

Clinical Survey of the Results on Colorectal Surgery in the Elderly

Fumitake Hata¹⁾, Koichi Hirata¹⁾, Takahiro Yasoshima¹⁾, Goro Kutomi¹⁾, Tomohisa Furuhashi¹⁾, Hidefumi Nishimori¹⁾, Toshio Honma¹⁾, Katsuya Sogahata¹⁾, Hiroki Nomura¹⁾, Futoshi Nakajima¹⁾, Shingo Kitagawa¹⁾, Tadashi Katsuramaki¹⁾, Mitsuhiro Mukaiya¹⁾, and Kazuaki Sasaki²⁾

¹⁾*First Department of Surgery, Sapporo Medical University School of Medicine
South 1, West 17, Chuo-ku, Sapporo 060-8543, Japan*

²⁾*Department of Surgery, Douto Hospital, North 17, East 14, Higashi-ku, Sapporo
065-8555, Japan*

ABSTRACT

From 1978 to 1996, 69 patients who were 80 years of age or older (Group I), 75 patients who were between 75 and 79 years of age (Group II) and 618 patients who were between 50 and 69 years of age (Group III) received surgical treatment for colorectal cancer in our department. A retrospective comparative study of the three groups was made to assess the relevant pathological and surgical factors, preoperative co-existent disease and postoperative complications, postoperative mortality and survival rates. Statistically significant differences were observed in lymph node dissection,

the frequency of preoperative co-existent disease, and the frequency of total postoperative complications between Group I and Group III. The total perioperative mortality rates and 3-year survival rates of the three groups were not significantly different. These results led us to the conclusion that a better prognosis for elderly patients can be achieved if surgery is performed. Therefore, better management and a better rationale governing operative procedures are needed for the treatment of colorectal cancer.

Key words : Colorectal cancer, Elderly, Surgery, Survival

INTRODUCTION

Recently, the average lifespan of the Japanese has increased and the proportion of elderly patients with colorectal carcinoma has increased. It is not surprising, therefore, to see an increased number of very elderly patients undergoing surgery for colorectal cancer and an

increased number being reported at monthly mortality conferences¹⁾. We attempted to analyze the short-term and long-term treatment results in this population of patients to determine whether colorectal cancer has a worse prognosis in elderly people, and whether age should be a factor in decisions regarding therapy.

Address correspondence to: Fumitake Hata

First Department of Surgery, Sapporo Medical University School of Medicine, South-1, West-16, Chuo-ku, Sapporo, 060-8543 Japan

TEL: +81-11-611-2111 (ext. 3281) FAX: +81-11-613-1678 E-mail: fhata@sapmed.ac.jp

PATIENTS AND METHODS

From January, 1978 to December, 1996, 1,123 patients were operated on for colorectal cancer in our hospital. Patients were divided into three groups: 69 patients of 80 years of age or older constituted Group I; 75 patients, between 75 and 79 years of age Group II; and 618 patients, between 50 and 69 years of age Group III. The mean ages of Group I, Group II and Group III were 82.2 years (range from 80 to 92 years old), 76.4 years and 60.2 years, respectively. The male-to-female ratios in Groups I, II and III were 1.6 (42/27), 1.5 (45/30) and 1.6 (379/239), respectively. A comparative study in each group was made for tumor location, pathological factors, preoperative conditions, operative factors, postoperative complications, postoperative mortality and survival rates.

Pathological and operative factors were assessed according to the classification proposed by the Japanese Society for Cancer of the Colon and Rectum (J. S. C. C. R.)²⁾.

The chi-square test was used for differences among the three groups. Statistical significance was taken as P values < 0.05.

RESULTS

Tumor Location and Pathological Factors

There were almost no significant differences in tumor location, histology, depth, lymph node metastasis and histological stage among the three groups (Table 1 and Table 2).

Table 1 Tumor Location

	Group I (Age ≥ 80) (n=69)	Group II (75 ≤ Age ≤ 79) (n=75)	Group III (50 ≤ Age ≤ 69) (n=618)
Cecum	3(4.3%)	3(4%)	31(5%)
Ascending	4(5.8%)	9(12%)	48(8%)
Transverse	2(2.9%)	5(6.7%)	33(5%)
Descending	5(11.5%)	5(6.7%)	49(8%)
Sigmoid	25(36.2%)*	17(22.4%)	140(22%)
Rectum	30(43.5%)	36(47.8%)	316(52%)

