A Comparative Study of Colorectal Cancer Based on Patient’s Age

DOI: https://doi.org/10.32007/jfacmedbagdad.6321825

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Abstract:

Background: Colorectal cancer is a serious disease that can lead to death, especially when the tumor is diagnosed late. The cells of the colon or rectum lining sustain changes until those cells develop outside the body control. Cancer screening helps in the early detection and treatment, and prevents spread of the disease.

Objective: To determine the extent of colorectal cancer based on the patient's age and to study, based on age, the most common symptoms, clinical findings, the most common tumor site, as well as the types of surgical intervention.

Patients and methods: In the period between January 2012 to March 2013, 35 patients with colorectal cancer were admitted to Al-Yarmouk hospital for surgical treatment after final confirmation of the diagnosis using various screening tests including colonoscopy, sigmoidoscopy and fecal occult blood test.

Results: Of the 35 patients included in this study 25 (71.4%) were above the age of 40 years (12 males and 13 females), and the remaining 10 (5 males and 5 females) were 22-40 years. Anemia was the most common clinical finding among younger and older patients (90% and 88% respectively). Weakness and lethargy were indicated as the most common symptom among older patients (88%). Surgical treatment for younger patients involved different sites, 30% each of left hemicolectomy, right hemicolectomy and anterior resection, while among the older patients 56% had left hemicolectomy.

Conclusions: Colorectal cancer is most common among older people, yet it also occurs in younger people as well. The apparent symptoms were nearly the same in younger and older patients. Weakness and lethargy were the most common symptom in younger and older patients. Most of the patients over 40 years of age underwent left hemisectomy.

Keywords: Colorectal cancer, Malignancy, Hemicolecotmy, Bleeding per rectum.

Introduction:

Colorectal cancer is the most common cancer of the gastrointestinal tract [1]. Its mortality is expected to exceed heart disease mortality [2]. Studies based on clinical trials indicate that some colorectal cancer screening tests help a lot in detecting the disease at an early stage, which in turn reduces the number of deaths from the disease. The best five screening tests for colorectal cancer include: Fecal occult blood test, colonoscopy, sigmoidoscopy, DNA stool test and virtual colonoscopy [3]. After the diagnosis is confirmed, what remains to find is whether or not the disease has spread, and if it has “how far”. This will help us determine how serious the cancer is, and what is the best treatment method [4]. The stages of colorectal cancer are further subdivided into stage I ‘0’ if the cancer is very early, or may range from stage I to stage IV. The lower the stage, the less the cancer has spread, with the widest spread in stage 4 [5]. Colorectal cancer is the most common cause of cancer death [6]. During the period from 2002-2014, Iraq recorded 7246 cases of colorectal cancer for both genders [7]. Globally, the prevalence rates of colorectal cancer have increased dramatically in the last few years [8], while in Iraq increased after 2007 [9]. The prognosis of colorectal cancer is known to be related to the extent of the tumor at the time of diagnosis [10], therefore colorectal cancer is considered to be one of the favorable forms of malignancy in terms of operability and long term survival if it diagnosed and treated at an early stage [11]. Most cases of colorectal cancers are diagnosed above the age of fifty [2]. The patient's complaints are clinically based on the location and size of the tumor, as well as the presence or absence of metastasis [2]. It has been noted that there is an increase in the number of colorectal cancer in young patients (about 6-8% diagnosed before the age of 40) [12]. Young
patients are more prone to the delay in the diagnosis because many clinicians do not suspect it in young patients and they do not pay much attention to the underlying cause of their complaints especially if those young patients present with early and mild symptoms of the disease.

Patients and methods:
In this case series study, we analyzed the data of 35 patients diagnosed with colorectal cancer and treated in Al-Yarmouk Teaching Hospital over a period of 15 months (between January 2012 and March 2013). The data included age, sex, site of the tumor, presenting symptoms, duration of the symptoms and the histopathological results of the operative specimens. We compared the presenting symptoms, the clinical finding, the surgical treatment and the pathological findings between patients below age of 40 and those above age of 40. The following modified Duke’s classification was used, as shown below:

Duke’s Classification:
- Duke A: tumor limited to rectal wall (serosa not breached).
- Duke B: extra-rectal spread of the tumor but no lymph node involvement.
- Duke C: Nodal involvement: C1 para-rectal (local) C2 regional (apical).

Results:
Figure 1 shows that the majority of colorectal cancer patients (71.4%) were 40 years and over.

