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Endoscopic Detection and Surgical Treatment of Colorectal Cancer in Octogenarians

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Abstract

Background: Colorectal Cancer (CRC) in the elderly is being diagnosed and treated more frequently, as a consequence of longer life expectancy. However, patients aged over 80 years are diagnosed late and surgical treatment is often difficult or aimed to palliate symptoms. Aim of the present study was to report on the characteristics of elderly patients referred to the endoscopy of our surgical Unit and outcomes of surgical treatment compared with younger patients.

Materials and Methods: We prospectively gathered data of all patients referred to our Unit between January 2011 and January 2013 for suspicion of CRC, confirmed during endoscopy. We collected baseline characteristics, management, survival and quality of life (QoL). Patients who received radical surgery were compared with a sex- and disease cohort of younger patients undergoing surgery for CRC in the same period. Presentation and outcomes were compared, as well as survival and QoL. QoL was evaluated in all patients 3 months after endoscopy by means of EORTC QLQ-C30.

Results: Twenty patients aged over 80 years received CRC diagnosis during endoscopy. Most patients were referred to endoscopy because of rectal bleeding (35%). Cancers were mainly located below the splenic flexure (75%), but the rate of right localizations was not negligible. Three (15%) patients received palliative surgery while 4 (20%) refused to undergo surgery or did not meet surgical criteria. At a mean follow-up of 14 ± 6 months survival rate was significantly higher in patients receiving radical surgery (p=0.04). Thirty patients aged < 80 years served as controls. No differences were observed in terms of cancer localization and stage, although elderly patients were more often found with node-positive CRC. Elderly patients more frequently suffered from minor perioperative complications (46.1 vs 6.7% p=0.006), but perioperative mortality and overall survival did not differ between groups. Concerning QoL, radical surgery conferred optimal results when compared with palliative/no surgery, irrespective of age.

Conclusions: Referral of elderly patients to endoscopic examination is often delayed, and may result in sub-optimal treatment. Pancolonoscopy and radical surgery should be encouraged, as a timely approach offers excellent results in terms of survival and QoL.

Keywords: Colorectal cancer; Elderly; Complication; Quality of life; EORTC; Surgery

Introduction

Colorectal Cancer (CRC) accounts for nearly 52,000 deaths per year in the U.S.A [1], representing one of the four major causes of death for cancer. People over 70 are at increased risk of developing CRC, with 1 out of 23 male and 1 out 25 female developing invasive CRC in the U.S.A. between 2006 and 2008 [1]. The incidence of CRC cancer in elderly people is reported to be as high as 465 and 365/100,000 inhabitants in male and female individuals over 80 years of age, respectively [2]. With the longer life expectancy, dealing with elderly patients found with CRC has become more common. However, the literature lacks evidences concerning the ideal diagnostic strategy and treatment of this population.

Poor prognosis has been reported for CRC in the elderly, due to frequent diagnostic delay and need for emergency surgery, eventually leading to higher perioperative mortality [3]. Conversely, diagnostic as well as surgical advances have recently allowed performing even complex procedures in older patients, with good outcomes [4-6].

Our aim was to compare the surgical outcomes of elderly patients diagnosed with CRC during endoscopy referred to our Unit for CRC suspicion with those of younger patients.

Materials and Methods

We prospectively collected data of all consecutive elderly patients undergoing lower gastrointestinal endoscopy for suspect CRC in our Unit between January 2011 and January 2013. All patients aged over 80 years found with CRC were included in the study. Data of interest included indications to endoscopy, CRC localization, and stage. We compared survival of patients operated on with curative intent with those receiving palliative surgery or conservative treatment.

Surgical data of these patients were collected and compared with those of a younger sex and disease matched cohort of CRC patients operated on in the study period. Patients with metastatic CRC were excluded from this analysis. We compared presentation, rates of locally advanced disease, perioperative morbidity and mortality. The perioperative period included admission through the 30th postoperative day. Overall survival rates at mean follow-up of elderly patients receiving surgery were compared with those of younger patients.

Health related quality of life (HRQoL) was assessed by means

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of European Organization for Research and Treatment for Cancer Quality of life Questionnaire (EORTC QLQ-C30) [7] in elderly patients undergoing or not surgery, as well as in younger patients three months after endoscopic diagnosis.

