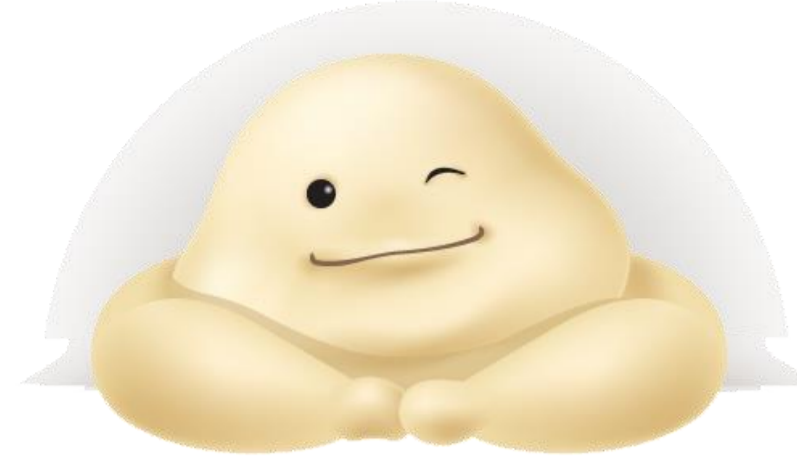


ESOPHAGEAL STASIS ON BARIUM ESOPHAGOGRAM DURING FOLLOW-UP PREDICT FUTURE OUTCOME AFTER LAPAROSCOPIC ADJUSTABLE GASTRIC BANDING (LAGB)



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Introduction

Laparoscopic adjustable gastric banding (LAGB) was very common bariatric surgery a few years ago, even though it is disappearing now. Many patients still have their gastric band. LAGB has potential to lead an increase and worsening of GERD and develop esophageal dilation, aperistalsis, alterations in lower esophageal sphincter pressure and pseudoachalasia.

Objectives

This study was evaluated the predictable value of the first detection of esophageal stasis on Barium Esophagogram during follow-up in LAGB patients.

Methods

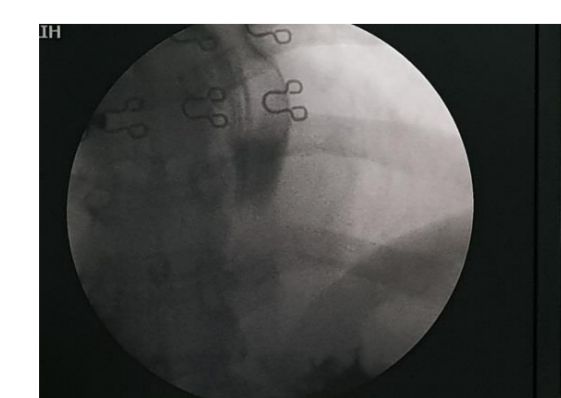
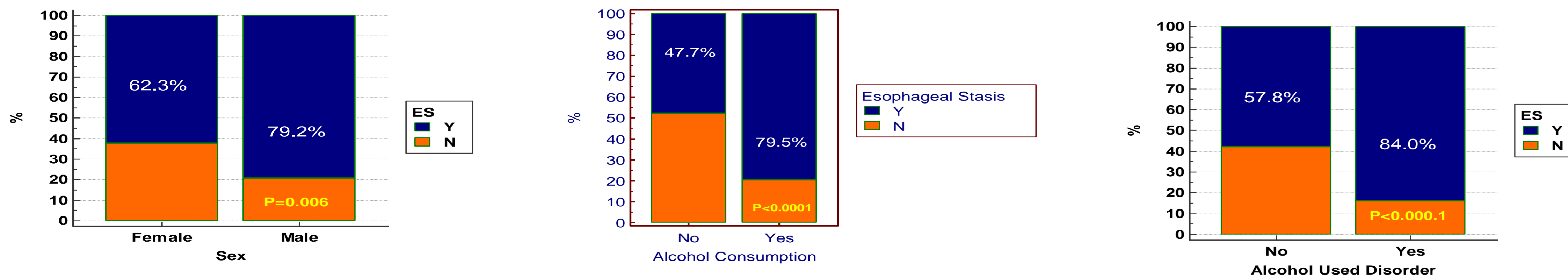
All data were recorded prospectively by patients' hospital visits who undertook the same day LAGB using LAP® APs in the 365mc obesity clinics for 7 years. Patients were limited to be able to follow up more than 2 years after the surgery. Patients conducted a barium esophagogram every time they visited. Esophageal stasis (ES) was defined that the barium was not emptied fully after initial peristalsis through the diaphragm on the barium esophagogram. Pseudoachalasia was defined that the diameter of esophagus was the same or more larger than the spinal bone diameter with the esophageal stasis and delayed emptying through the band outlet on the barium esophagogram.

