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Original Article

Evaluation of long-term oncological outcomes of colon cancer resections in octogenarian and nonagenarian patients

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Abstract

Aim: To investigate the long-term oncologic results of patients older than 80 years who were operated on for colon cancer in our clinic.

Material and Methods: All patients who were operated on for colon cancer in our clinic between 2006 and 2013 were included. Data were collected retrospectively by chart review. The final status of the patients was obtained by questionnaires answered by patients or patients' relatives. Patients were divided into two groups according to their age, over 80 years of age and under 80 years of age, respectively. The following data were compared between groups; gender, pathological data, oncological treatment, one-year survival, disease-free survival and 5-year overall survival.

Results: A total of 188 patients were included. There were 13 (6.9%) patients over 80 years of age. The expected 5-year survival rate under the age of 80 was 77.4%, while it was 46.2% for over the age of 80 (p = 0.001). The 5-year disease-free survival was calculated as 77% for under 80 years and 38.5% for over 80 years (p = 0.001). In the postoperative first year, 8 (4.6%) patients under 80 years of age and 1 (7.7%) of patients over 80 years of age died. Nine of 13 (69.2%) patients over 80 years of age died during follow-up.

Conclusion: : In the light of the findings of our study, it can be said that the first 1-year survival rate of patients older than 80 years was similar to the younger patients, but they had worse survival rates in the longer term.

Keywords: Colon cancer; octogenarians; long term survival; colon surgery

INTRODUCTION

Life expectancy is gradually increasing in the last few decades. Accordingly, the proportion of the elderly individuals in the general population is increasing day by day. In the USA in the early 1900s, only 13.5% of the population could reach 80 years of age, while in 2011 this rate increased to 57.5% (1). Moreover, the average life expectancies for 80 years-old male and female are 8.2 years and 9.6 years in the USA, respectively.

Currently, colorectal cancers are the 2nd and 3rd most frequently diagnosed malignancies in men and women, respectively (2, 3). In addition, the incidence of colorectal cancer is increasing with aging. As such, the incidence of colon cancers in 75 years and older is 40-50 / 100,000 and 15-20 / 100,000 for 60-65 years of age (4).

Surgical treatments are still the basis for the treatment of both local and metastatic colorectal cancers. Today, patients who are advanced in age can be operated more safely due to the developments in surgery, anesthesia and perioperative care (5). However, there are still concerns about the safety of major surgical interventions in octogenarian and nonagenarian patients. Even today, octogenarian and nonagenarian patients are excluded from most of the studies (4). In fact, there are few studies investigating the outcome of surgery in very old patients with colorectal cancer (6, 7). Despite this, colorectal surgeons have to operate in an increasing number of older patients every day. Therefore, risk and benefit analysis are gaining importance in this patient group.

In this study, we aimed to investigate the long-term results of patients older than 80 years who were operated for colon cancer in our clinic.

MATERIAL and METHODS

All patients who underwent surgical operations for colon

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cancer in our clinic between 2006 and 2013 were included in this study. This is a retrospective study and data were collected by chart review method. The final status of the patients was obtained by contacting patients or patients' relatives via phone calling.

In our study, patients with known metastasis, patients with current or previous additional malignancy, patients operated under emergency conditions (obstruction and/or perforation), patients who died in the early postoperative period (within 30 days) and patients whose data could not be reached were excluded.

In our study, patients were divided into two groups according to their age, over 80 years of age and under 80 years of age, respectively. The following data were compared between groups; gender, pathological data, oncological treatment, one-year survival, disease-free survival and five-year overall survival.

Statistics

Continuous variables are expressed in mean and standard deviation and median and range according to distribution. Continuous normally distributed variables were compared by Student's t test. Mann-Whitney U test was used to compare means of variables which were not normally distributed. The frequencies of categorical variables were compared using Pearson $\chi 2$ or Fisher's exact test, when appropriate. The survival data were analyzed with Kaplan Meier test. A value of $p< 0.05$ was considered significant.

RESULTS

Patients

During the study period, a total of 345 patients were operated on for colon cancer in our clinic. Of these patients, 157 were excluded from our study due to exclusion criteria. As a result, 188 patients were evaluated in our study. The mean age was 61.6 ± 13.5 years. Of the

