and compare the effect of LMGB and LSG on the lipid profile, besides the weight loss.**

Research Methods

- **Study Design:** Retrospective Cohort Study
- **Population & Inclusion Criteria:**
 - All patients who underwent primary LMGB or LSG at Rashid Hospital Dubai, UAE, between 2016 and 2017.
 - Only patients with complete and documented baseline, postoperative lipid profile values and follow-up of at least 1 year were included.
 - Patients age, gender, BMI (initial, 3-6 months and at 12 months) and total cholesterol, Triglyceride, HDL and LDL cholesterol at baseline, 3-6 months and at 12 months were recorded.
 - A total of 240 patients were included in this study.
- **Exclusion:**
 - Patients who had re-operative bariatric surgery (e.g., Redo - conversion of LSG to LMGB or RYGB).
 - Patients on lipid-lowering drugs.

Statistical Analysis

- The data were arranged and analyzed by using IBM Statistics SPSS version 20.0. Data were presented as mean and standard deviations for all measures.
- Comparison of lipid levels at each follow-up time, between two surgical groups was made by using Mann Whitney U test.
- The comparison among three follow-up readings within each group was made by using Friedman ANOVA.
- Line graphs were used to present the changes in lipids between baseline and 12 months.
- The change in BMI was measured at baseline, 3-6 months and at 12 months. The comparison between the two groups was made by using Mann Whitney U test.
- P-value ≤ 0.05 was considered statistically significant.

