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Research Article

Demographic Profile and Clinical Features of Colorectal Cancer Patients in Bangladesh: A Single Center Study

Meherun Khan Methila[1]*, Md Raisul Islam[2], Mahfuz Alam Khan[2] and Md Mostafizur Rahman[3]

[1]Registrar, Department of Surgery, Rangpur Medical College and Hospital, Rangpur, Bangladesh

[2]Resident, Department of Paediatric Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

[3]Professor, Department of General Surgery, Bangabandhu Sheikh Mujib Medical University (BSMMU), Dhaka, Bangladesh

***Corresponding Author:** Meherun Khan Methila, Registrar, Department of Surgery, Rangpur Medical College and Hospital, Rangpur, Bangladesh.

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Abstract

Background: One of the most common cancers in the world is colorectal cancer. Surgery is the sole curative option, and post-operative morbidity and mortality should be kept to a minimum to enhance results. Of course, the whole surgical and medical team is extremely frustrated when post-operative complications finally result in patient death. Because colon cancer patients tend to be older, it is to be expected that a growing percentage of patients have co-morbidity, making any procedure riskier. Patients may lose their lives even after successful surgery as a result of co-morbidity-related consequences. The main method of therapy for colorectal cancer is still surgery. However, the procedure entails a high risk of morbidity and death and uses a substantial amount of medical resources.

Objectives: To find out the demographic profile of colorectal cancer patients and assess the clinical features of colorectal cancer patients.

Materials and Methods: This longitudinal type of descriptive study. Informed written consent was obtained from the participants after explanation of the nature and purpose of the study. A total 33 patients were interviewed by a preformed questionnaire. Meticulous history taking and thorough physical examination were performed on every patient and relevant investigations were done. Appropriate statistical test (Chi-square, Fisher exact test and ANOVA test) was performed. Data was analyzed through SPSS (version 22.0) software. A level of $P<0.05$ was considered statistically significant. Quality was cheeked through avoidance of missed data, filling of code, regular entry of data and careful data analysis.

Results: More than one third (35.3%) patients belonged to age >50 years in group I and 25.0% in group II. More than half (58.8%) patients were female in group I and 5(31.2%) in group II. More than half (52.9%) patients had stage II in group I and 68.8% in group II. By ASA, 23.5% patients had normal healthy in group I and 68.8% in group II. 47.1% patients had mild systemic disease in group I and 31.2% in group II, 27.4% patients had severe systemic disease in group I. By intra-operative time, majority (82.4%) patients had more than 2 hours in group I and 5(31.2%) in group II. More than half (52.9%) patients had intra operative blood loss in group I and 6(37.5%) in group II. 47.1% patients developed wound infection in first follow up, 23.5% in second follow-up and 29.4% in third follow-up.

Conclusion: It could be reasonably imparting an insight for convincing that hard data should supplant much of the foregoing speculation by colorectal cancer surveillance program.

