Outcome of Colorectal cancer in Geriatric Patient

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Abstract

Background: Older surgical patients remain at increased risk of adverse postoperative outcome when undergoing both elective and emergency surgery. The needs of the older surgical patient are often substantially different from those of younger patients. As a surgeons we have dilemmas in appropriately treating elderly patients. Specifically, those with cancer have been shown to receive inappropriate care, being either undertreated or overtreated based on their chronological age rather than their degree of frailty.

Aim: To evaluate outcome of patients diagnosed with colorectal cancer in patients aged 80 years and over.

Methods: Retrospective study of all patients 80 years and above managed with colorectal cancer at the Luton and Dunstable University Hospital UK from January 2015 through December 2019

Results: In the study period 278 patients were diagnosed with colorectal cancer, Male 143 Female 135 ratio 1:1.05. Age range from 80 to 101years. 54.31% patients underwent surgical intervention. 15.10% had complications after surgery. 36.69% patients deemed unsuitable for resection surgery were treated with best supportive care palliatively. 57.19% patients were in ASAIII, 24.10% ASAII and 12.23% ASAIV. 46.40% patients died during the study period.

Conclusion: Age on its own would not be taken as for less aggressive therapy; Careful assessment of the patient taking into consideration comorbidities, functional status and patient wishes are essential in decision making and choosing appropriate management plan. Curative surgery for colorectal carcinoma in the geriatric patients are well tolerated. Management of comorbidities preceding surgery may impact postoperative outcome.

Keywords: Colorectal cancer; Geriatric Patient; emergency surgery

Introduction:

Older surgical patients remain at increased risk of adverse postoperative outcome when undergoing both elective and emergency surgery. This may be due to patient or procedural factors, or both. The needs of the older surgical patient are often substantially different from those of younger patients. There is lack of consensus about the definition of age to be considered as the cut off for geriatric patients (65 vs 70 vs 75 years old), though there is consensus that patients should not be treated based on their age alone [1]. As a surgeons we have dilemmas in appropriately treating elderly patients. Specifically, those with cancer have been shown to receive inappropriate care, being either undertreated or overtreated based on their chronological age rather than their degree of frailty [2]. Prompt identification of high risk and frail patients helps to establish an appropriate care pathway, reduce morbidity and mortality and direct hospital resources [3]. Colorectal cancer is a major health problem. In the UK, it is the second most common cause of cancer death. 5% of UK population is at risk of colorectal carcinoma during lifetime, more than nine out of ten new cases (94%) are diagnosed in people over the age of

50, and nearly six out of ten cases (59%) are diagnosed in people aged 70 or over [4]. Bowel cancer can affect anyone of any age, incidence and mortality rates vary markedly around the world. Care of elderly surgical patients is complex and patients are often treated inappropriately based on their age, degree of frailty, or both. It is therefore crucial to assess frailty and identify areas of intervention before surgery is undertaken. Advances in surgical, anaesthetic, and intensive care techniques have consequently led to a larger proportion of this increasing elderly population presenting to undergo surgical procedures [5,6].

Aim:

To evaluate outcome of patients diagnosed with colorectal cancer in patients aged 80 years and over.

Methods:

All patients 80 years and above managed with colorectal cancer at the Luton and Dunstable University Hospital UK from January 2015 through December 2019 were retrospectively identified from the referral database

maintained by the colorectal specialist nurses in the colorectal service. Data were retrieved by detailed review of the hospital case notes on ICE and Evolve (Computer database for investigations and correspondence) including endoscopy; radiographic imaging; operative course and cancer follow up. The following parameters were recorded: age, gender, and source of referral, presentation, stage of the disease, MDT discussion, intervention, and outcome. Tumour locations were classified as the right colon (i.e. caecum, ascending colon, hepatic flexure, transverse colon, and left colon (i.e. splenic flexure, descending colon, sigmoid, Recto sigmoid, and rectum.

Inclusion: All patients diagnosed with colorectal cancer 80 years and above

Exclusion: Patients under 80 years of age, Colo Rectal Cancer of unknown primary site. Anal cancer, Appendix, Small bowel carcinoma

Statistical Analysis

Data were analyzed using the Statistical Package for Social Sciences (SPSS, version 26). Patient age was normally distributed, and the mean and standard deviation was calculated. Survival was calculated from the date of diagnosis (as recorded in the MDT discussion) to the date of death or last confirmed survival. Kaplan Meier survival curves were constructed and significance tested using the log-rank test. The level of significance was set at a $p < 0.05$. Mean values were compared using the Student t test.

