

Assessment of Peritoneal Irrigation and Drainage Following Elective Gastric Cancer Surgery

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Purpose: Peritoneal irrigation and drain insertion were traditionally performed following major abdominal surgery, as routine procedures. The aim of this retrospective study was to evaluate the usefulness of peritoneal irrigation and drain insertion following elective gastric cancer surgery.

Methods: Between December 2000 and February 2002, 184 patients having undergone surgery for gastric cancer were divided into two groups, a comparative group (86 patients with peritoneal irrigation and drainage) and an experimental group (98 patient without peritoneal irrigation and drainage). The demographics, histopathological classification, range of dissection, comorbid disease, first passage of flatus, start of soft diet, operation time, anesthesia time and operative complication were analyzed retrospectively in consecutive patients. The data were analyzed by student's t-tests with the level of significance set at P < 0.05.

Results: No significance differences were found between the two groups in regard to demographics, range of dissection, comorbid disease or complications. However the mean length of hospitalization, operation time and anesthesia time and the first passage of flatus, and start of soft diet in the experimental group were significantly shorter than those in the comparative group.

Conclusion: The result shows that routine peritoneal irrigation and drain insertion following elective gastric cancer surgery are ineffective in reducing postoperative complications. We think these procedures are unnecessary and offer no considerable advantages. (J Korean Surg Soc 2002;63: 292-297)

Key Words: Gastric cancer, Peritoneal irrigation, Peritoneal drainage

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 cefazoline sodium 1.0 gm
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Table 1. Clinical distribution of patients

	I&D group*	Non I&D group†	P value
Median age	57.5	61.5	0.670
Gender			0.450
Male	64	68	
Female	22	30	
Male : Female	2.9 : 1	2.7 : 1	
Tumor size	4.6±2.2	3.9±2.1	0.045
Tumor location			0.363
Upper	6 (7.0%)	6 (6.1%)	
Middle	22 (25.6%)	17 (17.3%)	
Lower	50 (58.1%)	69 (70.5%)	
Diffuse	8 (9.3%)	6 (6.1%)	
Stage			0.006
IA	28 (32.6%)	41 (41.8%)	
IB	7 (8.1%)	20 (20.4%)	
II	11 (12.8%)	17 (17.3%)	
IIIA	20 (23.3%)	12 (12.2%)	
IIIB	9 (10.5%)	4 (4.1%)	
IV	11 (12.8%)	4 (4.1%)	
Dissection			0.401
D1	7 (8.1%)	5 (5.1%)	
D2	71 (82.6%)	78 (79.6%)	
D3	8 (9.3%)	15 (15.3%)	
Histology			
Tubular adenocarcinoma			
Well differentiated	5 (5.8%)	12 (1.2%)	
Moderate differentiated	20 (23.3%)	31 (31.6%)	
Poor differentiated	40 (46.5%)	37 (37.8%)	
Well to moderate differentiated	7 (8.1%)	1 (1.0%)	
moderate to poor differentiated	6 (7.0%)	0 (0.0%)	
Signet ring cell type	2 (2.3%)	10 (10.2%)	
Mucinous carcinoma	4 (4.7%)	5 (5.1%)	
Papillary carcinoma	1 (1.2%)	2 (2.0%)	
Adenosquamous carcinoma	1 (1.2%)	0 (0.0%)	
Operation procedure			0.001
Total gastrectomy	37 (43.0%)	18 (18.4%)	
Subtotal gastrectomy	49 (57.0%)	80 (81.6%)	

*I&D group = peritoneal irrigation and drain insertion; † Non I&D group = non peritoneal irrigation and drain insertion.

UICC (1997) , WHO

Stage IV; 4 (4.1%) (Table 1).

WHO

78

(90.7%) 가 40 (46.5%)

가

1 (1.2%) 81 (82.7%)

가 10

(10.2%) (P=0.005).

38°C

11 (12.8%), 가 6 (7.0%)

14 (14.3%), 10

(10.2%)가

3 (3.5%), 2 (2.3%), 2

(2.3%), 2 (2.3%)가

2 (2.0%), 3 (3.1%), 1

(1.0%), 1 (1.0%)가 (Table 2).

