

Risk factors for body weight loss after gastrectomy for gastric cancer analysed from the JCOG1001 phase III trial.

Takanobu Yamada, Y. Kurokawa, J. Mizusawa, A. Takeno, J. Hihara, H. Imamura, A. Takagane, S.Nunobe, H. Fukuda, S. Takiguchi, Y. Doki, N. Boku, T. Yoshikawa, M. Terashima, T. Sano, M. Sasako

Stomach Cancer Study Group of Japan Clinical Oncology Group (JCOG), Japan

Correspondence to: Dr. T. Yamada; E-mail: takay0218@yahoo.co.jp

Background

- ✓ The standard therapy for locally advanced gastric cancer (GC) is a combination of radical gastrectomy and pre- and/or post-operative chemotherapy.
- ✓ Gastrectomy sometimes induces severe body weight loss (BWL) which has been reported as a risk factor for incompliance with an adjuvant chemotherapy and poor survival. Previously, 10% or 15% BWL was reportedly a cutoff value for the risk factor analyses. Knowing high risk patients for severe BWL may allow to perform preventive measures such as feeding jejunostomy. However, there are no reports describing the risk factors for postoperative BWL using data from a prospective clinical study.
- ✓ The phase III trial (JCOG1001, UMIN000003688), comparing bursectomy and non-bursectomy in resectable advanced GC treatment, highlighting that non-bursectomy is a standard procedure. (Kurokawa, Lancet Gastroenterol Hepatology 2018) This trial registered a total of 1204 patients between June 2010 and March 2015.

Aim

This exploratory study aimed to investigate the risk factors for excessive postoperative BWL (≥10%) of patients diagnosed pathological stage II or III GC, who have indication for adjuvant chemotherapy, using data from JCOG1001 trial.

Key eligibility criteria of JCOG1001

1. Histologically proven adenocarcinoma of the stomach.
2. cT3(ss) – cT4b(SI) ¹⁾
3. Aged 20–80 years.
4. Eastern Cooperative Oncology Group (ECOG) performance status (PS) 0 or 1.
5. Body mass index of less than 30 kg/m²
6. Adequate organ function.

¹⁾Japanese Gastric Cancer Association. Japanese Classification of Gastric Carcinoma, 3rd English Edition. Gastric Cancer 2011;101–12

%Body weight loss (%BWL)

$$\%BWL = \frac{\text{the body weight before surgery} - \text{the body weight immediately before adjuvant chemotherapy initiation}}{\text{the body weight before surgery}} \times 100$$

Postoperative adjuvant chemotherapy was started within 42 days of surgery in JCOG1001 trial.

Methods

Background, surgery, and postoperative data were compared between patients with and without %BWL≥10.

The risk factors for %BWL≥10 were examined by the Logistic regression analysis.

Patients

Of 1204 patients registered for JCOG1001, 728 were included in this post-hoc analysis after excluding 244 diagnosed with pathological stage I, IV, or unavailable staging data, and 232 without data of postoperative body weight.

Patient characteristics (n=728)