Table 1. Characteristics of patients undergoing colon cancer resection

Variables	Groups		p value
	80< (n=175)	80> (n=13)	
Female	76 (43.4)	6 (46.2)	0.848
Male	99 (56.6)	7 (53.8)	
Age	60.1±12.6 (28-79)	82.7± 2.7 (80-89)	NA
Tumor localizatio			
Sigmoid	65 (37.1)	3 (23.1)	0.185
Descending colon	18 (10.3)	2 (15.4)	
Transvers colon	7 (4.0)	2 (15.4)	
Ascending colon	67 (38.3)	6 (46.2)	
Cecum	18 (10.3)	0	
Histopathological tumor type			
Adenocarcinoma, NOS	163 (93.1)	11 (84.6)	0.252
Mucinous tumor	12 (6.9)	2 (15.4)	
Lymphovascular invasion	32 (18.3) (n=170)	1 (7.7) (n=13)	0.630
Perineural invasion	39 (22.3) (n=170)	3 (23.1) (n=13)	0.999
Removed lymph node	16 (2-102)	11.5 (3-33)	0.071
Removed lymph node 12≥ (%)	70.85	46.2	0.063
Tumor differentiation			
Well / moderate/ poor	18 (10.3)/ 149 (85.1) / 8 (4.6)	1 (7.7) / 10 (76.9) / 2 (15.4)	0.208
T phase			
T3 / T4	150 (85.7) / 25 (14.3)	12 (92.3) / 1 (7.7)	0.999
Adjuvant chemotherapy	66 (37.7)	3 (23.1)	0.379
Overall recurrence	22 (12.6)	2 (15.4)	0.674
Local recurrence	2 (1.1)	0	0.999
Distant Metastasis	21 (12.0)	2 (15.4)	0.663

patients, 82 (43.6%) were females and 106 (56.4%) were males. In our study, there were 13 (6.9%) patients over 80 years of age and 175 (93.1%) under 80 years of age. The mean age of patients over 80 years was 82.7 ± 2.7 years. The mean age of the patients less than 80 years of age was 60.1 ± 12.6. There was no statistically significant difference in terms of gender between groups (p = 0.84) (Table 1).

Perioperative Data

Tumor localizations were similar in both groups (p = 0.185). In addition, the pathological parameters were similar in both groups. Although there was no statistically significant difference, the number of lymph nodes dissected from patients over 80 years of age was quite less than patients under 80 years of age. Besides, 12 and more lymph nodes could be dissected in 70.85% of the patients under 80 years of age, this rate was found to be only 46.2% in those over 80 years of age (p=0.063) (Table 1).

Follow-up and Survival Data

In our study, mean follow-up periods were 53.8±29.8 months and 66.8±27 months for patients over 80 years age and under 80 years age, respectively (p=0,1). Admission rates for adjuvant chemotherapy were 23.1% (n = 3) and 37.7% (n = 66) in patients over 80 years of age and patients under 80 years of age, respectively (p = 0.379).

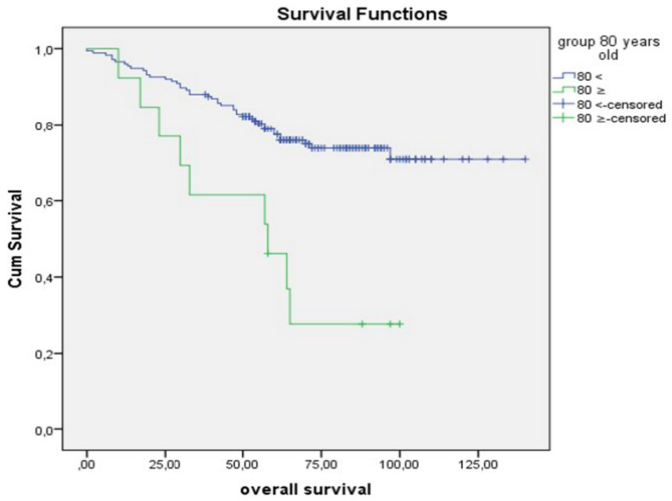

Figure 1. Overall survival of the cases

When the long-term survival results are examined; The expected 5-year overall survival rate for patients under 80 years of age was found to be 77.4%, while it was found to be 46.2% for those over 80 years of age (p = 0.001) (Figure 1). The 5-year disease-free survival was calculated as 77% and 38.5% for patients under 80 years of age and those over 80 years of age, respectively (p = 0.001) (Figure 2). In the first year postoperative period, 8 (4.6%) patients under 80 years of age and 1 (7.7%) patients over 80 years of age died. Nine (69.2%) of 13 (6.9%) patients over 80 years of age died during follow-up period. In this group, 7 (77.7%) of the patients died from other causes. Two (22.3%) patients had distant metastases when they died, one of them died from cardiac infarct, other one died from pneumonia. The number of patients who died in the under 80-year-old group was 43 (24.5%). Of these, 21 (48.8%) were lost due to other causes, and 22 (51.2%) died from complications of local recurrence or metastatic disease. The mean estimated life expectancy of the patients over 80 years of age was 57.1 months. This period was 111.9 months in patients under 80 years of age (p<0,001).