Keywords: Colorectal Cancer (CRC); Surgery; Bangladesh

Introduction

In Bangladesh, cancer is anticipated to increase in importance as a cause of sickness and mortality during the coming decades, just as it has everywhere in the world. Colorectal cancer (CRC) is the second most common cancer in the developed world and some parts of Asia. But it is incredibly pervasive throughout South Asia, particularly the Indian subcontinent [1]. The age range for colorectal cancer is 19-84 years, with a male to female ratio of 1.4:1. With an age range of 50 to 59 years, Bangladesh has a lower peak incidence of colorectal cancer than Western and other countries [2]. The incidence of colorectal cancer in South Asian countries is largely unknown due to a lack of outcome data [1]. Left sided colorectal cancer is the most common cause of urgent surgery and frequently has obstruction (8% to 29%), which increases the risk of infection following surgery [1]. On the other hand, a cross-sectional study showed that colorectal cancer surgery may be done effectively without any intestinal preparation [3]. early identification of colon cancer, which may be treated with drastic surgery and after chemotherapy. Surgical resection is the recommended line of action for a patient with non-metastatic colorectal cancer. 90% of people with colorectal cancer require surgery, which is frequently done in an effort to cure the condition. The procedure involves a right hemicolectomy or extended right hemicolectomy, a transvevse colectomy, a sigmoid colectomy, an anterior or low anterior resection, and an abdominoperineal resection [1]. The most prevalent effects are gastrointestinal (GI) motility problems, such as ileus and bowel obstruction, and infection or organ space infection/anastomotic leakage (AL) [4]. Up to 13% of patient's experience wound problems after colorectal surgery, including infection, hematoma, and dehiscence [5]. The requirement for intraoperative transfusion, peritoneal contamination, and lengthy operating periods (>120 minutes) are surgical variables that have been reported to predict morbidity [5]. Anastomotic leak (AL), which can happen three to nine days after surgery and has a documented rate of 1.5% to 16% in the colon, is the scariest side effect. 10% to 20% is the range for mortality rates [4]. It's interesting to note that in two recent trials, anastomotic leakage (AL) was commonly seen late in the postoperative period, more usually after hospital discharge or 12 days postoperatively [6]. Many studies have looked at variables that might predict overall morbidity following colorectal surgery. The patient is impacted by factors including advanced age, co-morbidities (especially cardiovascular and neurological co-morbidities), and insufficient preoperative albumin. An ASA Score>2 [7]. is one of the independent risk factors for postoperative morbidity. The effects on survival are affected by a variety of co-morbidities, though, which are regarded to be significant predictors of reduced survival [8]. This study tries to conduct about the demographic profile and clinical features of colorectal cancer patients in Bangladesh.

Objectives

- To find out the demographic profile of colorectal cancer patients
- To assess the clinical features of colorectal cancer patients.

Materials and Methods

This was a longitudinal type of descriptive study. The patients were selected purposively. A total of 33 patients were included in this study in two groups. The study was conducted in the department of surgery, Rangpur Medical College Hospital, Rangpur. Bangladesh at July, 2019-June, 2020.

Procedure of data analysis

Data was entered in the computer using SPSS (Statistical Package for Social Science, version 22.0). Calculation of percentage resistance was set within 95% confidence interval (CI) and level of significance was considered as 'P' value less than 0.05 and double checked before analysis. Appropriate statistical test (Chi-square, Fisher exact test and ANOVA test) was performed. Result was presented through tables and diagrams.

Procedure of preparing and organizing materials

Patients with colorectal cancer between the ages of 18 and 59 were included in this research and divided into two groups after receiving a full assessment and therapy. Patients in group 1 had morbidity and died, but patients in group 2 had no morbidity. Each participant was informed of the purpose, objectives, and procedures of the study and given the chance to give signed informed consent. Each patient underwent a face-to-face interview using a standard questionnaire at the time of admission. gathering the patient's history, focusing on the clinical features, duration, and sociodemographic information of the illness. Information on comorbidities, cancer stage, ASA score, kind of surgery, tumor location, duration of procedure, and complications in the

immediate postoperative period were to be collected as part of the study's design. The questionnaire was pretested and validated at the Rangpur Medical College Hospital in Rangpur in order to evaluate its validity, clarity, and reliability as well as its suitability as a tool for data collection. Morbidity and mortality assessments in the early postoperative period were performed. There were a total of three follow-ups over this period. The first follow-up was carried out inside the first POD, whereas the second and third follow-ups were carried out, respectively, inside the PODs of 7 to 14 and 14 to 30. All of the information obtained was recorded and stored as data. Statistical software was used to analyze the data once it had been checked and placed into a Microsoft Excel sheet (version 2010). After data modification and compilation, SPSS version 22 was used to finish the data analysis.

Results

	Group I (n = 17)		Group II (n = 16)		P value
	n	%	n	%	
Age (In years)					
≤20 yrs.	1	5.9	4	25.0	0.359
21-30 yrs.	1	5.9	3	18.8	
31-40 yrs.	3	17.6	2	12.4	
41-50 yrs.	6	35.3	3	18.8	
>50 yrs.	6	35.3	4	25.0	
Sex					
Male	7	41.2	11	68.8	-
Female	10	58.8	5	31.2	
Area of Residence					
Rural	14	82.4	14	87.5	-
Urban	3	17.6	2	12.5	
Occupation					
Service	1	5.9	0	0.0	-
Business	1	5.9	5	31.3	
Housewife	10	58.8	6	37.4	
Others	5	29.4	5	31.3	
Educational qualification					
Illiterate	6	35.3	1	6.3	-
Below SSC	9	52.9	9	56.3	
SSC	1	5.9	0	0.0	
HSC	0	0.0	6	37.4	
Graduate and above	1	5.9	0	0.0	
Marital status					
Unmarried	2	11.8	3	18.8	-
Married	15	88.2	13	81.2	
BMI					
Underweight	2	11.8	2	12.5	0.373
Normal	12	70.5	14	87.5	
Overweight	2	11.8	0	0.0	
Obese	1	5.9	0	0.0	

Table 1: Distribution of the study population by demographic profile (N = 33).