*p < 0.05 versus patients between 50 and 69 years of age

Table 2 Pathological Factors

	Group I (Age ≥ 80)	Group II (75 ≤ Age ≤ 79)	Group III (50 ≤ Age ≤ 69)
1. Histology			
well	55%	57%	50%
mod.	29%	35%	39%
por.	4.3%	0%	5%
muc.	2.9%	3%	4%
other	8.7%	5%	2%
2. Depth			
m	6.3%	8%	5%
sm	4.7%	12%	7%
mp	12.5%	16%	16%
ss/a1	62.5%	53%	58%
se/a2	12.5%	4%	8%
si/ai	1.6%	2%	6%
3. Lymphnode metastasis			
n(-)	58%	64%	56%
n1(+)	25%	23%	20%
n2(+)	8%	7%	15%
n3(+)	8%	2%	3%
n4(+)	1%	4%	6%
4. Histological stage			
0	5.8%	8.3%	5%
I	8.7%	19%	18%
II	37.7%*	28%	24%
IIIa	20.3%*	24%	13%
IIIb	8.7%	10%	12%
IV	18.8%	11%	28%

*p < 0.05 versus patients between 50 and 69 years of age

Incidence of Preoperative Conditions and Nutritional State

A statistically significant difference was observed in the frequency of preoperative co-existent disease between Group I and Group III, and also between Group II and Group III (Table 3). No significant difference in nutritional state was observed among the three groups. The incidences of pulmonary dysfunction, cardiovascular dysfunction, hypertension and diabetes mellitus in Group I and II were higher than in Group III.

Table 3 Incidences of Preoperative Conditions and Nutritional State

	Group I (Age≥80)	Group II (75≤Age≤79)	Group III (50≤Age≤69)
1. Total	54/69(78%)*	61/75(81%)*	260/618(42%)
(1) Pulmonary dysfunction	37(53%)	33(44%)	31(5%)
(2) Cardiovascular dysfunction	31(46%)	19(25%)	56(9%)
(3) Hypertension	30(43%)	35(47%)	87(14%)
(4) DM	24(35%)	20(26%)	37(6%)
(5) Ileus	13(19%)	2(2%)	19(3%)
(6) Mental disorder	13(19%)	2(2%)	0(0%)
(7) Renal dysfunction	8(11%)	3(4%)	56(9%)
(8) Other	8(11%)	5(7%)	31(5%)
2. Hypoproteinemia (T. P. < 6.5)	7/20(35%)	13/27(48%)	58/180(32%)

*p<0.05 versus patients between 50 and 69 years of age

Operative Factors

The resectability rates were 93%, 92% and 97% in Groups I, II and Group III, respectively, with no statistically significant difference (Table 4). There were no significant differences in the curability rates among the three groups. A statistically significant difference was observed in lymph node dissection between Groups I and III (P<0.05). The frequency of D

Table 4 Operative Factors

	Group I (Age≥80)	Group II (75≤Age≤79)	Group III (50≤Age≤69)
1. Resectability	64/69(93%)	69/75(92%)	600/618(97%)
2. Curability			
A	86%	89%	80%
B	5%	1%	5%
C	9%	10%	15%
3. Lymph node dissection			
D0	17%	12%	8%
D1	13%	13%	10%
D2	33%	21%	23%
D3	37%*	54%	58%
D4	0%	0%	1%
4. Operation time(mins.)	174±15	177±13	210±7
5. Bleeding(ml)	443±123	639±141	713±70

*p<0.05 versus patients between 50 and 69 years of age

3 in Group I was lower than that in Group III. The operation time and intraoperative bleeding in Group I were less than those in Group III, although there was no statistically significant difference. Those in Groups II and III were almost equal.

Postoperative Complications and Postoperative Mortality

The frequency of total postoperative complications in Group I was 54%, which was significantly higher than that in the younger groups (Tables 5 and 6). In particular, the frequencies of delirium and respiratory complications were higher than in the younger groups. The postoperative mortality rates in Groups I, II and III, were 4.2%, 1.3% and 1.9%,

Table 5 Postoperative Complications

	Group I (colon/rectum)	Group II (colon/rectum)	Group III (colon/rectum)
Total complications	37/69(54%)* (54%/53%*)	34/75(45%) (42%/47%)	198/618(32%) (28%/35%)
(1) Delirium	54%/53%*	10%/18%	6%/6%
(2) Respiratory disease	20%/23%	10%/15%	10%/10%
(3) Wound infection	17%/19%	24%/28%	13%/16%
(4) Ileus	14%/23%	10%/20%	13%/18%
(5) Renal damage	8%/13%	0%/0%	4%/6%
(6) Cardiovascular disease	5%/10%	10%/15%	4%/4%
(7) Anastomotic leakage	7%/9%	5%/4%	2%/2%
(8) Other	14%/14%	19%/18%	6%/6%

*p<0.05 versus patients between 50 and 69 years of age

Table 6 Postoperative Mortality and Hospital Stay

	Group I Total (colon/rectum)	Group II Total (colon/rectum)	Group III Total (colon/rectum)
1. Mortality rate	3/69(4.2%) (3.3%/5.1%)	1/75(1.3%) (2.9%/0%)	12/618(1.9%) (1.8%/2.1%)
2. Hospital stay(days)	55±6 [#] (50±6 [#] /58±7 [#])	59±3 [#] (57±3 [#] /61±3 [#])	43±1 [#] (41±1 [#] /44±1 [#])

[#]mean ± standard deviation

respectively, with no significant difference. There was no significant difference in the hospital stays among the three groups.