Univariate analysis of categorical variables was performed by the chi-square test. Pearson's chi squared test was used for comparing two proportions. An OR with corresponding 95% confidence interval >1 implied a positive association where as an OR with corresponding 95% confidence interval <1 implied a negative association. Two-sided p values < 0.05 were considered significant. The results are mainly illustrated by descriptive statistics. Fisher's exact and Student's t tests were used to compare the frequencies of both categorical and continuous variables

Results:

In the study period 278 patients were diagnosed with colorectal cancer, Male (143) Female (135) ratio 1:1.05. (Fig: 1) The mean age of 85.44 years (range, 80 to 101 years). 151 (54.31%) patients underwent surgical intervention. 102 (36.69%) patients deemed unsuitable for resection surgery were treated with best supportive care palliatively. (Table 1) American Society of Anaesthesiologist (ASA grade) 57.19% (159) patients were in ASAIII, 24.10% (67) ASAII and 12.23% (34) ASAIV. (Table 2) In the Right colon subset of patients there was a total of 43.16% patients 70 Female and 50 Male, (Table 3) in 38.48% patients with Left Colon cancer there were 64 Male and 43 Female. (Table 4) Of 17.26% Rectal cancer patients there were 25 Male and 23 Female. (Table 5). 42 (15.10%) had complications after surgery (Table). 129 46.40% patients died during the study period. Incidence of colorectal cancer was greater for cancers of the left side of colon than right colon. (55.75% vs 43.16%).

Site	Female	Male	Died	Surgery	Palliative	Total
Caecum	39	29	31	39	24	68
Asc. Colon	17	14	11	21	5	31
Hep. Flexure	6	9	4	12	3	15
Transverse	8	3	4	5	6	11
Spl. flexure	3	4	4	3	4	7
Descending	6	7	6	5	6	13
Sigmoid	27	42	38	41	24	70
Recto sigmoid	6	10	9	6	8	16
Rectum	23	25	21	19	22	48
Total	135	143	128(46.04%)	151(54.31%)	102(36.69%)	278

Table 1

Figure 1

ASA grade				
1	2	3	4	No record
9 (3.23%)	67 (24.10%)	159 (57.19%)	34 (12.23%)	18 (6.47%)

Table 2

Figure 2

Right colon						
		Female	Male	Died	Surgery	Palliative
Caecum	68	39	29	31	39	24
Asc. Colon	31	17	14	11	21	5
Hepatic Flexure	15	6	9	4	12	3
Transverse	11	8	3	4	5	6
Total	125 (44.96%)	70 (25.17%)	55 (19.78%)	50 (17.98%)	77 (27.69%)	38 (13.66%)

Table 3

Figure 3

Left colon					
	Female	Male	Died	Surgery	Palliative
<i>Splenic flexure</i>	7	3	4	3	4
<i>Descending</i>	13	6	7	5	6
<i>Sigmoid</i>	69	27	38	41	24
<i>Recto sigmoid</i>	16	6	9	6	8
Total	105	42	57	55	42
	(37.76%)	(15.10%)	(20.50%)	(19.78%)	(15.10%)

Table 4

Figure 4

Rectum					
	Female	Male	Died	Surgery	Palliative
Rectum	48	23	25	21	19
	22	25	21	19	22
	48	23	25	21	19
	(17.26%)	(8.27%)	(8.99%)	(7.5%)	(6.83%)
					(7.91%)

Table 5

Figure 5

Discussion:

Colorectal cancer is a common and lethal cancer worldwide, more than nine out of ten new cases (94%) are diagnosed in people over the age of 50, and nearly six out of ten cases (59%) are diagnosed in people aged 70 or over, bowel cancer can affect anyone of any age, 30% of patients with Colorectal cancer present with a metastatic disease [7, 8].

The elderly and frail Geriatric patients are exposed to high risks of morbidity and mortality when undergoing both emergency and elective surgery. This is due to patient or procedural factors or both. Identification of these factors in the elective setting through multimodal structured assessment preoperatively, through multidisciplinary input, allows optimisation of pre-existing medical conditions and appropriate multidisciplinary pre, peri and postoperative care. Older patients are more likely to present with co-existent age-related frailty, co-morbidities and age related disorders. As age increases, the rates of surgical complications remain fairly static, though medical complications are more often observed [9]. These medical complications include organ specific, for example acute kidney injury, respiratory tract problems, atrial fibrillation, and geriatric disorders including delirium, falls, dysphagia, this encounters challenges when considering whether to operate or not. Patients and family are expected to query: What happens if I don't have a operation? Certainly, all patients should now expect a full explanation of all the possible treatment options available to them, and clinicians are legally bound to present these equably [10].