Statistical analysis

Results are expressed as or mean ± SD unless otherwise indicated. Differences in means and medians between subgroups were compared using the Mann-Whitney U test. Comparisons between categorical variables were analysed using the Fisher's Exact test. P<0.05 was considered statistically significant. Survival analyses were performed by means of Kaplan-Meier curves, using the Mantel-Cox test to determine whether surgical treatments significantly affected lifespan. Data were analysed using the SPSS statistical package (SPSS for MS Windows, version 17.0, Chicago, IL).

Results

Twenty patients aged over 80 years undergoing lower endoscopy in our Unit in the study period were found with CRC. Out of these, 13 (65%, mean age 85 ± 3.1 years) underwent subsequent surgical treatment with curative intent for CRC, and were assigned to group A. Three of the remaining seven patients received palliative surgery, while four refused or did not fit surgical criteria and were not operated on. Out of these four, two refused surgery and two had diffuse metastatic disease.

Characteristics of all elderly patients according to treatment delivered are depicted in Table 1. Mean follow-up was 14 ± 6 months. Although no significant differences were observed, patients who did not receive surgery or underwent palliative operations showed a trend toward more comorbidities; of note, most of these patient underwent endoscopy for anaemia and no one with screening intent (Table 1). Overall survival at mean follow-up since diagnosis in patients receiving curative surgery was significantly higher than that of remaining elderly patients (p=0.04) (Figure 1).

Group B comprised 30 < 80 year-of-age (mean age 57.3 ± 8.3 years) patients diagnosed and operated on for CRC, who served as controls. Characteristics of patients and indications to endoscopy are reported in Table 2. Group A patients tended to have higher right-colon cancers than younger patients (23.7 vs 10% p=0.35), however the rectum and the sigmoid colon were the most common sites of cancers in both groups (69.2 vs 83.3 p=0.42). Elderly patients had more comorbidities (69.2 vs 16.7% p <0.001), were taking more concomitant medications at the time of surgery (61.5 vs 13.3% p=0.002), and had significantly higher rates of ASA score over III (38.5 vs 6.7% p=0.02). Older patients had more often hypoalbuminemia, but this observation did not reach statistical significance (23.1 vs 3.3% p=0.07).

Perioperative mortality rates were 7.7 and 3.3% in group A and B, respectively (p=0.52). Death resulted from complication due to coexisting medical disorder in the young patient and from a surgical complication in the older patient (anastomotic leak leading to sepsis). Elderly patients suffered from more minor perioperative complications (46.1 vs 6.7% p=0.006), but this did not affect length of stay. When comparing overall survival of patients receiving radical surgery, no differences were observed according to age at surgery (p=0.59) (Figure 2).

HRQoL scores were similar in patients undergoing radical surgery, irrespective of age, for all EORTC QLQC30 dimensions. Elderly patients with residual disease experienced significantly lower HRQoL, particularly in terms of physical functioning, global health status, pain, fatigue, and appetite loss (Figure 3).

Discussion

Our data suggest that elderly patients are often receiving diagnosis of CRC in advanced stages. When compared with younger controls, patients over 80 year-of-age undergoing radical surgery are at higher risk of minor perioperative complications, but oncological and HRQoL results are excellent. Patients who do not meet surgical criteria or receive palliative interventions are excluded from benefits derived from curative surgery.

	Surgery with curative intent (*n*=13)	Palliative or no surgery (*n*=7)	*P value*
Age, years	85 ± 3.1	89 ± 3	>0.99
Sex, male	5 (38.4)	3 (42.9)	>0.99
Concomitant illnesses*			
Cardiovascular	5 (38.5)	3 (42.9)	>0.99
Diabetes	4 (30.8)	1 (14.3)	0.6
COPD	2 (15.4)	2 (28.6)	0.6
Malnutrition	0 (0)	2 (28.6)	0.1
Neurological	1 (7.7)	0 (0)	>0.99
Liver cirrhosis	0 (0)	1 (14.3)	0.3
Indication to endoscopy			
Bleeding	6 (46.1)	1 (14.3)	0.3
Anaemia	3 (23.1)	4 (57.1)	0.2
Clinical/US suspicion for abdominal mass	2 (15.4)	2 (28.6)	0.6
Positive FOBT	2 (15.4)	0 (0)	0.5
Cancer localization			
Caecum/Ascending colon	3 (23.7)	1 (14.3)	>0.99
Transverse colon	0 (0)	1 (14.3)	0.3
Descending colon	1 (7.7)	0 (0)	>0.99
Sigmoid/rectosigmoid junction	5 (38.4)	3 (42.8)	>0.99
Rectum	4 (30.8)	2 (28.6)	>0.99

SD: Standard Deviation; COPD: Chronic Obstructive Pulmonary Disease; US: Ultrasonography; FOBT: Faecal Occult Blood Test; *Each patients could have suffered from more than 1 comorbidity

Table 1: Characteristics of all 20 patients aged over 80 years referred to our Unit, according to treatment received. Results are *n* (%) and mean ± SD.