Table 1 showed the distribution of the study population by demographic profile. It was observed that more than one third 6(35.3%) patients belonged to age >50 years in group I and 4(25.0%) in group II. According to sex distribution of patients in which group I had maximum number of female patients such as 10(58.8%) and group II had maximum number of male patients such as 11(68.8%). The number of patients had the most majority 14(82.4%) were rural area in group I and 14(87.5%) in group II. More than half 10(58.8%) patients were housewife in group I and 6(37.4%) in group II. In marital status, maximum number of participants were married in group I of 15(88.2%) and group II 13(81.2%). Regarding BMI of the participants, maximum participants were normal in weight in group I of 12(70.5%) and group II 14(87.5%).

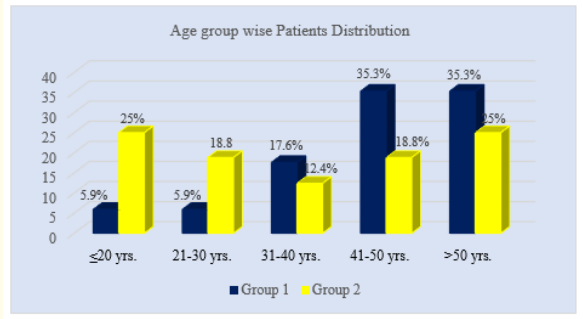

Figure 1: Bar chart showed group wise age distribution of study population (N = 33).

Figure 1 showed that the age distribution of patients most of the patients were belong from the group 1 (age group from 41-50 and >50) and most of the patients belong from group 2 present in age group of below 20 to >20.

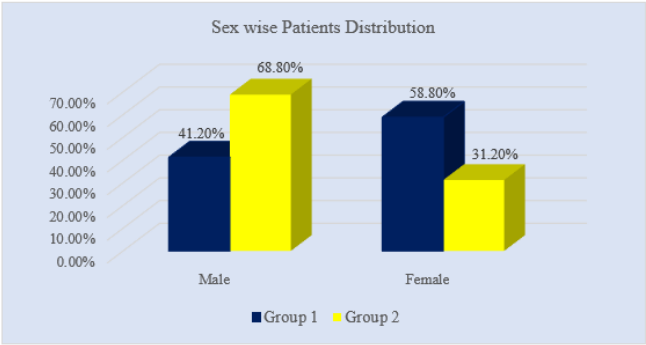

Figure 2: Bar chart showed sex group wise study population distribution (N = 33).

Figure 2 showed the sex distribution of patients in which group 1 had maximum number of female patients such as 58.8% and group 2 had maximum number of male patients such as 68.8%.

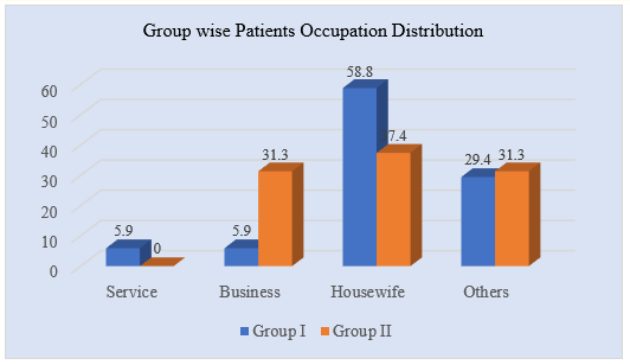

Figure 3: Bar chart showed Occupation wise study population distribution (N = 33).

Figure 3 showed the occupation wise distribution of patients in group 1 had maximum number of patients were housewife 10(58.8%) and group II were 7(68.8%).

Figure 4: Bar chart showed patients Stage of Cancer (N = 33).

