Annals of Medicine and Surgery 6 (2016) 26–29

Contents lists available at ScienceDirect

Annals of Medicine and Surgery

journal homepage: www.annalsjournal.com

Colorectal cancer survival in Jamaica

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HIGHLIGHTS

- This manuscript documents the poor intermediate and long-term survival from colorectal cancer in Jamaica.
- Mean survival was 24 months and only 33% of patients were alive five years after their diagnosis.
- Patients presenting with anemia or bleeding had a better outcome.

ARTICLE INFO

Article history:
Received 27 October 2015
Received in revised form
30 December 2015
Accepted 16 January 2016

Keywords:
CRC survival
Jamaica
Poor outcome

ABSTRACT

Objective: To determine the intermediate and long-term survival of patients diagnosed with colorectal cancer (CRC) and to determine factors that affect survival.

Method: Patients were identified from a prospectively maintained colonoscopy database. All patients who underwent colonoscopy during the period January 2008 to December 2012 and had histologically confirmed invasive carcinoma were included. These patients were contacted at the end of 2013 to determine their survival status. In addition to demographics, variables analyzed included presenting complaint and tumor site and stage at presentation.

Results: Of 1757 patients being subjected to colonoscopy, 118 had endoscopic and histologic documentation of invasive CRC. Of these the survival status of 102 was determined as of December 2013 and they formed the basis of our study. The mean age of the group was 62 years with approximately 20% of the group being age 50 years or younger. Females (54%) slightly outnumbered males. Anemia or overt rectal bleeding was a dominant indication (44%) and 65% of the tumours were left sided. There were 58 (57%) deaths and the median overall survival time was two years post diagnosis. Log rank tests for equality of survivorship looking at age, gender, tumor site and presentation revealed that only presenting complaint was a predictor of survivorship ($p < 0.001$). Patients presenting with bleeding or anemia have the best survival.

Conclusions: Long-term survival from colorectal cancer remains poor with only about 33% of patients being alive five years after their diagnosis.

1. Introduction

Colorectal cancer (CRC) has the third leading cancer incidence and mortality in males and females in Jamaica and the United States [1,2]. Also well accepted is that one-third to a half of CRC patients will eventually die from their disease in high-incidence developed western countries [2–4]. This occurs even in the setting of organized screening programs, which although recommended, are absent from Jamaica and the Caribbean region [5]. It should also not surprise that the majority of our patients present with regional or distant metastasis [6]. A significant number of our patients also present emergently with complications thus requiring urgent surgical care. To complicate matters further adjuvant therapy is often not readily available [7]. It is therefore expected that CRC patients seen in our region will have a poorer outcome than their counterparts in the developed world.

Unfortunately there is a dearth of evidence regarding the long-term outcome for patients treated for CRC in the Caribbean region from the literature.

In order to determine the outcome of patients diagnosed with and treated for CRC, we recently followed up a cohort of patients

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http://dx.doi.org/10.1016/j.amsu.2016.01.018

with biopsy-confirmed CRC, all diagnosed electively at colonoscopy. This population set differs substantially from patients reviewed previously in local or regional publications because of the use of colonoscopy in establishing the diagnosis and the elective nature of their treatment. Hence to date this cohort of patients offers the best prospect for an outcome study for CRC in the region. The aim of this study therefore was to determine the intermediate and long-term survival of patients diagnosed with CRC and the factors that affected survival.

1.1. Patients and methods

During the period January 2008 to December 2012, 1757 patients underwent colonoscopy in a single institution performed by a single surgeon. Of these 120 patients had both endoscopic and histologic confirmation of invasive carcinoma of the colon or rectum and these patients formed the basis of this study. Data including date of colonoscopy, age, gender, patient's address and telephone contact, presenting complaint and tumor location was obtained from a prospectively maintained colonoscopy database. For the purpose of this study the right colon included the caecum, ascending and transverse colon up to just proximal of the splenic flexure and the left colon included the splenic flexure, descending colon, sigmoid and rectum. Histopathological diagnosis of invasive cancer on the biopsy specimen was made by an independent experienced gastrointestinal pathologist based at a separate tertiary institution and pathologic variables examined included tumour type and the degree of differentiation. Tumor stage was determined by reviewing the pathology reports of the resected specimens but where available pre-operative imaging and operative findings were also used.