Results

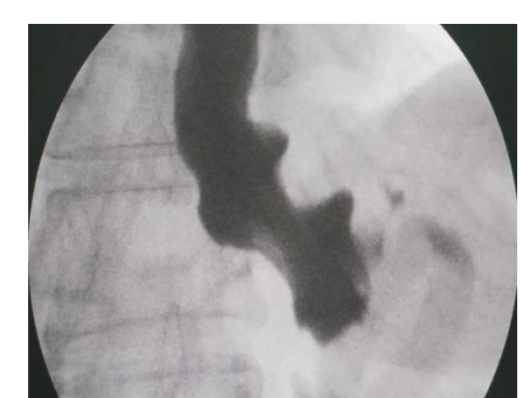
Total 475 patients were enrolled with the esophageal stasis (n=309, 65.1%) and non-esophageal stasis (n=166, 34.9%). Esophageal stasis was diagnosed at post-operative 31.5 ± 12.4 months.

N=475	Esophageal Stasis (ES)										P-value
	No (n=166, 34.9%)					Yes (n=309, 65.1%)					
	Mean	SD	Median	Minimum	Maximum	Mean	SD	Median	Minimum	Maximum	
Preoperative age (years)	31.9	8.8	31.0	16.0	61.0	31.9	8.1	31.0	16.0	64.0	NS
Preoperative height (cm)	164.3	6.5	163.0	148.0	185.0	166.6	7.9	165.0	150.0	191.0	NS
Preoperative BMI (kg/m ²)	35.6	4.3	34.8	30.0	52.9	35.6	4.6	35.0	30.0	51.2	NS
Preoperative Weight(kg)	95.9	15.2	92.7	66.6	145.7	98.8	18.0	95.2	68.7	160.0	p<0.05
Ideal body weight (Metropolitan, kg)	65.7	6.0	64.6	52.9	86.6	67.8	7.4	65.8	54.3	92.3	p<0.05
Postoperative lowest weight (kg)	76.8	14.6	76.0	49.2	128.0	78.7	17.6	75.8	44.6	140.8	NS
Postoperative lowest BMI (kg/m ²)	28.4	4.5	28.2	18.8	42.1	28.2	5.1	27.6	16.0	43.6	NS
Postoperative lowest %EWL (%)	68.9	35.7	63.5	7.6	208.1	72.0	40.9	65.3	5.0	272.7	p<0.05
Postoperative lowest %WL (%)	19.7	9.4	18.8	3.3	45.5	20.2	10.5	18.6	2.1	57.1	NS
30% EWL (%)			n=72 (43.4%)					n=134 (43.4%)			NS
30% EWL time (months)	5.7	6.6	3.8	0.2	39.0	5.1	4.9	13	0.2	36	NS
100% EWL (%)			n=46 (27.7%)					n=79 (25.6%)			NS
100% EWL time (months)	15.6	9.5	12.5	1.5	42.0	15.2	8.15	14	1.1	42	NS
Sex - Female			n=150 (90.4%)					n=248 (80.3%)			p<0.05
Male			n=16 (9.6%)					n=61 (19.7%)			
Explantation			n=51 (30.7%)					n=78 (25.2%)			NS

Post-LAGB alcohol consumption (79.5% vs 47.7%, p<0.0001) and male gender (79.2% vs 62.3%, p<0.01) were leading associated factors for the development of esophageal stasis. 84% patients of alcohol used disorder(AUD) were developed esophageal stasis (p<0.0001).



