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Original Research Article

Evaluation of outcomes in elderly patients diagnosed with colorectal cancer

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ABSTRACT

Background: Colorectal cancer in the elderly carries a high morbidity and mortality. The National Bowel Cancer Audit Programme is a high-quality audit incorporating all UK colorectal cancer patients. Author analysed this database to investigate the local outcomes for this high-risk group.
Methods: Data (mode of presentation, presence of metastatic disease, treatment surgery, colonic stent or conservative and WHO performance status) was collected on all patients aged 85 years or over diagnosed with colorectal cancer at a large tertiary referral centre over a 5-year period. Ninety day and 2 year-mortality was obtained for all patients.
Results: Ninety patients (45 male, 45 female, median age 88.9 range 85.0-97.9 years) were included (47 emergency presentation, 43 elective presentation). A 18 of 47 patients underwent emergency surgery. A 90-day and 2-year mortality in this group was 17% and 69% respectively. 29 of 47 patients presenting as an emergency had non-operative treatment (2-year mortality 87%). Two years mortality for patients undergoing emergency surgery was 100% if aged above 90 years or if distant metastases were present. Eleven of 43 patients presenting electively underwent surgery. 90-day and 2-year mortality for this group was 18% and 0% respectively. Two years mortality for those presenting electively and undergoing non-operative treatment was 62%.
Conclusions: Decision making must be very carefully considered in patients aged over 85 years as the presence of metastases, poor WHO performance status or age over 90 carries with it a significant risk of mortality at both 90 days and 2 years following diagnosis.

Keywords: Colorectal cancer, Co-morbidities, Elderly, Surgery, Survival

INTRODUCTION

The incidence of colorectal cancer in the UK is increasing and is expected to continue to do so in the future due to an ageing population.[1] In the elderly, outcomes following a diagnosis of colorectal cancer are known to be poorer compared to the rest of the population according to a large systematic review published over 15 years ago.[2] However, whether this historical data is applicable to more recent surgical management is unknown. Therefore, we reviewed the outcome data for all patients aged 85 and over who presented with colorectal cancer to a large tertiary referral centre to investigate particular patient demographics which may influence outcome.

METHODS

The National Bowel Cancer Audit Programme (NBOCAP) contains information about treatment outcomes of all patients in England and Wales diagnosed with colorectal cancer.[3] Author accessed this database to collect data on all patients aged over 85 years at the

institution, a large tertiary referral centre, who had been diagnosed with colorectal cancer between 1st April 2011 and 31st March 2016. No patients were excluded. Data collected included mode of presentation, presence or absence of metastatic disease, method of treatment surgery, colonic stent or conservative and World Health Organisation (WHO) performance status. For those who underwent surgery (excluding patients who underwent insertion of a colonic stent), post-operative mortality at both 90 days and 2 years was collected. If treated conservatively, a 2-year mortality rate following colorectal cancer diagnosis was obtained.

RESULTS

Demographics

Overall 90 patients, 45 male, 45 females, median age (range) 88.9 (85.0-97.9) were included. Fifty six patients were aged 85-90 years, 32 aged 90-95 years and 2 aged over 95 years. Twenty-four patients, 9 male, 15 females, median age range 89.0, range 85.0-97.9 had distant metastases at presentation, 53 patients (28 male, 25 female, median age range 88.2, range (85.0-94.5) had no metastases and 13 patients (8 male, 5 female, median age 90.3, range (85.4-95.1) had uncertain metastatic disease (Mx). Fifty seven patients (33 male, 24 female, median age 89.0 range 85.0-94.5) had a WHO performance status of 0-2, 32 patients (11 male, 21 female, median age 87.7, range 85.0-97.9) had a WHO performance status of 3-4 (no performance status recorded, n=1). Forty-seven patients presented as an emergency and 43 patients were referred electively. Patient cohort details are summarized in table 1.

Mode of presentation - emergency

Overall 18 of 47 (38%) patients (10 male, 8 female, median age 87.3 range 85.0-94.4) underwent an emergency surgical procedure. Of these 18 patients, 3 (17%) died within 90 days, and 9 of 13 (69%) died within 2 years. 2-year mortality for those patients admitted as an emergency and aged 90 years or above (n=5) or having distant metastases at presentation (n=4) was 100%.

Table 1: Patient cohort statistics.

Age		Metastatic status		Performance status		Presentation	
85-89	56	M0	53	0-2	57	Emergency	47
90-94	32	M1	24	3-4	32	Elective	43
95-98	2	MX	13	Unknown	1		
Total	90						

Table 2: Outcome data for patients presenting as an emergency.

	Operative management			Non-operative management		
Age	85-89	90-94	95+	85-89	90-94	95+
90-day mortality	2/13 (15%)	1/5 (20%)	-	-	-	-
2-year mortality	6/10 (60%)	3/3 (100%)	-	8/9 (89%)	5/6 (83%)	-
Metastases	M0	M1	MX	M0	M1	MX
90-day mortality	2/13 (15%)	1/4 (25%)	0/1 (0%)	-	-	-
2-year mortality	6/9 (67%)	3/3 (100%)	0/1 (0%)	6/7 (86%)	3/4 (75%)	4/4(100%)
WHO status	0-2	3-4		0-2	3-4	
90-day mortality	1/13 (7%)	5/9 (55%)		-	-	
2-year mortality	2/5 (40%)	4/4 (100%)		6/7 (86%)	7/8 (88%)	

Table 3: Outcome data for patients presenting on an elective basis.