Cancer-Specific Survival Rates

The 3-year cancer-specific survival rates in Group I, Group II and Group III were almost the same; 63.2%, 62.1% was 69.2%, respectively (Table 7). The 5-year cancer-specific survival rate in Group I was worse than that in Group III.

Table 7 Cancer-Specific Survival Rates

	Group I	Group II	Group III
1-year survival	75.3%	83.4%	85.4%
3-year survival	63.2%	62.1%	69.2%
5-year survival	41.7%	53.1%	60.5%

DISCUSSION

Recently, the average lifespan in Japan has increased and the proportion of elderly patients with colorectal carcinoma has also increased. Also in our hospital, the number of elderly patients undergoing surgery for colorectal cancer is increasing year by year. Thus, it must be determined whether surgical treatment for colorectal cancer has a worse prognosis in elderly people and whether age should be a factor in decisions regarding types of therapy. Therefore, we carried out this comparative study of three differently aged groups who received surgical treatment for colorectal cancer.

Some comparative studies of colorectal resection between elderly and younger patients have been reported³⁻⁷. It is often said that tumors in younger age groups have a higher histological grade of malignancy, and, conversely, tumors in old age have a lower malignancy⁸⁻¹⁰. However, with respect to tumor location and pathological factors, there were no age-related differences in the present investigation; colorectal cancer was not biologically less aggressive in the aged patients in this study.

The resectability and curability rates were almost equal in the three groups. The frequen-

cy of lymph node D3 dissection in patients 80 years of age or older was lower than that in those between 50 and 69 years of age. To decrease operative stress, we tried to limit the area of lymph node dissection, and accordingly, the operation time and intraoperative bleeding in patients 80 years of age or older were lower than in those between 50 and 69 years of age, although there were no statistically significant differences. The frequency of preoperative co-existent disease and total postoperative complications in those 80 years of age or older was higher than for patients between 50 and 69 years of age. However, the mortality rate and hospital stay for those 75 years of age or older were almost equal to those for patients between 50 and 69 years of age. Thus, the risk certainly appears to be acceptable.

The quality of survival postoperatively is of major importance for the elderly. It would be unjustifiable to recommend an aggressive surgical approach in the elderly if the results were to dramatically alter their course of life. Surgical treatment of colorectal cancer will prolong their survival, as evidenced by our 63% survival rate after three years. The hospital stay and mortality rates were also equal in the three age groups. Thus, after preoperative co-existent disease increase with age is carefully evaluated, adequate surgical treatment combined with lymph node dissection must be performed.

In conclusion, operative factors, mortality and survival rates in the 75- to 79-year-old range were at least equal to those found in younger patients, suggesting that this group of patients should be treated in the same fashion. Although patients who are older than 80 have a higher prevalence of cancers with associated complications and have a slightly worse survival rate, a better prognosis is expected for this group if surgery (unless contraindication) is undertaken. Therefore, better management and a better rationale for governing operative procedure are therefore required for patients with colorectal cancer.

REFERENCES

1. Hobler KE. Colon surgery for cancer in the very elderly. Cost and 3-year survival. *Ann Surg* 1986, 203: 129-131.
2. Daichogan Kenkyukai (Japanese Society for Cancer of the Colon and Rectum) ed. *Daichogan toriatukai kiyaku (General rules for clinical and pathological studies on cancer of the colon, rectum and anus)*. 6th ed. Tokyo, Kanehara Shuppan, 1998 (in Japanese).
3. Ozoux JP, Calan L, Perrier M, Berton C, Favre JP, Brizon J. Surgery for carcinoma of the colon in people aged 75 years and older. *Int J Colorectal Dis* 1990, 5: 25-30.
4. Morel P, Egeli RA, Wachtl S, Rohner A. Results of operative treatment of gastrointestinal tract tumors in patients over 80 years of age. *Arch Surg* 1989, 124: 662-664.
5. Bader TF. Colorectal cancer in patients older than 75 years of age. *Dis Colon Rectum* 1986, 29: 728-732.
6. Maehara Y, Emi Y, Tomisaki S, Oshiro T, Kakeji Y, Ichiyoshi Y, Sugimachi K. Age-related characteristics of gastric carcinoma in young and elderly patients. *Cancer* 1996, 77: 1774-1780.
7. Boyd JB, Bradford B, Wante AL. Operative risk factors of colon resection in the elderly. *Ann Surg* 1980, 192: 743-746.
8. Hermanek P. Gastrointestinal carcinoma - Are there age-related differences in tumor behavior? *Hepatogastroenterology*. 1986, 33: 180-183.
9. Adam YG, Calabrese C, Volk H. Colorectal cancer in patients over 80 years of age. *Surg Clin North Am* 1972, 52: 883-889.
10. Irvin GL, Robinson DS, Hubbard S. Operative risks in patients with colorectal cancer. *Am Surg* 1985, 51: 418-422.

(Accepted for publication, Jan. 18, 2001)