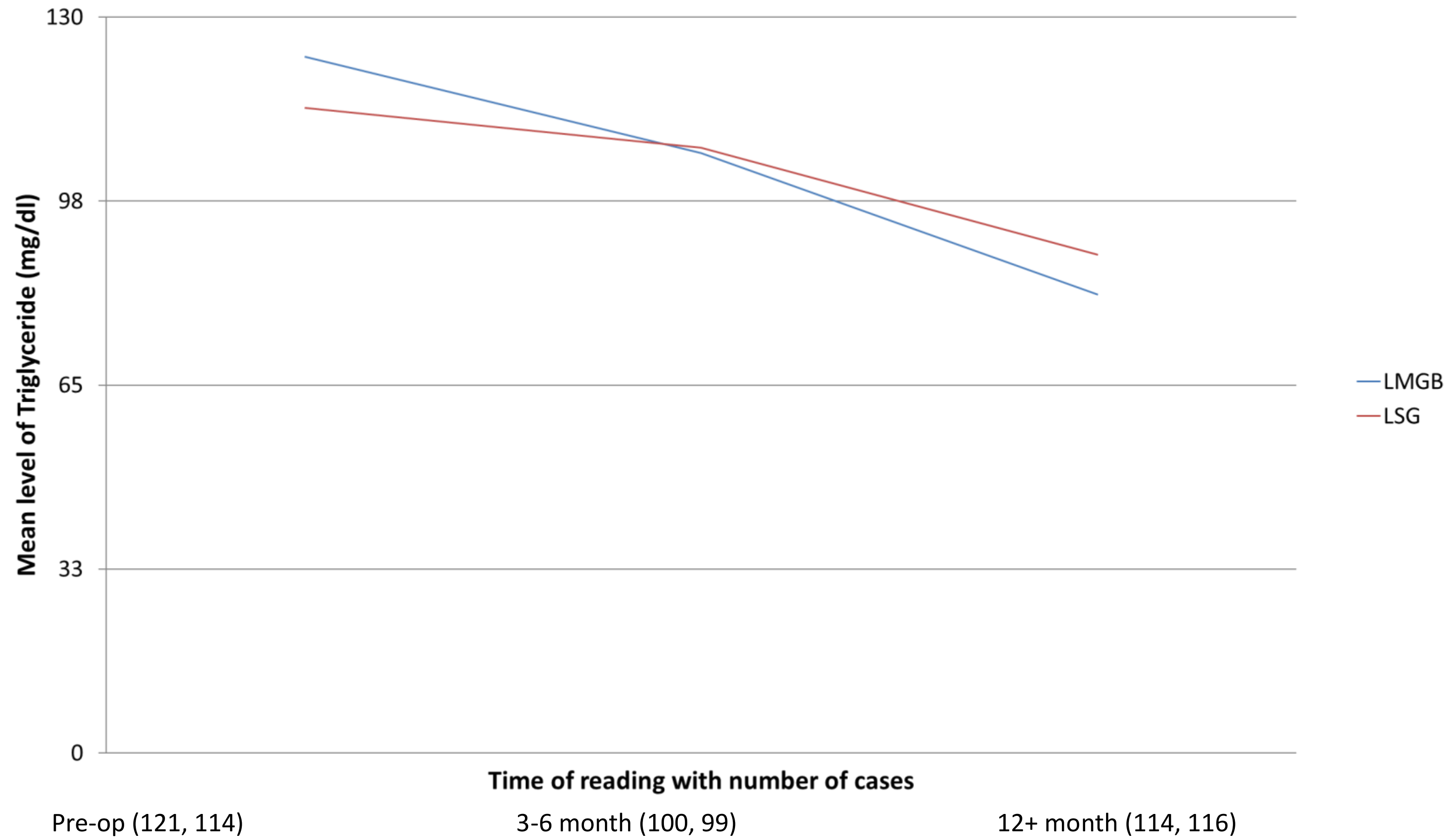
Statistical Analysis

	Time (n ₁ , n ₂)	TYPE OF SURGERY				P-value (Mann Whitney U)
		LMGB n ₁ = 121		LSG n ₂ = 116		
		Mean	SD	Mean	SD	
Total cholesterol	Pre-op (121, 114)	184	34	184	38	0.803
	3-6 month (99, 91)	171	32	193	37	0.003
	12+ month (115, 116)	166	34	191	45	<0.001
P-value (Friedman ANOVA) (91, 90)		0.001		0.784		
P-value (Wilcoxon pre vs 12 m) (113, 114)		<0.001		0.223		
Triglycerides	Pre-op (121, 114)	123	64	114	57	0.205
	3-6 month (100, 99)	106	38	107	36	0.680
	12+ month (114, 116)	81	35	88	35	0.059
P-value (Friedman ANOVA) (91, 90)		<0.001		0.001		
P-value (Wilcoxon pre vs 12 m) (112, 114)		<0.001		<0.001		
HDL	Pre-op (111, 110)	49	15	50	15	0.915
	3-6 month (95, 87)	49	17	51	16	0.189
	12+ month (113, 112)	59	15	62	17	0.583
P-value (Friedman ANOVA) (96, 88)		<0.001		<0.001		
P-value (Wilcoxon pre vs 12 m) (102, 107)		<0.001		<0.001		
LDL	Pre-op (111, 110)	119	31	118	34	0.752
	3-6 month (93, 90)	107	32	127	33	0.008
	12+ month (112, 112)	96	31	117	41	<0.001
P-value (Friedman ANOVA) (94, 88)		<0.001		0.690		
P-value (Wilcoxon pre vs 12 m) (101, 107)		<0.001		0.304		