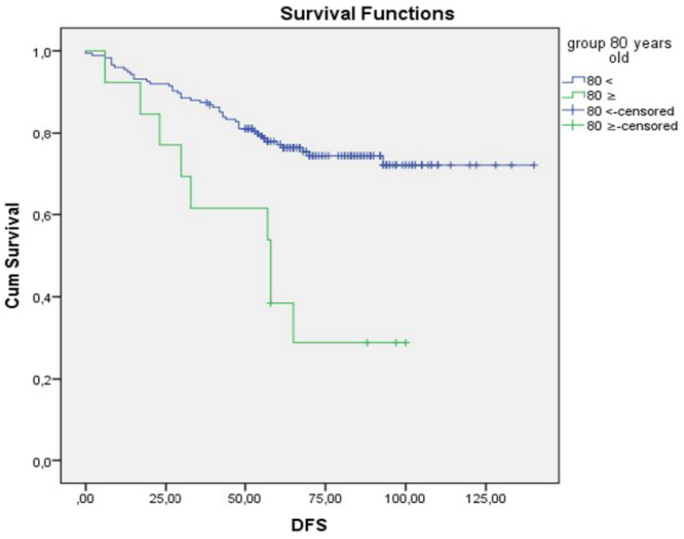

Figure 2. Disease free survival of the cases

DISCUSSION

The only treatment option that provides cure for colon cancers is still surgery. Life expectancy is increasing day by day worldwide. Accordingly, the proportion of individuals aged 80 and even 90 years increases in the population (1). Therefore, the number of patients with cancer in these very old ages increases. Age is not a prognostic factor for colon cancer (8, 9). Nevertheless, concerns remain regarding major surgical procedures in very elderly patients. It was shown in colorectal cancer collaborative group study published in Lancet that less surgical treatment was applied in more elderly patient group (10).

The most important reason for avoiding major surgery in elderly patients is co-morbidities which are predicted to increase the postoperative complications. In a study including 7696 patients received major surgery, Turrentine et al. reported postoperative morbidity rates as 49 % in cases older than 80 years and as 61 % in patients older than 90 years (11). Very elderly patients, especially those aged 80 years and older, are excluded from many studies even today (6, 7). Therefore, data on very elderly patients are extremely limited. As a matter of fact, there are only about 15 studies examining patients older than 80 years who had undergone major surgery in the literature. Moreover, in most of these studies, early postoperative findings were mainly examined (6,7). In this regard, we thought that long-term oncological outcomes of those patients should be investigated.

Gurevitch et. al showed no difference in postoperative early outcomes between patients under and over 80 years old, who were electively operated for right colon cancer in a study which included a total of 124 patients, 40 of whom were older than 80 years of age. However, in the same study, it was found that patients over 80 years of age who were operated emergently had a higher rate of operative mortality than younger ones (12).

In a cohort study of approximately 110,000 patients based on California cancer data, Kuniake et al. compared patients over 80 years of age to those under 65 years of age who were operated for colorectal cancers (6). In that study, 26% of patients who were operated for colon cancer and 16% of patients who were operated for rectal cancer were 80 years of age or older. The two main data examined in that study were hospital re-admission within 90 days and postoperative 1-year mortality. Patients aged 80 years and over re-admitted to the hospital were about 2 times more than younger ones. In addition, 1-year mortality rate was around 10% in patients under 65 years of age and this rate was found to be around 30% in patients over 80 years of age.

Banysch et al. reported a 1-year postoperative mortality rate of 26.5% for patients over 80 years of age and 10% for patients less than 80 years of age in a study, which included 232 patients with colorectal cancer (13). In our study, the 1-year mortality rate was found to be 7.6% for patients over 80 years of age and 4% for those under 80 years of age. The possible reason for the relatively lower first year mortality rate in our study was that the early postoperative dead patients were excluded from our study.

As mentioned, there are very limited data on long-term outcomes of patients aged 80 years or older who have undergone surgery for colorectal cancer in the literature. We believe that our study may make an important contribution to the literature in this respect. In comparison of patients under 80 and over 80 years, the difference between 3 years and 5 years survival was not shown in a study by Yukawa et al, which included a total of 191 patients operated for colorectal cancer (14). In that study, 5-year overall survival was 75.6% for patients over 80 years of age and 76.6% for patients under 80 years of age. Banysch et. al reported tumor-specific 5-year survival rates as 79.2% for patients under 80 years of age and 65.3% for patients over 80 years of age. The difference was statistically significant (13). In our study, the overall 5-year survival rate was 77.4% for patients under 80 years of age and this rate was 46.2% for patients over 80 years of age. Besides, disease-free survival was 77% for patients under 80 years of age and 38.5% for patients over 80 years of age. These results suggest that postoperative long-term survival expectancy is lower in patients with colon cancer older 80 years of age than younger patients.

There were significant limitations to be emphasized in our study. The first one is the limited number of subjects especially in older group. Secondly, oncologic therapies were not homogeneous, as the study was a retrospective analysis.

CONCLUSION

As a conclusion, the proportion of individuals older than 80 years increases in the society, and a significant number of these patients needs major surgery. In this article, we aimed to investigate the long-term results of these elderly patients who were operated for colon cancer. In the light of the findings of our study, it can be said that the first 1-year survival rate of patients older than 80 years who were operated for colon cancer was similar to the younger patients, but they had worse survival rates in the longer term compared to younger ones. The findings of our study need to be confirmed with larger prospective series.

Competing interests: The authors declare that they have no competing interest.

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Ethical approval: The research was approved by the Derince Education and Research Hospital Ethics Committee.

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