		%BWL ≥10% n= 258 (35.4%)	%BWL <10% n= 470 (64.6%)	<i>P</i> value
Age (years old)	≤64	119(46.1)	231(49.1)	0.44
	≥65	139(53.9)	239(50.9)	
Gender	Female	66(25.6)	309(65.7)	0.02
	Male	192(74.4)	161(34.3)	
Preoperative ECOG Performance Status	0	248(96.1)	450(95.7)	1.00
	1	10(3.9)	20(4.3)	
Preoperative BMI	<25	180(69.8)	374(79.6)	<0.01
	≥25	78(30.2)	96(20.4)	
Clinical T category	T3	141(54.7)	238(50.6)	0.31
	T4	117(45.3)	232(49.4)	
Clinical N category	N0	85(32.9)	196(41.7)	0.10
	N1	101(39.1)	150(31.9)	
	N2	64(24.8)	107(22.8)	
	N3	8(3.1)	17(3.6)	
Clinical Stage	II	139(53.9)	271(57.7)	0.35
	III	119(46.1)	199(42.3)	
Preoperative albumin	Median (range)	4.1(2.1-5.3)	4.1(2.1-5.0)	0.15
Procedure	Distal gastrectomy	121(46.9)	352(74.9)	<0.01
	Total gastrectomy	137(53.1)	118(25.1)	
Bursectomy	No	126(48.8)	241(51.3)	0.54
	Yes	132(51.2)	229(48.7)	
Reconstruction method	Billroth-I	47(18.2)	150(31.9)	<0.01
	Roux-en Y (antecolic route)	62(24.0)	118(25.1)	
	Roux-en Y (retrocolic route)	149(57.8)	202(43.0)	
Blood loss (ml)	<285	114(42.2)	255(54.3)	0.01
	≥285	144(55.8)	215(45.7)	
Operation time (min.)	<238	105(40.7)	256(54.5)	<0.01
	≥238	153(59.3)	214(45.5)	
Postoperative complication	Grade 0-1	158(61.2)	401(85.5)	<0.01
	≥Grade 2	100(38.8)	68(14.5)	

²⁾ Dindo D et al. Ann Surg. 2004

Risk factors for excessive BWL

Factors	Univariable			Multivariable		
	OR	95% CI	<i>P</i> value	OR	95% CI	<i>P</i> value
Age (years old)	≤ 64	1		1		0.2079
	≥ 65	1.129	(0.833-1.531)	1.250	(0.883-1.770)	
Gender	Female	1	0.016	1		0.3103
	Male	1.516	(1.081-2.126)	1.217	(0.833-1.778)	
Preoperative ECOG Performance Status	0	1	0.8055	1		0.4551
	1	0.907	(0.418-1.969)	1.388	(0.587-3.280)	
Preoperative BMI	<25	1	0.0032	1		0.0016
	≥25	1.688	(1.192-2.390)	1.881	(1.272-2.781)	
Preoperative Albumine		1.247	(0.884-1.759)	0.2079	1.391	(0.937-2.066)
	0.1016					
Clinical stage	II	1	0.325	1		0.9760
	III	1.166	(0.884-1.759)	1.005	(0.712-1.420)	
Procedure	Distal gastrectomy	1	<0.0001	1		<0.0001
	Total gastrectomy	3.378	(2.449-4.657)	3.303	(2.232-4.889)	
Bursectomy	No	1	0.529	1		0.7295
	Yes	1.103	(0.814-1.494)	1.062	(0.754-1.496)	
Reconstruction method	Billroth-I	1		1		
	Roux-en Y (antecolic route)	1.677	(1.070-2.628)	0.0241	0.773	(0.456-1.310)
	Roux-en Y (retrocolic route)	2.354	(1.594-3.477)	<0.0001	1.045	(0.646-1.690)
	0.8573					
Blood loss (ml)	<285	1	0.0095	1		0.3412
	≥285	1.498	(1.104-2.033)	0.831	(0.569-1.216)	
Operation time (min.)	<238	1	0.004	1		0.2204
	≥238	1.743	(1.281-2.371)	1.268	(0.867-1.853)	
Postoperative complication	Grade 0-1	1	<0.0001	1		<0.0001
	≥Grade 2	3.732	(2.607-5.344)	3.288	(2.255-4.857)	

Summary

- Male sex, preoperative BMI≥25, total gastrectomy, Roux-en-Y reconstruction, long operation time, excessive blood loss, and postoperative complications were seen more frequently in patients with %BWL≥10 than the others.
- Preoperative BMI, total gastrectomy, and postoperative complications were risk factors for %BWL≥10 identified by multivariable analysis.

Conclusions

- This study is the first to demonstrate the risk factors of excessive postoperative body weight loss (≥10%) after gastrectomy for gastric cancer using data from a prospective clinical trial.
- For patients who had received total gastrectomy and/or developed postoperative complications, nutritional support may be required to prevent excessive body weight loss when planning adjuvant chemotherapy.

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(57 institutions from north to south)

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