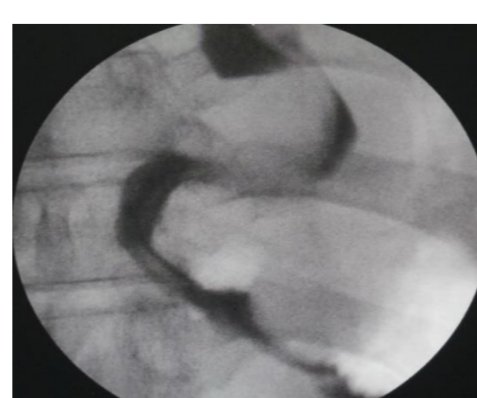
Esophageal Stasis



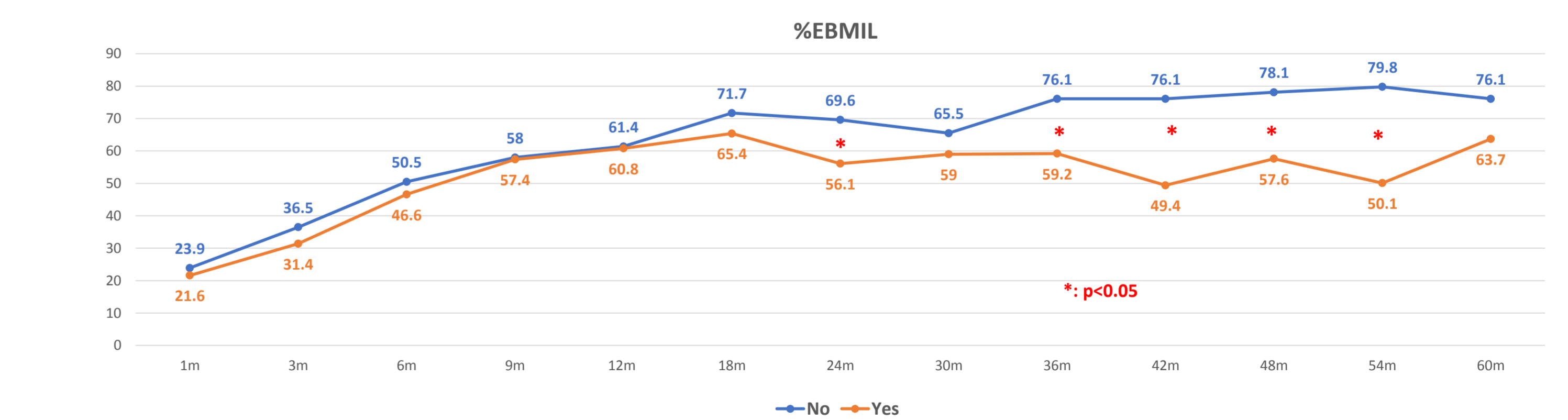
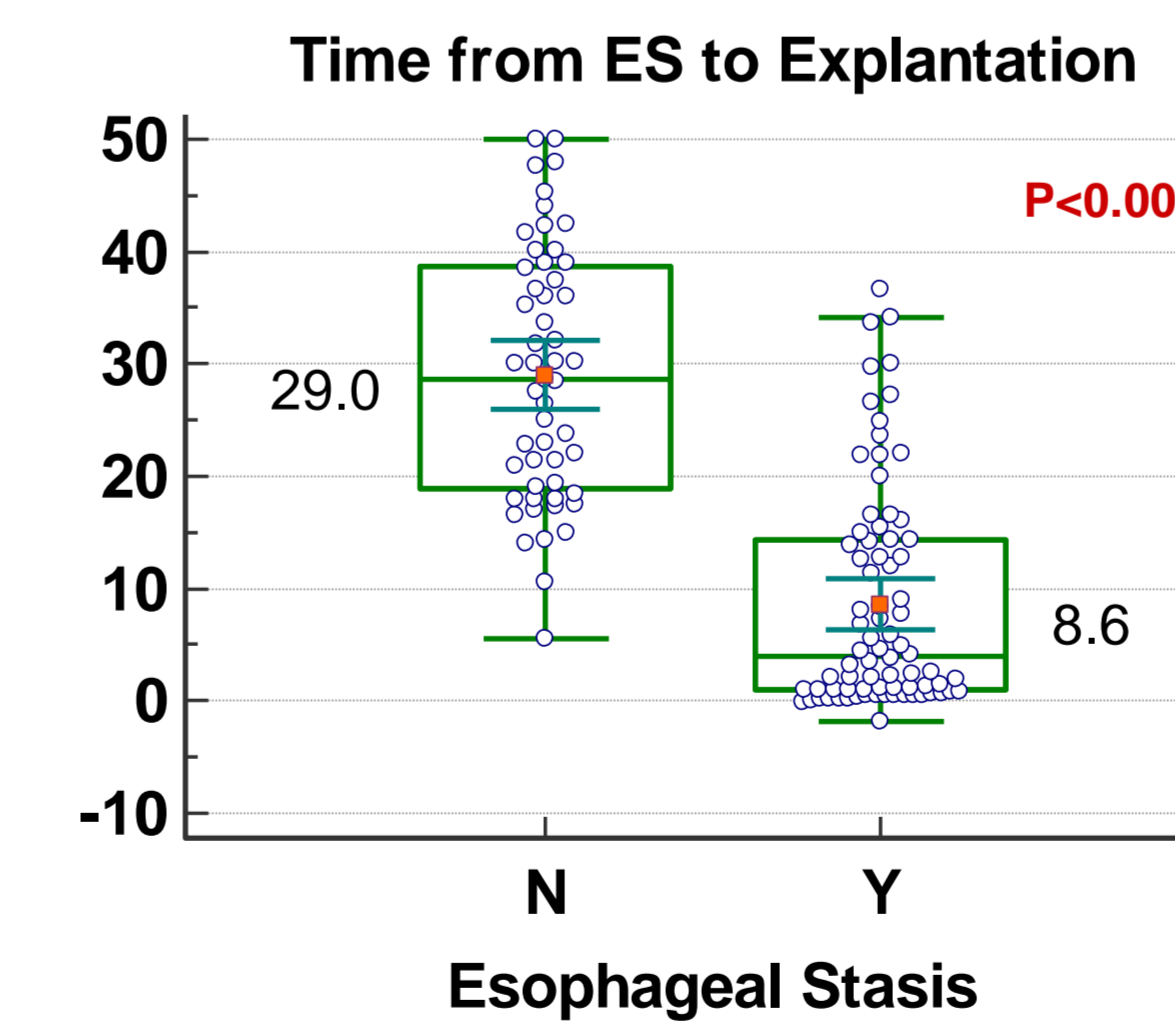
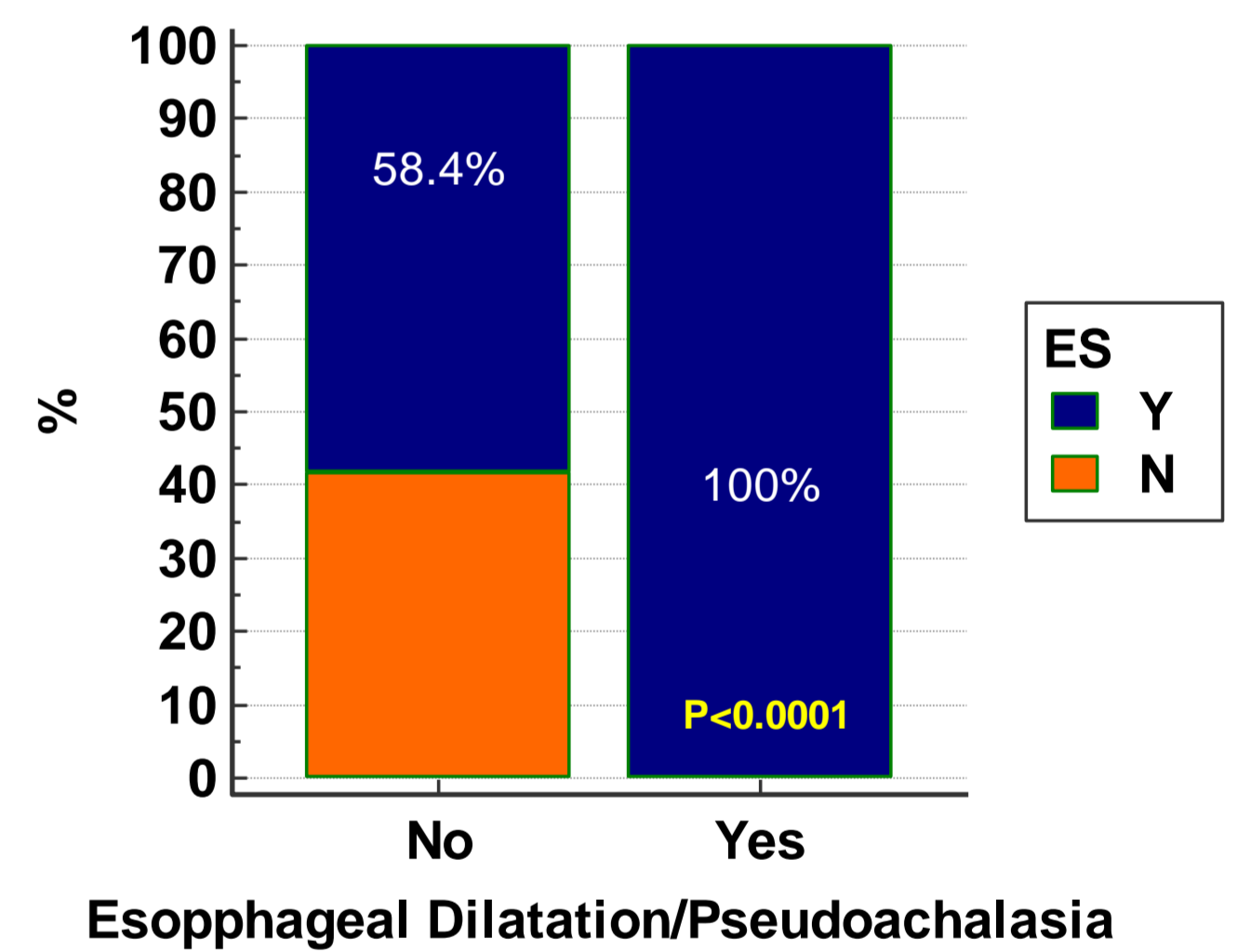
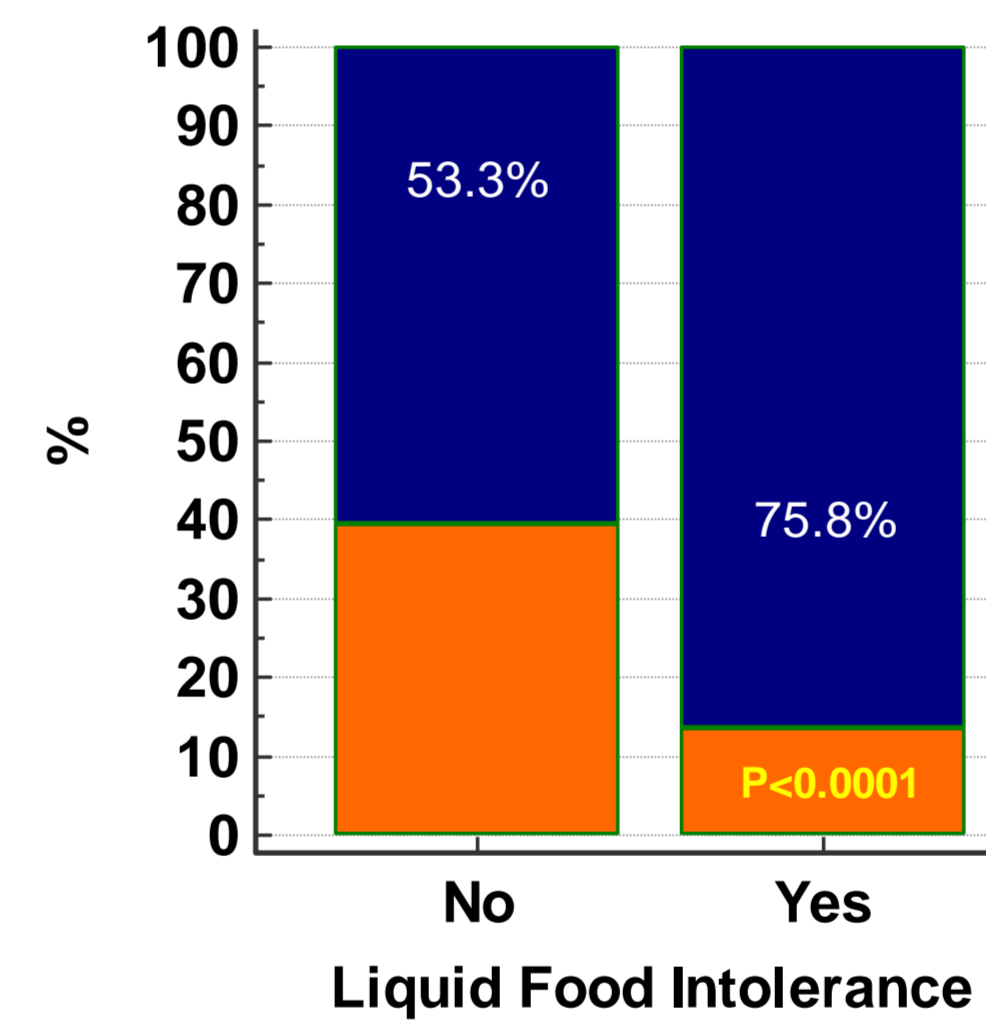
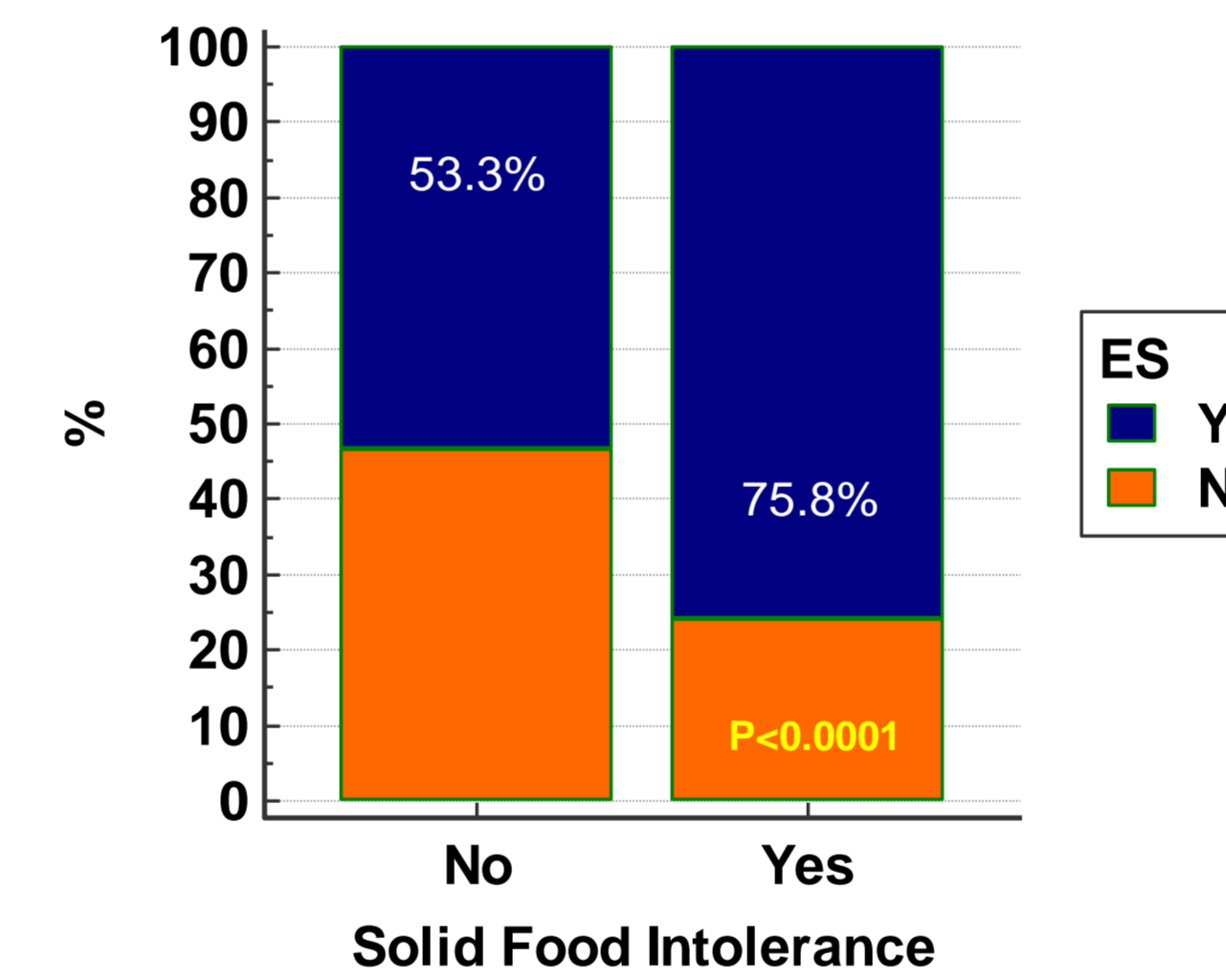