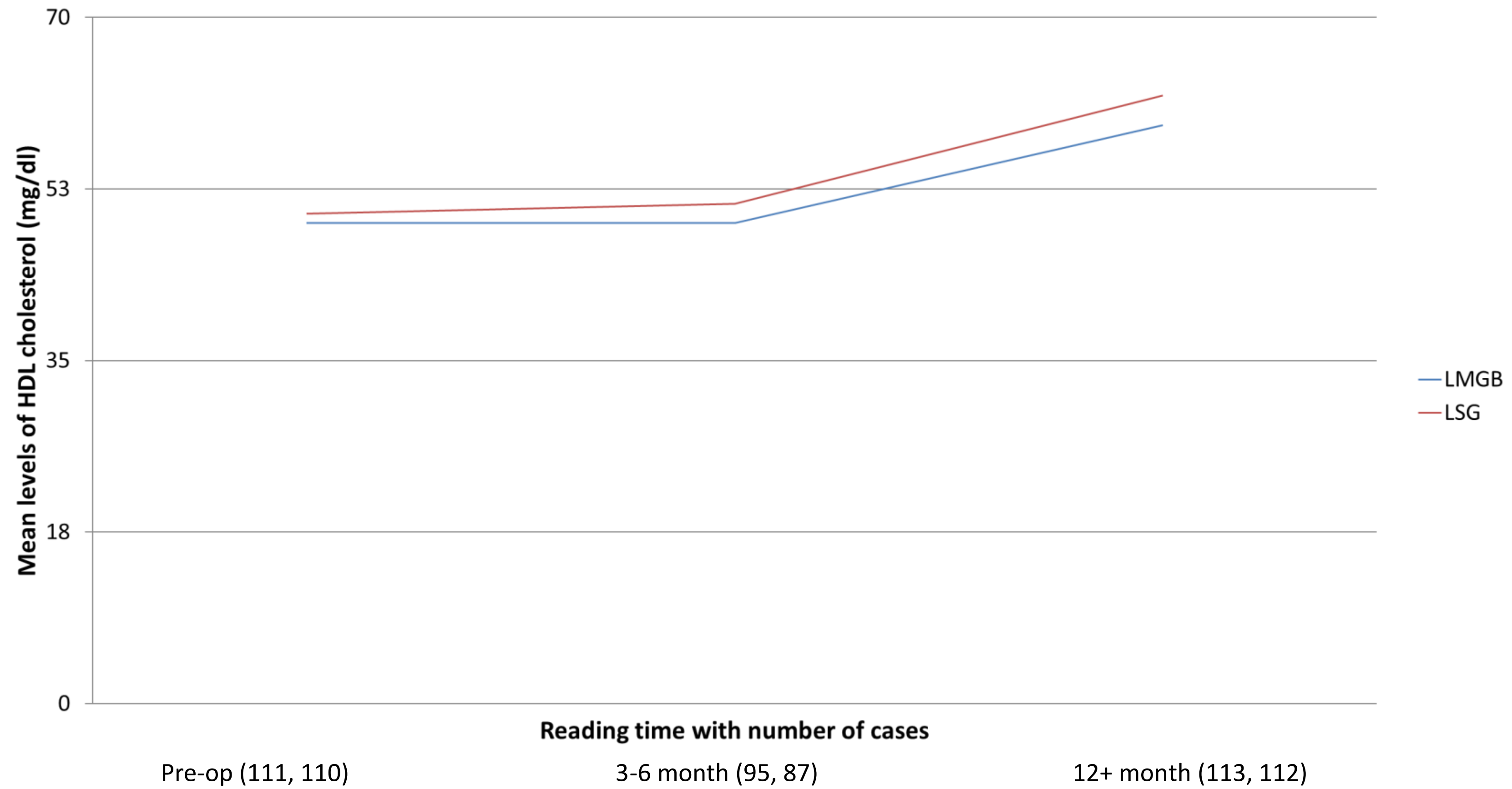
Trend for Total Cholesterol



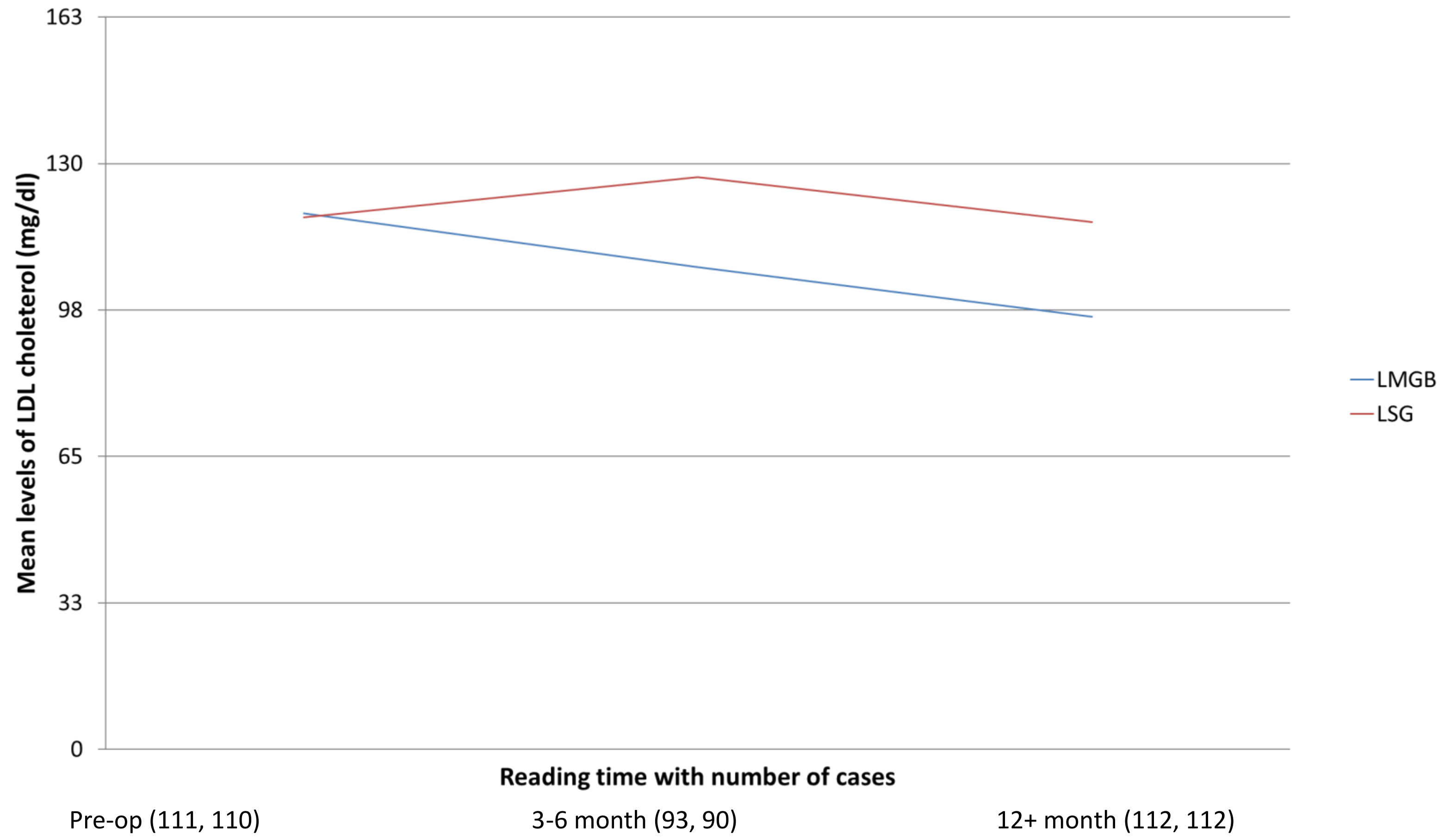
Trend for Triglyceride



Trend for HDL



Trend for LDL



Results:

- There were 240 cases and 82 (34.2%) were males.
- Among these 124 had LMBG and 116 had LSG.
- The average age for these patients was 36 ± 10 years.
- The total cholesterol, Triglyceride, HDL and LDL were all insignificantly different at baseline between two groups with p-values 0.803, 0.205, 0.915 and 0.752 respectively.

Results:

- After 12 month period the LMBG group had significantly low TC and LDL as compared to LSG group with p-values <0.001 .
- No significant difference was recorded between the two groups for triglyceride and HDL and the p-values were 0.059 and 0.583 respectively, but HDL levels were slightly higher in LSG group especially after 6 months.
- The mean change in BMI, as percent of excess weight loss, was not significantly different at 3-6 months in both procedures with p-value 0.253 but the change in BMI/weight loss was significantly more in LMBG as compared to LSG with p-value 0.038 at 12 months.



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Original research

Lipid profile changes in patients undergoing bariatric surgery: A comparative study between sleeve gastrectomy and mini-gastric bypass



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H I G H L I G H T S

- This is the first study, in our best knowledge, comparing the effects of Mini-Gastric Bypass and Sleeve Gastrectomy on the lipid profile.
- The overall effect on lipid profile improvement was similar between Sleeve and Bypass.
