SHORT AND LONG TERM COMPARISON OF ROBOTIC AND LAPAROSCOPIC GASTRECTOMY FOR GASTRIC CANCER AFTER NEOADJUVANT CHEMOTHERAPY: A MULTI-INSTITUTIONAL PROPENSITY SCORE MATCHING ANALYSIS

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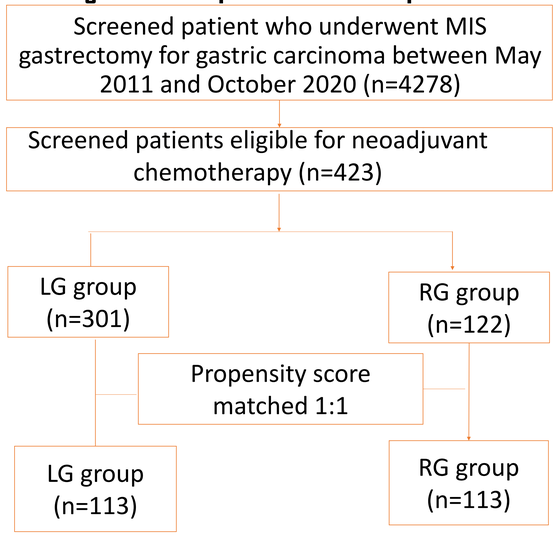
Introduction

· Neoadjuvant chemotherapy (NACT) and laparoscopic gastrectomy have been increasingly used in the treatment of locally advanced gastric cancer.

· The feasibility and safety of robotic gastrectomy after NACT still remain unknown. This study aimed to compare the short-term and long-term outcomes of robotic gastrectomy (RG) and laparoscopic gastrectomy (LG) for gastric cancer after NACT.

Methods

Flow diagram of the patient selection process:



Results

Operative outcomes, postoperative recovery, and morbidity

Variables	LG group (n=113)	RG group (n=113)	Statistic value	P Value
Reconstruction [n (%)]			7.311	0.120
Esophagogastrostomy	23(20.4)	21(18.6)		
Billroth-I	7(6.2)	10(0.9)		
Billroth-II	10(8.8)	13(11.5)		
Roux-en-Y	71(62.8)	78(69.0)		
Double-tract reconstruction	2(1.8)	0(0)		
Retrieved LN number [M(IQR), n]	26(18-35)	24(18-33)	-1.010	0.313
Operation time [M(IQR), min]	247(210.0-280.0)	270(227.5-300.0)	-0.939	0.003*
Estimated blood loss [M(IQR), ml]	150(100.0-200.0)	150(100.0-210.0)	-0.102	0.919
First flatus days [M(IQR), days]	5(3-5)	5(4-5)	-1.402	0.161
Postoperative hospital stay [M(IQR), days]	9(7-11)	11(9-14)	-4.815	< 0.001*
Postoperative morbidity [n (%)]			1.423	0.233
None or CD grade I	86(76.1)	78(69.0)		
CD grade II or higher	27(23.9)	35(31.0)		
Tumor resection rate [n (%)]†			0.735	0.391
R0	105(92.9)	108(95.6)		
R1	8(7.1)	5(4.4)		
Postoperative mortality, n (%)			1.018	0.313
Yes	1(0.9)	3(2.7)		
No	112(99.1)	110(97.3)		

LN lymph node; LG laparoscopic gastrectomy; RG robotic gastrectomy; M(IQR): Median (interquartile range); CD Clavien–Dindo

*Statistically significant

† According to the treatment guidelines issued by the Japanese Cancer Association

The RG group had a significantly longer operation time and a longer postoperative hospital stay than the LG group in the matched cohort.