Figure 4 showed that the distribution of the study population by stage of cancer. It was observed that more than half (52.9%) patients had stage II in group I and (68.8%) in group II.

Location of tumor	Group I (n = 17)		Group II (n = 16)		P value
	n	%	n	%	0.855
Right colon	3	17.6	4	25.0	
Left colon	3	17.6	3	18.8	
Rectum	11	64.7	9	56.2	

Table 2: Distribution of the study population by location of tumor (N = 33).

Table 2 showed that the distribution of the study population by location of tumor. It was observed that almost two third (64.7%) patients had rectal carcinoma in group I and 9(56.2%) in group II. The difference was statistically not significant (p>0.05) between two groups.

ASA physical status classification	Group 1	Group 2
Normal healthy patient	23.5	63.8
Mild systemic disease	47.1	31.2
Severe systemic disease	29.4	0.0
Severe systemic disease that is a constant threat to life	0.0	0.0
Moribund patient who is not expected to survive without the operation	0.0	0.0

Table 3: Distribution of the study population by ASA physical status classification.

Table 3 showed that the distribution of the study population by ASA physical status classification. It was observed that four (23.5%) patients were normal healthy in group I and 11(68.8%) in group II. Almost half (47.1%) patients had mild systemic disease in group I and 5(31.2%) in group II. Nearly almost one third (29.4%) patients had severe systemic disease in group I.

Pre-operative bowel preparation	Group I (n = 17)		Group II (n = 16)		P value
	n	%	n	%	
Yes	14	82.4	15	93.8	0.316
No	3	17.6	1	6.2	

Table 4: Distribution of the study population by pre-operative bowel preparation (N = 33).

Figure 5: Line chart showed group wise patients ASA physical status (N = 33).

Table 4 showed that the distribution of the study population by pre-operative bowel preparation. It was observed that majority 14(82.4%) patients had pre-operative bowel preparation in group I and 15(93.8%) in group II. The difference was statistically not significant ($p > 0.05$) between two groups.

Intra-operative time	Group I (n = 17)		Group II (n = 16)		p value
	n	%	n	%	
More than 2 hours	14	82.4	5	31.2	0.003
Less than 2 hours	3	17.6	11	68.8	

Table 5: Distribution of the study population by intra-operative time (N = 33).

Table 5 showed that the distribution of the study population by intra-operative time. It was observed that majority 14(82.4%) patients required more than 2 hours in group I and 5(31.2%) in group II. The difference was statistically significant ($p < 0.05$) between two groups.

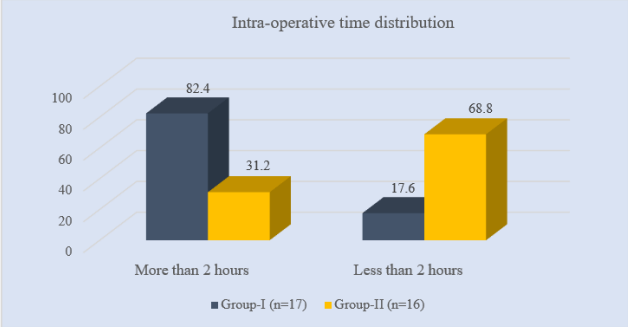

Figure 6: Bar chart showed, group wise patients intra-operative time (N = 33).

Variables	Group I (n = 17)		Group II (n = 16)		P value
	n	%	n	%	
Intra-operative iatrogenic injury					
Yes	0	0.0	0	0.0	-
No	17	100.0	16	100.0	
Intra-operative transfused blood					
Yes	17	100.0	13	81.3	0.103
No	0	0	3	18.8	
Intra operative blood loss					
Yes	9	52.9	6	37.5	0.373
No	8	47.1	10	62.5	

Table 6: Distribution of the study population by intra-operative (N = 33).

Table 6 showed that the distribution of the study population by intra-operative iatrogenic injury, blood transfusion and blood loss. It was observed that all 17(100.0%) patients had intra-operative transfused blood in group I and 13(81.3%) in group II. More than half 9(52.9%) patients had intra operative blood loss in group I and 6(37.5%) in group II.