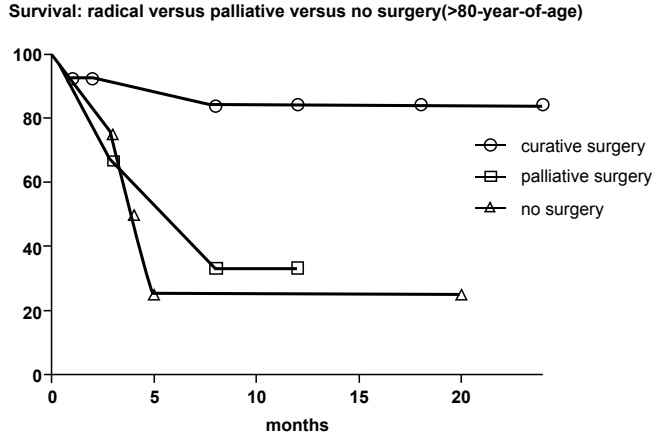

Figure 1: Survival rates of elderly patients according to treatment received (radical surgery vs palliative surgery vs no surgery). Patients receiving radical surgery had longer survival (p=0.04).

Characteristics	Group A >80 (n 13)	Group B <80 (n 30)	*P Value*
Age, years	85 ± 3.1	57.3 ± 8.3	< 0.001
Sex, male/female	5/8	11/19	>0.99
Patients with comorbidities	9 (69.2)	5 (16.7)	<0.001
Medications for concomitant illnesses	8 (61.5)	4 (13.3)	0.002
Hypoalbuminemia,	3 (23.1)	1(3.3)	0.07
ASA score ≥ III,	5 (38.5)	2(6.7)	0.02
Indication to endoscopy			
Bleeding	6 (46.1)	10 (33.3)	0.5
Anaemia	3 (23.1)	8 (26.7)	>0.99
Clinical/US suspicion for abdominal mass	2 (15.4)	4 (13.3)	>0.99
Positive FOBT	2 (15.4)	5 (16.7)	>0.99
Screening	-	3 (10)	0.54
Cancer localization			
Caecum/Ascending colon	3 (23.7)	3 (10)	0.35
Transverse colon	-	1 (3.3)	>0.99
Descending colon	1 (7.7)	1 (3.3)	0.52
Sigmoid/rectosigmoid junction	5 (38.4)	14 (46.7)	0.74
Rectum	4 (30.8)	11 (36.7)	>0.99
Dukes' stage			
A	1 (7.7)	2 (6.6)	>0.99
B	7 (53.8)	17 (56.7)	>0.99
C	5 (38.5)	11(36.7)	>0.99
Minor postoperative complications	6 (46.1)	2 (6.7)	0.006
Major postoperative complications	1 (7.7)	1 (3.3)	0.52
Length of stay, days	10.2 ± 3.6	8.5 ± 2	0.15

CRC: Colorectal Cancer; SD: Standard Deviation; BMI: Body Mass Index; UC: Ulcerative Colitis; ASA: American Society of Anesthesiologist

Table 2: Data of patients undergoing surgery for CRC by age. Results are *n* (%) and mean ± SD.

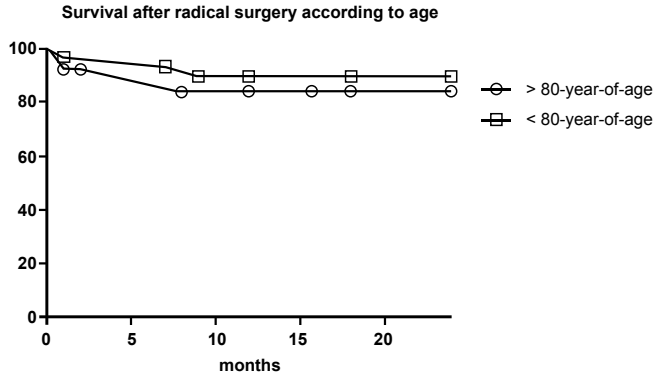

Figure 2: Survival rates of patients receiving radical surgery according to age. No significant differences were observed (p=0.59).