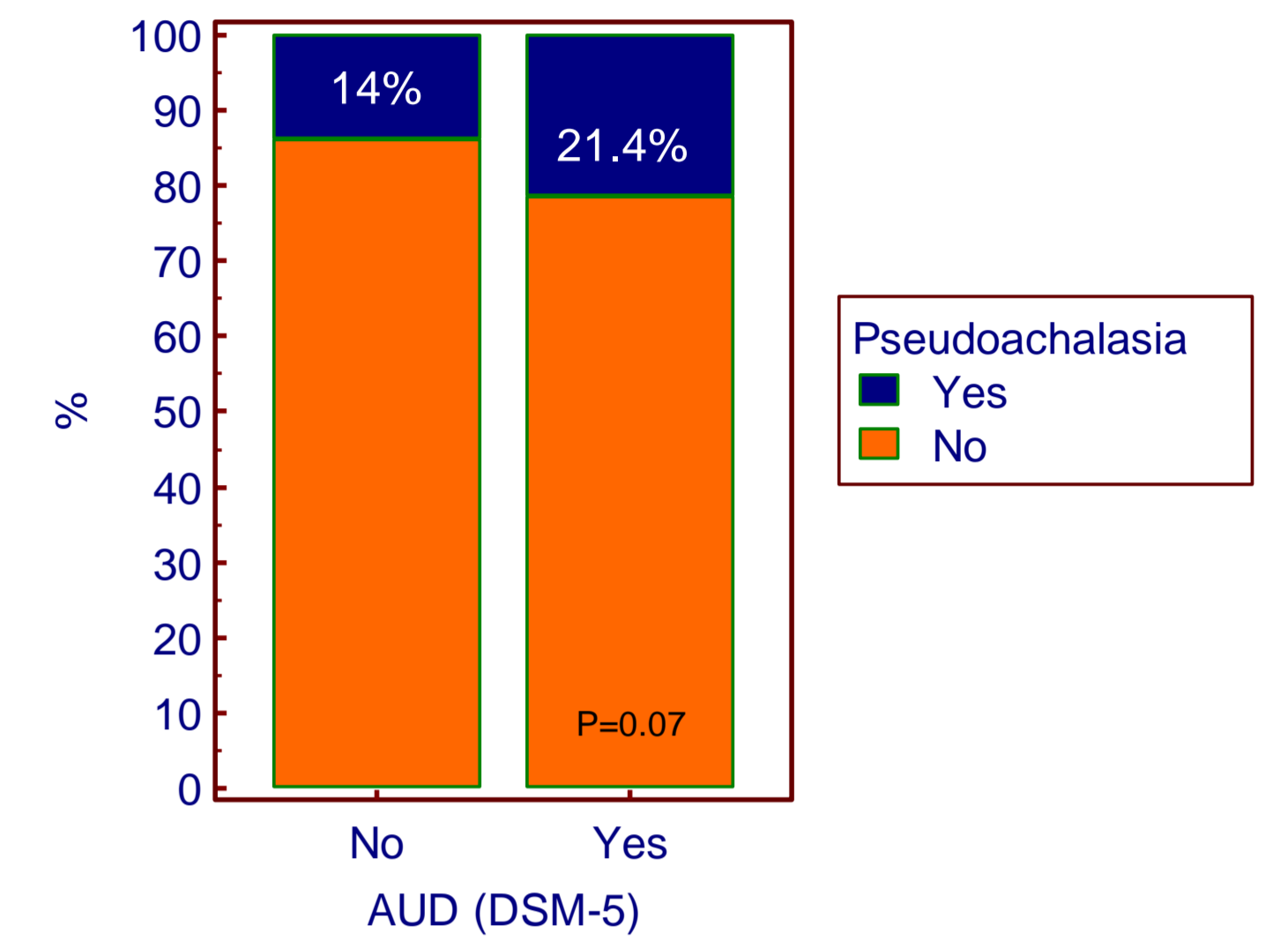
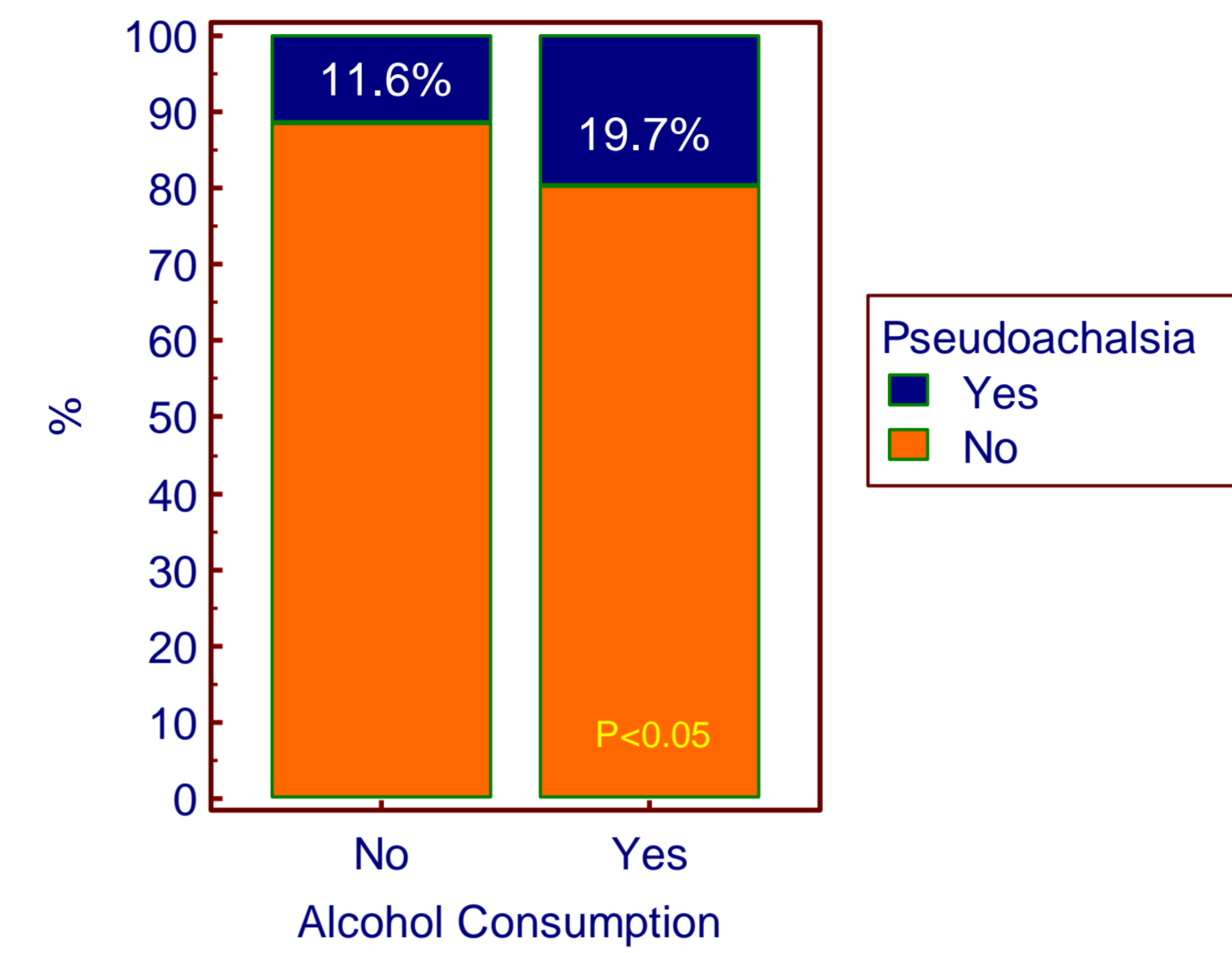
Esophageal Nutcracker Peristalsis



Esophageal Dilatation/Pseudoachalasia



Pseudoachalasia was more frequently showed in the post-LAGB alcohol consumption patients. (11.8% vs 18.7%, p<0.05). AUD also showed higher prevalence of the pseudoachalasia without statistical significance. (p=0.007). Intolerance to solid foods without gastric outlet obstruction appeared more frequently in the ES group (60.8% vs. 36.1%, p<0.0001) and 11.1 ± 0.5 months earlier from the esophageal stasis. 24.5% (n=76) of esophageal stasis patients were developed esophageal dilatation or pseudoachalasia at postoperative 48.3 ± 13.4 months. Nobody developed pseudoachalasia in the non-ES group (p<0.0001). All of the pseudoachalasia patients were carried out their band explantation at 8.6 ± 8 months after the onset of ES. Pseudoachalasia or esophageal dilatation was most common cause of the band explantation (58.1% of 131 patients, p<0.001)



Conclusion

This study revealed that the esophageal stasis following LAGB predicted poor outcome. The esophageal stasis on Barium esophagogram may be strongly associated with poor eating habit like alcohol drinking and a sign of precedence over the pseudoachalasia development.

Clinical Progress of Esophageal Stasis on Barium Esophagogram