Figure 7 showed the relation of peritoneal contamination with morbidity and mortality status. It was observed that two third

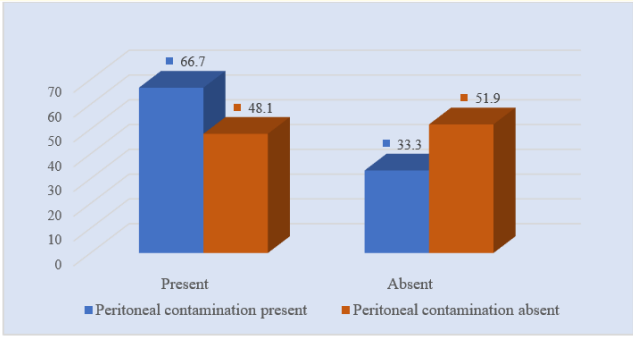

Figure 7: Bar chart showed, group wise patients intra-operative time (N = 33).

(66.7%) patients had morbidity and mortality in presence of peritoneal contamination and 13(48.1%) in absence of peritoneal contamination

Discussion

In this study, the distribution of the study population by demographic profile revealed that more than one third of patients (35.3%) in group I and four (25.0%) in group II were over 50 years old. In group I, every single patient (100%) and every single patient (100%) were Muslims. In group I, 5 patients (31.2%) and in group II, more than half (58.8%) of the patients were female. In group I, the majority of patients (82.4%) and those in group II, were from rural areas (87.5%). In groups I and II, housewives made up more than half of the patients (58.8% and 37.4%, respectively). In group I, 52.9% of patients and 9 patients (or 56.3%) in group II were below the SSC. In group I, the majority of patients (88.2%) and 13(81.2%) in group II were married. In consistent with our findings, researchers concluded that smoking tobacco does indeed cause CRC [9]. Smoking is the leading preventable cause of cancer deaths, largely due to its impact on lung cancer. The relative CRC risk of regular smoking was found to be 1.18. Smoking was found to predispose more towards rectal cancer and to be more likely to cause tumors associated with common molecular abnormalities, such as high microsatellite instability, CpG methylation, and BRAF mutation. The mutagens in tobacco smoke probably promote these and other carcinogenic mutations [10]. A meta-analysis of 14 prospective cohort studies showed that former (HR = 1.12; 95% CI:1.04-1.20) and current smoking (HR = 1.29, 95% CI:1.04-1.60) were associated with poorer CRC prognosis compared with never

smoking and current smoking [11]. Another study emphasized that smoking cessation was associated with improved overall and CRC-specific survival. In accordance with our study [12], A research investigated the association between perioperative hypertension and long-term survival outcomes in patients with rectal cancer and concluded that hypertension is positively related to cancer incidence, morbidity and mortality. The global burden of CRC is expected to increase by 60%, to over 2.2 million new cases and 1.1 million annual deaths, by the year 2030. [13] This growth is expected as a product of the economic development of transitioning and low-to-medium-HDI nations, as well as generational changes in developed nations. Increases in the incidence of CRC seem to increase uniformly with economic development. The growth is hypothesized to be a product of environmental changes, such as more sedentary lifestyle, greater obesity, processed food, alcohol, and meat consumption, and greater overall longevity [13]. Another study stated that poor outcome of surgery is related to the severity of the complications and cancer stage of the patient. [14] Another study reveals resection of the cancer involving the middle or lower rectum with sphincter saving procedures was associated with 2.5% mortality and 43% morbidity [15]. Others studies also stated that the operative variables found to predict morbidity include emergent operation, longer operative time (>2), peritoneal contamination and need for intra-operative transfusion which is comparable to our study [16,17]. In accordance with our study, Artinyan., *et al*. (2015) [18] reported that patients with lower preoperative albumin had worse functional status and higher preoperative serum albumin was protective. A recent study from the United states also reported that lower serum albumin is an independent risk factor for anastomotic leak after colorectal surgery. Novello., *et al*. (2019) [19] studied that preoperative albumin ≥ 3.4gm/dl (OR 0.14, 95% CI [0.05-0.52]) was associated with a protective effect on postoperative mortality. Serum albumin shown to be associated with poor tissue healing, decrease collagen synthesis in surgical wounds and the site of anastomosis and impairment of immune responses such as macrophage activation and granuloma formation. Serum albumin is a marker of circulating visceral protein and a direct measure of nutritional and immunological status.