Although the relevance of endoscopy in the elderly was demonstrated in patients without life-limiting conditions, universally accepted recommendations are not available [8]. When considering screening for CRC in elderly people, one should consider life expectancy with the risk of dying from CRC, balancing benefits and risks of the procedure. The most common complications of lower endoscopy are perforation and bleeding. Perforation rates are reported to increase 1% per year [9] and the risk is higher in female patients with fixation due to prior surgery. Rather than bleeding itself, the potential impairment of haemodynamic response may be an issue in older patients [10]. However, these complications may be limited, provided the exam is performed in experienced hands and complications are promptly diagnosed and treated. In our series we did not observe endoscopy-related complications. Life expectancy tends to variably decrease with advancing age, while it is highly impaired by co-morbities [8]. Consequently, rather than considering age itself, it would seem more correct to assess the actual health status of the patients [11]. In elderly patients with good general conditions presenting with symptoms suggestive for CRC, it would seem advisable to follow the common principles of younger patients-encouraging pancolonoscopy. This is justified by the safety and high prognostic value of surgery for CRC in these patients, overwhelming the potential complications of the procedure and the detrimental effects of a delayed diagnosis of cancer on survival.

In our series, anaemia and bleeding represented the commonest indications to endoscopy leading to the diagnosis of CRC. No patients underwent screening endoscopy. Concerning localization, although cancers were commonly found below the splenic flexure, the percentage lesions placed proximally was not negligible. Complete examination of the large bowel should be favored over sigmoidoscopy also in geriatric patients.

Radical resections were attempted in 65% of elderly patients in our series. Authors reported higher rate of surgery with curative intent, increasing over time, reaching 80% [12]. Of the four patients who were not operated, two refused surgery and two had diffuse metastatic disease. Hence, besides life-threatening co-morbidities and advanced disease at diagnosis, refusal of surgery may play a relevant role in these patients.

Prognosis and perioperative mortality in patients operated on for CRC in the elderly has been reported to be extremely poor [3]. This is justified by the higher rate of emergency surgery in older patients receiving surgery for complications due to an undiagnosed CRC [3]. Mortality may be as high as 38% [3] in emergency settings, while elective surgery has lower rates of perioperative death, ranging between 7 and 18% [3,13,14]. In our series, we had no intraoperative mortality, while only one elderly patient undergoing elective surgery with curative intent died in the perioperative period. When compared with younger patients, no significant differences were observed. Besides optimisation of surgical techniques as well as perioperative medical and anesthaesiological management of frail patients, ruling out from surgery patients likely to have an unfavourable outcome may account for this.

Older patients are more often found with comorbities, which have been reported to be a risk factor for perioperative mortality [15]. We found that patient over 80 had a higher rate of concomitant illnesses at surgery, and experienced significantly more minor complications. Conversely, the length of stay was not dissimilar from that of younger patients, suggesting that prompt suspicion and treatment of complications may lead to optimal outcomes.

When evaluating long-term survival after curative surgery for cancer in elderly patients, the results should be balanced with life-expectancy of octogenarians. Our short-term data showed no differences in overall survival between elderly and younger patients receiving curative surgery for CRC. Taking into account that patients receiving palliative as well as no surgery were all but one dead at mean follow-up, surgery should be encouraged in suitable geriatric patients.

HRQoL has been poorly investigated in elderly patients diagnosed with CRC. Elderly CRC patients are reported to achieve better HRQoL