- By a cardioprotective point of view, sleeve could be preferred in patients with dyslipidemia, a higher increase of HDLc being documented.

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ABSTRACT

Objective: To prospectively evaluate the effect of different types of bariatric surgery on lipid profile.

Methods: Total cholesterol (TC), High-Density-Lipoprotein cholesterol (HDLc), Low-Density-Lipoprotein cholesterol (LDLc) and triglycerides (TG) levels were evaluated before surgery and at 3 different post-operative time-points (3, 6 and 12 months) in consecutive obese subjects undergoing mini-gastric bypass (MGB) or sleeve gastrectomy (SG).

Results: At baseline, 74 MGB and 86 SG subjects were comparable for lipid profile and prevalence of hypercholesterolemia/hypertriglyceridemia. During the post-operative follow-up, both MGB and SG subjects showed significant changes in lipid profile. However, at 3 months, MGB patients showed higher changes in TC ($\beta = 0.179$, $p = 0.022$) and TG ($\beta = 0.265$, $p = 0.001$) than those undergoing SG. At 6-month post-operative follow-up, these differences were confirmed only for TC.

After a 12-month follow-up, MGB and SG were entirely comparable for changes in lipid profile with the exception of HDLc, whose changes were higher in SG group ($\beta = 0.130$, $p = 0.039$).

Overall, the probability to normalize lipid profile during the 12-month follow-up was similar in MGB and in SG patients (OR:1.24, 95%CI:0.41–3.76, $p = 0.689$).

Conclusion: Despite some differences at 3–6 post-operative months, during a 12-month follow-up, SG and MGB showed a similar efficacy in the improvement of lipid profile of obese patients.