Management of colorectal cancer in the aged population poses its unique challenges. An increasingly elderly population combined with colon cancer rates increasing 1.4 – 2.5 fold with each consecutive decade of life will considerably increase the prevalence of colorectal cancer in the

coming years [11]. Furthermore, improved awareness, better access to investigations and the appreciation that chronological age is no longer a barrier to individualised treatment renders colorectal cancer increasingly important in this age group. It is therefore, better to speak of biological age rather than chronological age whilst evaluating risk factors for surgery, which focuses more on the overall patient condition. As management options in colonic cancer increase, literature shows a decrease in the rate of resection comparing younger patients and the elderly [12]. Colorectal cancer survival is considerably better when the diagnosis is made at an early stage, making a convincing case for early detection through screening programs [13]. However, most patients with colorectal cancers are diagnosed after the onset of cancer-related symptoms [14] and it is imperative that frontline providers recognize early diagnostic clues to colorectal cancer. Studies have shown that rectal bleeding as an initial presentation of colon cancer and are associated with an early stage of the disease and better survival [15, 16] Colorectal Cancer incidence can be separated into 72% for the colon and 28% for the rectum, but colon and rectal cancer mortality are generally reported together [17]. The location of colon cancer is also changing. The colonic distribution of cancer has had a relative rightward shift over the past 3 decades [18]. In our study we found 82.85% of cancer were in the colon and 17.14% were in the rectum. Waldron and Donovan revealed that 23% of colorectal tumours were right sided [19] Crerand S, Freely TM, Waldron RP, et al study in Dublin revealed that approximately 28% of colorectal tumours were right sided [20] and Hayne D, Brown RS, McCormack M, et al study on the current trends of colorectal cancer in England and Wales concluded that approximately 29% of colorectal cancers were right sided [21]. this is in contrast to our study, we found Right colon cancer was 44.64%. The findings from our study suggest Left colon cancer was 38.21% and 17.14% of cancer were in the Rectum this is similar to other published

studies [22, 23]. Our study show that age is not a predictor of post-operative complications. This is similar to other published studies [24-27]. The choice of treatment is based on several factors, including conditions of the patient stage at presentation, and the location of tumour. Surgery remains the core in curative treatment for colorectal cancer. Because of the steadily increase in the elder population, surgeons will be confronted with more and more elderly patients. While choosing treatment options, quality of life and function may be at least as important for the elderly as the cancer specific or surgical outcome [28]. In our study surgery was performed in (53.92%). Specific problems associated with geriatric patients are, multiple comorbidities, prolonged hospital stay, and a delayed presentation. In our study 92.85% of the patients at the time of surgery had one or more comorbidity, most of the patients were ASA III grade (56.78%), this is similar to other published studies [29, 30]. The elderly frail may be good candidates for palliative care, which can provide a better quality of remaining life. It is a troublesome to decide when to begin palliative care but when frailty is severe, delivery of palliative care focused on relief of discomfort and enhancement of quality of life.

One of the strengths of our study is that the sample size is not small, Patients admitted as an emergency and scheduled for elective surgery for confirmed colorectal cancer aged 80 and above were included and long follow-up period. The limitations of this study is single center, retrospective

Elderly patients are the largest group of cancer patients, and there is rapidly increasing number. In spite of the high incidence of Colorectal cancer and the high prevalence of colorectal cancer related morbidity and mortality, elderly patients are under-presented in clinical trials [31]. When managing geriatric patients with comorbidity and poor performance status, oncologists have a limited number of treatment options. Several published reports have shown that a colorectal cancer resection in elderly patients is associated with neither higher postoperative mortality, complications, nor worse short term oncological outcome [32, 33]. In our study 15.10% had complications after surgery 46.40% patients died during the study period. The outcomes of colorectal cancer surgery in geriatric patients could be comparable to those in younger patients without increasing the postoperative morbidity and mortality rates.

Assessment of fitness for surgery in the elderly need more holistic than in the general population, involves consideration of cardiorespiratory fitness, other comorbidities, frailty and quality of life.

Conclusion:

Age on its own would not be taken as for less aggressive therapy; Careful assessment of the patient taking into consideration comorbidities, functional status and patient wishes are essential in decision making and choosing appropriate management plan. Curative surgery for colorectal carcinoma in the geriatric patients are well tolerated. Management of comorbidities preceding surgery may impact postoperative outcome.

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