Postoperative morbidity

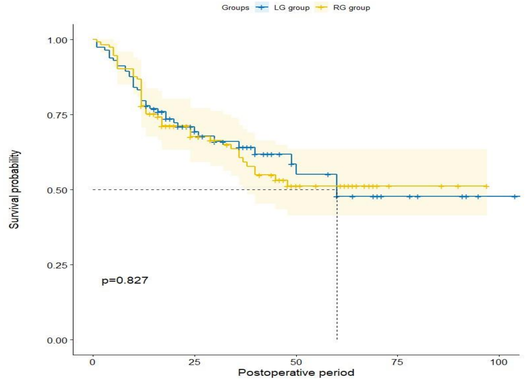
	LG group (n = 113)	RG group (n = 113)	P value
Complications, n (%)†	27(23.9)	35(31.0)	0.233
Anastomotic leakage	3(2.7)	8(7.1)	0.122
Pancreatic fistula	0	2(1.8)	0.155
Abdominal abscess	0	5(4.4)	0.024
Abdominal bleeding	0	1(0.9)	0.316
Pneumonia	1(0.9)	7(6.2)	0.031
Tachyarrhythmia	0	1(0.9)	0.316
Heart failure	0	1(0.9)	0.316
Anemia	12(10.6)	5(4.4)	0.077
Single organ dysfunction	11(9.7)	5(4.4)	0.120

LG laparoscopic gastrectomy; RG robotic gastrectomy

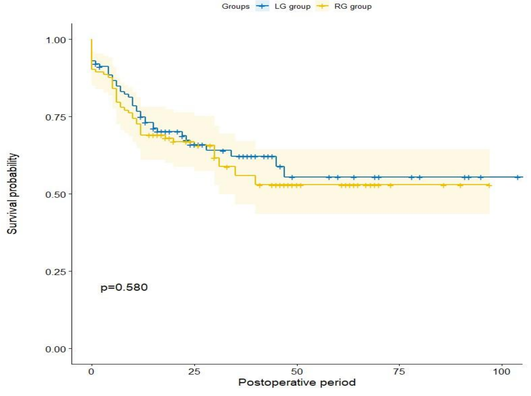
† According to a modification of the Clavien–Dindo grade

The overall complication rates were 23.9% and 31.0% in the LG and RG groups.

Kaplan–Meier estimates of overall survival of all patients



Kaplan–Meier estimates of overall survival of all patients



No significant differences in 3-year overall or disease-free survival rates were observed between the groups for OS or DFS.

Results

Multivariate analysis of risk factors for disease-free survival and overall

Variables	Overall survival			Disease-free survival		
	HR	95%CI	P Value	HR	95%CI	P Value
Age (< 70 vs. ⩾ 70 years)	1.038	0.510-2.111	0.918	0.819	0.390-1.721	0.599
BMI (< 25 vs. ⩾ 25)	0.668	0.402-1.111	0.120	0.755	0.457-1.248	0.273
Cycle of NACT (<5 vs. ⩾ 5)	1.159	0.604-2.227	0.657	1.426	0.779-2.611	0.250
Tumor diameter (< 60 vs. ⩾ 60 mm)	2.508	1.476-4.259	0.001*	1.916	1.142-3.213	0.014*
pTNM stage (pCR-I or II vs. III or IV)†	3.528	2.159-5.765	< 0.001*	3.732	2.286-6.094	< 0.001*
Histologic type (differentiated vs. undifferentiated)	1.273	0.812-1.997	0.293	1.364	0.867-2.148	0.180
Tumor resection rate (R0 vs. R1)†	1.223	0.564-2.652	0.610	1.566	0.726-3.381	0.253
Type of surgery (laparoscopic vs. robotic)	0.881	0.569-1.364	0.569	1.012	0.657-1.559	0.957
Radiological response (CR/PR vs. SD/PD)†	1.365	0.826-2.257	0.225	1.591	0.979-2.583	0.061

*Statistically significant

ASA American Society of Anaesthesiologists; BMI: Body mass index; NACT: neoadjuvant chemotherapy; PR partial response; SD stable disease; PD progressive disease; pCR pathological complete response

a Pathologic stage according to the American Joint Committee on Cancer, 7th Edition

b According to the treatment guidelines issued by the Japanese Cancer Association

c According to the treatment guidelines issued by the Japanese Cancer Association

Tumor diameter over 60mm and pTNM stage III-IV were both the independent risk factors for OS and DFS.

Conclusions

RG may be a potential therapeutic option for patients with gastric cancer after NACT for its acceptable short- and long-term results compared with LG.

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