Survival data was obtained by telephone interview of the patients or in the case of the deceased, their relatives. Where this was not possible the Registrar General Department which keeps records of all deaths in Jamaica, was contacted and the relevant information obtained. The interviews were conducted in December 2013, so that each patient would have a minimum of 12 months of follow-up and a maximum of 72 months. Complete time to event information, date of colonoscopy, date of death or live status at January, 1, 2014 was available for 102 of the 120 patients.

1.2. Statistical analysis

Survival time was defined as time from diagnosis to death, or retrieved from data obtained from the census for patients still alive at the end of the study period. Survival was analyzed using Log Rank tests and Kaplan–Meier survival curves for variables including gender, age (under 50 years vs 50 years or older) and stage of disease at diagnosis. Variables found to predict survival time (cancer stage and presenting complaints) were used to estimate hazard ratios in a Cox proportional hazards regression model.

2. Results

Data is summarized in Table 1. The study group included 53 (54%) females and the mean age of the group was 62.5 years. Approximately 20% of patients were younger than age 50 years (Table 1a). Most (65%) tumors were located in the left colon and 44% of the patients presented with overt or occult bleeding. The median survival time was approximately two years post diagnosis (Fig. 1). There were 58 (57%) deaths up to the time of the interviews.

Log rank tests for equality of survival functions were conducted as well as a univariate Cox regression model. Significant predictors of survival were the stage of cancer at diagnosis and the patient's presenting complaint. A Cox regression model (Table 2), predicting survival indicated that persons who had a more advanced stage of cancer at diagnosis had worse survival. This model also showed that patients presenting with metastatic disease demonstrated an approximately six-fold greater risk of death when compared to persons who presented with anaemia or bleeding. Patients with metastatic disease at the time of diagnosis had an almost five-fold

Table 1a
Summary of patient characteristics.

Characteristic	%
N	102
Age (years)	
Min	23
Median ± IQR	63 ± 21
Mean ± SD	62.5 ± 14.9
Max	90
Survival Time (months)	
Min	0.07
Median	23.1
Max	66.14

Table 1b
Summary of patient characteristics.

Characteristic	%
Gender	
Male	46
Female	54
Age	
50 yrs or younger	19
Older than 50 yrs	81
Status (at January 1, 2014)	
Censored/Alive	43
Dead	57
Site of tumor	
Left colon	65
Right colon	35
Stage at diagnosis	
1	11
2	20
3	42
4	27
Presentation/Complaint	
Anemia/Bleeding	44
Abdominal mass	28
Metastatic disease	5
Other	23

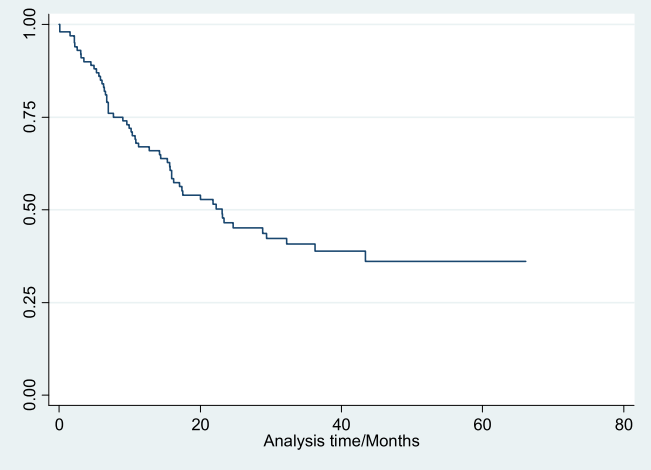

Fig. 1. Kaplan–Meier survival estimate for entire sample.