	Operative management			Non-operative management		
Age	85-89	90-94	95+	85-89	90-94	95+
90-day mortality	2/10 (20%)	0/1(0%)	-	-	-	-
2-year mortality	0/4(0%)	-	-	6/11(55%)	6/9(67%)	1/1(100%)
Metastases	M0	M1	MX	M0	M1	MX
90-day mortality	1/9 (11%)	1/1(100%)	0/1(0%)	-	-	-
2-year mortality	0/4 (0%)	-	-	4/10 (40%)	5/5(100%)	4/6(67%)
WHO status	0-2	3-4	Unknown	0-2	3-4	
90-day mortality	2/10(20%)	-	0/1(0%)	-	-	
2-year mortality	0/4 (0%)	-	-	8/14 (57%)	5/7(71%)	

Twenty nine of 47 patients (12 male, 17 female, median age 89.0 range 85.3-97.9) years presented as an emergency and were treated non-operatively. Mortality rate for this cohort at 2-years post-presentation was 87% (13 of 15) (Table 2).

Mode of presentation - elective

Overall 11 of 43 patients (8 male, 3 females, median age 88.1 range 85.2-91.4) presented on an elective basis and underwent a surgical procedure. Of these 11, 2 (18%) died within 90 days. No patient died within 2 years of having an elective surgical procedure (n=4).

Thirty two patients (15 male, 17 female, median age 90.1 range 85.3-95.1) were referred on an elective basis and were treated non-operatively. Thirteen of 21 (62%) died within 2 years of presentation. Data for this patient cohort is summarized in table 3.

DISCUSSION

Author reviewed the outcome data for patients aged over 85 who presented with colorectal cancer in a tertiary referral centre. Consistent with other studies.[2,4,5] Author demonstrate that a diagnosis of colorectal cancer in patients over 85 years carries a poor prognosis.

For elective patients, a 90-day mortality for those undergoing an operation of 18% is similar to that of previous studies investigating mortality in this age group.[2] This operative mortality is far higher than the 2016 NBOCAP average of 3.2% for all ages, indicating an increased risk associated with operating on this older cohort.[3] The figures show a low 2-year mortality rate of 0% in this age group which is likely to be due to the reduced number of patients available for analysis at 2 years. Data for patients in this group who did not undergo surgery confirm that the presence of metastases, a poor WHO performance status and advanced age are all poor prognostic indicators.

For emergency patients, our data reflects poorer outcomes compared to elective patients. Consistent with other studies, author confirm a high post-operative mortality rate in this population.[2,4] Author also show that these patients have a similarly poor 2-year survival as those treated non-operatively (69% vs 87% respectively). This is significantly higher than an underlying population 2-year mortality rate of 28% in people over 85.[6] In those over 90, with known metastases or a WHO status of 3 above, the data shows a 100% mortality rate. This data is important for clinicians when counselling patients after an emergency admission and making decisions about possible treatment. Reasons for this mortality are likely to include the poor physiological reserve, presence of multiple comorbidities and greater propensity to present late that we see in this cohort.[2] General frailty that comes with increasing age is likely to impact upon recovery from surgery, and in this respect, it has been shown that sarcopenia is a recognised predictor of poor postoperative outcome after colorectal surgery.[7]

This was a retrospective audit based on data from NBOCAP. The centre is high volume, with over 300 cases a year, and has been consistently ranked as 'good' in relation to case ascertainment and data completeness, indicating excellent quality of data collection.[3] Author are limited by a reduced cohort of patients for which 2-year data was available, which demonstrates the inherent difficulty in obtaining large data sets for this population. The overall cohort also represents a heterogenous collection of presentations, and therefore also a heterogenous selection of conservative measures that could be used to treat each case. Author did not analyse each decision and therefore cannot comment on whether patients were offered surgery and refused it, or why patients may have not been deemed a surgical candidate.

An active alternative to emergency operative management for colonic obstruction is the colonic stent.[8] This has recently been shown to be an interim option to avoid emergency surgery, acting either as a 'bridge' to a surgical procedure later or as a definitive palliative treatment.[9] The CREST trial showed an unchanged mortality rate, but a reduction in the incidence of stoma formation with this approach.[10] Ideologically the option of a stent in the elderly patient seems a sensible alternative to surgery. Interestingly, whilst our unit has a relatively high volume of stent insertions compared to other centres, the number of patients over 85 that undergo stenting in our unit is too small for us to be able to comment on the efficacy of the technique in that cohort.

The data in this report is useful to consider when counselling patients who present with colorectal cancer. Colorectal cancer in patients aged over 85 carries significant risks. Increasing co-morbidities are known to be detrimental towards survival after colorectal surgery.[2] Author have shown that metastatic status and performance status have negative effects upon survival rates. In emergency presentations, patients over 85 should be aware that they may experience great morbidity for what is unlikely to be an increased rate of survival at 2 years if we operate, and that this chance of 2-year survival is decreased if they have metastases or a performance status of 3-4. With elective presentations, a 90-day mortality of 18% in the context of the low 2-year mortality shows the importance of good perioperative care for the patient to maximise the benefits of surgery.

CONCLUSION

Author data confirm colorectal cancer carries with it significant risk of mortality that increases in patients aged over 85. The presence of metastases, poor WHO performance status or age over 90 indicate a very high risk to life both at 90 days and 2 years. Decision making

must be very carefully balanced with the knowledge that certain subgroups of patients have a very poor 2-year survival rate.

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