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CLINICAL RESEARCH

Impact of Restrictive (Sleeve Gastrectomy) vs Hybrid Bariatric Surgery (Roux-en-Y Gastric Bypass) on Lipid Profile

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On behalf the Obemar Group

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In conclusion, LRYGB, probably due to its malabsorptive effect, produces an overall improvement in lipid profile, with a clear benefit in all lipid fractions. Although LSG does not alter LDL cholesterol levels, its effect on HDL cholesterol, as occurs with weight loss and type 2 diabetes, is comparable to or greater than that obtained with malabsorptive techniques. These findings on the different effects of the surgical techniques on lipid profile could be useful in the decision process of the optimal surgical procedure in individual cases. Thus, from a lipid point of view, the presence of hypercholesterolaemia due to increased LDL cholesterol should be a criterion to take into account when considering LRYGB. In cases of atherogenic dyslipidaemia, LSG could be considered the first option.

Impact of Restrictive (Sleeve Gastrectomy) vs Hybrid Bariatric Surgery (Roux-en-Y Gastric Bypass) on Lipid Profile

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Abstract

Background Few studies have evaluated the impact of hybrid versus purely restrictive bariatric surgery on lipid profile, with the results being contradictory. The effect of laparoscopic sleeve gastrectomy (LSG) and laparoscopic Roux-en-Y gastric bypass (LRYGB) on lipid profile was compared.

Methods A nonrandomized prospective cohort study was conducted on severely obese patients undergoing bariatric surgery. Indication for the type of surgical procedure was based on clinical criteria. Patients on lipid-lowering drugs and those that could not be matched for age, sex, and body mass index were excluded. Finally, 51 patients who underwent LSG and 51 undergoing LRYGB completed this study. **Results** During the first year post-surgery, no differences in percentage of excess weight loss and triglyceride reduction were found between groups. After LRYGB, low-density lipoprotein (LDL) cholesterol concentrations fell significantly (125.9 ± 29.3 to 100.3 ± 26.4 mg/dl, $p < 0.001$), whereas no significant changes were observed in the LSG group (118.6 ± 30.7 to 114.6 ± 33.5 mg/dl, $p = 0.220$). High-density

lipoprotein (HDL) cholesterol increase was significantly greater after LSG (15.4 ± 13.1 mg/dl) compared with LRYGB (9.4 ± 14.0 mg/dl, $p = 0.032$). Factors independently associated with LDL cholesterol reduction were higher baseline total cholesterol and undergoing LRYGB. A greater increase in HDL cholesterol was associated with LSG, older age, and baseline HDL cholesterol.

Conclusions LRYGB produces an overall improvement in lipid profile, with a clear benefit in all lipid fractions. Although LSG does not alter LDL cholesterol levels, its effect on HDL cholesterol is comparable to or greater than that obtained with malabsorptive techniques.

Keywords Laparoscopic sleeve gastrectomy · Laparoscopic Roux-en-Y gastric bypass · Lipid profile · Cholesterol · Triglyceride

Introduction

Severe obesity is associated with an increased mortality rate, particularly of cardiovascular origin, due to the close association between obesity and cardiovascular risk factors such as type 2 diabetes, hypertension, and dyslipidaemia. In this respect, low high-density lipoprotein (HDL) cholesterol, hypertriglyceridaemia, and desirable to mildly increased low-density lipoprotein (LDL) cholesterol levels are frequently seen in obese patients [1].

Laparoscopic Roux-en-Y gastric bypass (LRYGB) is a hybrid technique that combines gastric restriction with gastrectomy and malabsorption by bypassing the duodenum and proximal jejunum. Given its higher efficacy compared to purely restrictive techniques and the fact that it offers a good balance between benefits and adverse event rate, it has

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Conclusion:

- Retrospective cohort study with at least 12 month period follow up after LSG and LMGB.
- The two surgical procedures can be considered equivalent for weight reduction in initial 3-6 months but at 12 months LMGB leads to more loss of excess body weight.
- LMGB produces an overall improvement in lipid profile, with a clear benefit in Total Cholesterol and LDL fractions. Although LSG does not alter LDL cholesterol levels, its effect on HDL cholesterol is comparable to or greater than that obtained with malabsorptive technique (LMGB).

Continue..

- This is our first study, in comparing the effects of Lap Mini-Gastric Bypass (LMGB) and Lap Sleeve Gastrectomy (LSG) on the lipid profile.
- Interestingly, we found that although little differences were reported during the first 3-6 months post-op, the overall effect on lipid profile improvement was greater in LMGB as compared to LSG in 12 months time.

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Thank you !



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