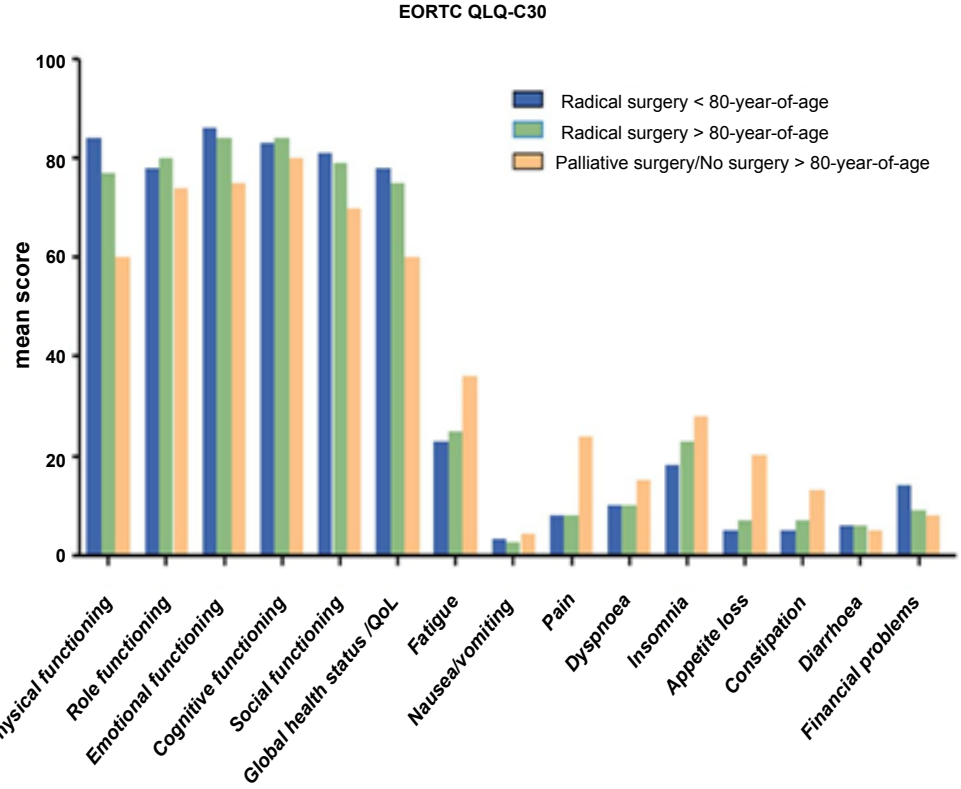

Figure 3: Health related quality of life scores according to different dimensions of EORTC QLQ-C30 in patients receiving radical surgery under versus over 80 years of age and in elderly patients who received palliative or no surgery. Significant differences were observed between patients receiving radical surgery at any age versus palliative/no surgery in the following domains: physical functioning, global health status, pain, fatigue, and appetite loss.

in the early postoperative period after conventional surgery than after laparoscopic surgery, suggesting that also anesthaesiological variables are to be considered in older people [16]. Frail patients may experience more difficulties in reacting to the systemic imbalance which a prolonged operative time may bring about. Irrespective of age, patients receiving palliative care are more frequently experiencing impairment of social function and have lower HRQoL scores [17]. We observed that elderly patients who received palliative surgery as well as those who refused surgery or did not meet criteria reported lower HRQoL scores when compared with elderly patients receiving curative large bowel resection. Furthermore, no differences were observed concerning HRQoL between patients under and over 80-year-of-age provided surgery was radical. This observation further highlights the pivotal role of early detection of CRC also in elderly patients, to achieve better oncological, functional and well-being outcomes. Unfortunately, no elderly patients were referred to endoscopy for screening reasons. Endoscopy is invasive and may be annoying, both physically and psychologically [18,19]. On the other hand, it should be noted that faecal occult test has been associated with high anxiety in patients found with positive tests, requiring one month to return to normal level [18]; also many patients may develop psychic impairements due to their feeling affected with CRC while waiting for further exams [19] because of the high rate of false positive tests. As a consequence, performing a pancolonoscopy would contribute to reduce the anxiety-related distress in such patients.

Our study has a limitation due to the presence of three patients who received palliative surgery and four who did not underwent surgery, were excluded from evaluation. These could explain why the others 13 had a better outcome. Patient selection before surgery could have biased the results obtained.

Conclusions

Elderly patients should receive earlier diagnosis of CRC, to allow optimal treatment. Radical surgery confers optimal results in terms of major perioperative complications and mortality, overall survival, and HRQoL, similar to those of younger patients. Delayed diagnosis and acute presentation have detrimental effects in elderly patients.

Elderly patients should be encouraged to undergo endoscopy and an aggressive surgical approach should be offered to patients willing to trade on surgery. However, patients may be frail and must be managed by experienced surgical and medical teams.

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