Conclusion

It can be concluded that colorectal cancer surgery can be performed to reduce morbidity and mortality rates with improved survival through proper patient selection, careful consideration of appropriate surgical candidates, preoperative optimization of medical co-morbidities, nutritional status, and physical performance. In order to make the current colorectal cancer surveillance program more successful, it is also conceivable that the future may entail collecting prospective data, developing cancer monitoring, and combining the data from significant oncological institutes. The data obtained from the present study provided some important background information that may be the basis of further elaborative and systemic studies. Further large scale and multi-centered study should be conducted with larger sample size with substantial duration of period on early postoperative morbidity and mortality following resectional surgery of colorectal cancer.

Bibliography

1. Khan MR., *et al*. "Early postoperative outcome after curative colorectal cancer surgery". *Singapore Medical Journal* 52.3 (2011): 195.

2. Raza A M., *et al*. "'Clinico-demographic characteristics of colorectal carcinoma in Bangladeshi patients". *Journal of Current and Advance Medical Research* 3.1 (2016): 22-25.

3. Ahmad MS and Biswas SK. "Role of Mechanical Bowel Preparation in Preventing Anastomotic Leakage in Elective Colorectal Surgery". *Faridpur Medical College Journal* 13.1 (2018): 8-11.

4. Angelucci GP., *et al*. "Morbidity and mortality after colorectal surgery for cancer". *Surgical Science* 4 (2013): 520-524.

5. Tevis SE and Kennedy GD. "Hot Topics in Colorectal Surgery: Postoperative Complications: Looking Forward to a Safer Future". *Clinics in Colon and Rectal Surgery* 29.3 (2016): 246.

6. Kirchhoff P., *et al*. "Complications in colorectal surgery: risk factors and preventive strategies". *Patient Safety in Surgery* 4.1 (2010): 1-13.

7. Scarborough JE., *et al*. "Associations of specific postoperative complications with outcomes after elective colon resection: a procedure-targeted approach toward surgical quality improvement". *JAMA Surgery* 152.2 (2017): e164681-e164681.

8. Mastalier B., *et al*. "'Surgical treatment of colon cancer Colentina surgical clinic experience". *Journal of Medicine and Life* 5.3 (2012): 348-353.

9. Botteri E., *et al*. "Smoking and colorectal cancer: a meta-analysis". *Jama* 300.23 (2008): 2765-2778.

10. Limsui D., *et al*. "Cigarette smoking and colorectal cancer risk by molecularly defined subtypes". *JNCI: Journal of the National Cancer Institute* 102.14 (2010): 1012-1022.

11. Ordóñez-Mena JM., *et al*. "Impact of prediagnostic smoking and smoking cessation on colorectal cancer prognosis: a meta-analysis of individual patient data from cohorts within the CHANCES consortium". *Annals of Oncology* 29.2 (2018): 472-483.

12. Yu HC., *et al*. "Association of perioperative blood pressure with long-term survival in rectal cancer patients". *Cancer Communications* 35.1 (2016): 1-10.

13. Arnold M., *et al*. "Global patterns and trends in colorectal cancer incidence and mortality". *Gut* 66.4 (2017): 683-691.

14. Huang JH., *et al*. "Impact of postoperative complications on the long-term outcome of colorectal Cancer patients who underwent". *Clinical Surgery* 3 (2018): 2020.

15. Alves A., *et al*. "Postoperative mortality and morbidity in French patients undergoing colorectal surgery: results of a prospective multicenter study". *Archives of Surgery* 140.3 (2005): 278-283.

16. de Silva S., *et al*. "Postoperative complications and mortality following colectomy for ulcerative colitis". *Clinical Gastroenterology and Hepatology* 9.11 (2011): 972-980.

17. Haggar FA and Boushey RP. "Colorectal cancer epidemiology: incidence, mortality, survival, and risk factors". *Clinics in Colon and Rectal Surgery* 22.4 (2009): 191-197.

18. Artinyan A., *et al*. "Infectious postoperative complications decrease long-term survival in patients undergoing curative surgery for colorectal cancer: a study of 12,075 patients". *Annals of Surgery* 261.3 (2015): 497-505.

19. Novello M., *et al*. "Post-operative outcomes and predictors of mortality after colorectal cancer surgery in the very elderly patients". *Heliyon* 5.8 (2019): e02363.