(P > 0.05).

2)

1) , , , , ,

226±44 (115 350) ,

189±33 (100 300) (P=0.001).

262±46 (160 390) ,

226±35 (145 355) (P=0.001).

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57.5 (23 83) , 64 , 22

2.9 : 1 .

() 61.5 (30 86) ,

68 , 30 2.7 : 1 .

(P=0.670) (P=0.450)

가 6 ,

22 , 50 , 가 8

가 6 , 17 , 69 ,

가 6 ,

(P=0.363).

37 (43.0%),

49 (57.0%) ,

18 (18.4%), 80 (81.6%)

가 (P=0.001).

D1; 7 (8.1%), D2; 71

(82.6%), D3; 8 (9.3%) , D1; 5 (5.1%),

D2; 78 (79.6%), D3; 15 (15.3%)

(P=0.401).

Stage IA; 28 (32.6%), Stage IB; 7 (8.1%),

Stage II; 11 (12.8%), Stage IIIA; 20 (23.3%), Stage IIIB; 9

(10.5%), Stage IV; 11 (12.8%) ,

Stage IA; 41 (41.8%), Stage IB; 20 (20.4%), Stage II; 17

(17.3%), Stage IIIA; 12 (12.2%), Stage IIIB; 4 (4.1%),

Table 2. Associated disease of each group

	I&D group*	Non I&D group [†]	P-value
Hypertension	11	14	0.768
Diabetes mellitus	6	10	0.438
Operation history	1	4	0.224
Cerebrovascular	4	2	0.320
Accident			
Chronic renal failure	2	0	0.129
Miscellaneous	4	5	0.887

*I&D group = peritoneal irrigation and drain insertion; [†] Non I&D group = non peritoneal irrigation and drain insertion.

Table 3. Clinical progress of each group

	I&D group*	Non I&D group [†]	P value
Operation time	226±44 min	189±33 min	0.001
Anesthesia time	262±46 min	226±35 min	0.001
First passage of flatus	3.9±1.7 day	2.6±1.1 day	0.001
Start of soft diet	7.8±5.5 day	5.4±1.0 day	0.001
Hospitalization	13.8±6.6 day	9.9±3.7 day	0.001
Duration of elevated body temperature	1.3±0.7 day	1.8±0.9 day	0.178
Patients of elevated Duration of elevated	14	11	

*I&D group = peritoneal irrigation and drain insertion; [†] Non I&D group = non peritoneal irrigation and drain insertion.

Table 4. Operative complication of each group

	I&D group*	Non I&D group [†]
Intestinal obstruction	2	0
Intraperitoneal abscess	2	0
Atelectasis	3	5
Anastomosis site stricture	2	0
Anastomosis site bleeding	1	0
Reflux esophagitis	1	0
Gastric stasis	2	6
Septicemia	1	0
Total	13	12

*I&D group = peritoneal irrigation and drain insertion; [†] Non I&D group = non peritoneal irrigation and drain insertion.

(1.0 9.0) 2.6±1.1 (1.0 7.0)
(P=0.001).
7.8±5.5 (1.0 54.0) 5.4±
1.0 (2.0 9.0) (P=0.001). 가

38
14 (16.3%)
11 (11.2%) 13
±0.7 1.8±0.9 ,
(P=0.178).
7.4±2.9

4)
13.8±6.6 9.9
±3.7 .
(P=0.001).

5)
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2 (2.3%), 3 (3.5%),
1 (1.2%) ,
6 (6.1%), 5 (5.1%),
1 (1.0%)가 (P=0.571).

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2 (2.3%)
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van Berge Henegouwen (5)
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가 , van Westreenene (8) 가 , 가

가 2 가 가 가 가

가 가 가가 가

가 가 , 가

가 가 가 , 가

가 , 38 가 .(9)

가 . Pai (10) 가

가 . Sagar (11)

가 . Sica (12)



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