Table 1: Distribution of symptoms associated with the disease by age

<table>
<thead>
<tr>
<th>Symptoms</th>
<th>Age of patients (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤40 (Total =10 cases)</td>
</tr>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>Weakness and lethargy</td>
<td>10</td>
</tr>
<tr>
<td>Alteration of bowel habits</td>
<td>8</td>
</tr>
<tr>
<td>Abdominal pain</td>
<td>7</td>
</tr>
<tr>
<td>Bleeding per-rectum</td>
<td>5</td>
</tr>
<tr>
<td>Abdominal distension</td>
<td>5</td>
</tr>
<tr>
<td>Vomiting</td>
<td>2</td>
</tr>
<tr>
<td>Pain on defecation</td>
<td>1</td>
</tr>
</tbody>
</table>

In table 2, among patients ≤ 40 years of age, the most common clinical finding was anemia (90%) followed by abdominal distension and abdominal tenderness (50% each), similar to patients aged over 40, in whom anemia was the most common (88%) of the patients.

Table 2: Distribution of clinical findings by age

<table>
<thead>
<tr>
<th>Clinical findings</th>
<th>Age of patients (Years)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤40 (Total =10 cases)</td>
</tr>
<tr>
<td></td>
<td>No.</td>
</tr>
<tr>
<td>Anemia</td>
<td>9</td>
</tr>
<tr>
<td>Abdominal distension</td>
<td>5</td>
</tr>
<tr>
<td>Abdominal tenderness</td>
<td>5</td>
</tr>
<tr>
<td>Abdominal mass</td>
<td>3</td>
</tr>
<tr>
<td>Neoplasm palpable rectally</td>
<td>2</td>
</tr>
<tr>
<td>Palpable liver</td>
<td>1</td>
</tr>
<tr>
<td>Jaundice</td>
<td>0</td>
</tr>
<tr>
<td>Ascites</td>
<td>0</td>
</tr>
</tbody>
</table>

Figure 2: Anatomical distribution of tumors in younger and older patients

In table 2, among patients ≤ 40 years of age, the most common clinical finding was anemia (90%) followed by abdominal distension and abdominal tenderness (50% each), similar to patients aged over 40, in whom anemia was the most common (88%) of the patients.

Figure 1: Distribution of colorectal cancer cases by age

Based on the distribution of tumors in the colon and rectum by age group, Figure 2 shows that patients under the age of 40 years had 3 tumors located in the right colon, 1 tumor located in the left colon and 4 tumors located in the rectum, while patients over 40 years of age, had 2 tumors located in the right colon, 18 tumors in the left colon, 5 tumors in the rectum and only 1 tumor located in the transverse colon. Table 1 Patients ≤40 years of age underwent surgical treatment with right and left hemisectomy and anterior resection (30% each), while most of the patients over 40 years of age underwent left hemisectomy more frequently (56%) as shown in table 3.
Discussion:
Colorectal cancer is the third leading cause of cancer deaths in the world for both sexes to which the age of the patient might contribute [13]. In this study, it is noted that colorectal cancer does not only affect older people, but young people as well (28.6%). An old study in Iraq (1980) observed that 30.2% of patients with cancer of the colon were under 40 years of age [14]. This may suggest that colorectal cancer patients at an early age represent a distinct subgroup and their tumors may be more aggressive compared to those of older patients [15]. The rate of colorectal cancer in this study is much higher compared to a study conducted in Basra-Iraq, where the incidence of the disease was 6.5 / 100 000 population [16]. Lifestyle and diet may play a role in this disease. In this study, approximately three-quarters of colorectal cancer cases occurred at the age of 40 or older. It was found that colorectal cancer was common between the ages of 40-60 years in Kirkuk city, Iraq [176.5/100000 population]. In another old study (1981) the peak occurrence was between 60-70 years [18]. In the current study, Lethargy and weakness were the most common symptom in younger and older colorectal cancer. In a systematic review applied to 27 previous studies, which focused on the prevalence of fatigue in cancer patients, it was found that its prevalence ranges from 4%-91% [19]. Anemia is common (40%) among patients with solid tumors, including colon cancer, and lack of control over it reduces survival [20]. Accordingly, in our study, anemia was common in younger and older patients. However, it was more pronounced in older patients as a clinical indication among the overall presenting symptoms. A Japanese study of colorectal cancer patients based on a multivariate analysis found that advanced age is a significant factor associated with anemia [21]. The distribution of the tumors throughout the colon and rectum inpatients younger than 40 years showed that the most common site was the rectum and recto-sigmoidal area (similar finding were reported by others) [22]. Since most of the tumors are located in the rectum therefore we can easily detect these tumors by per-rectal examination and proctoscopy and therefore it is disturbing to realize that this simple fact is ignored by some surgeons. All patients in our study underwent surgery. Inpatients below the age of 40 it was possible to undertake a potentially curative resection in all patients. In a recent Egyptian study, it was found that the prognosis of the disease in younger patients was not bad compared to older people [23]. In younger patients, right hemicolectomy was performed in 3 patients, left hemicolectomy in 3 patients, and anterior resection in 3 patients with upper and middle third rectal tumor, while APR was done in one patient with lower third rectal tumor. This suggests that surgical treatment may differ from one patient to another according to the location of the tumor.

Conclusions:
Colorectal cancer is most common among older people, yet it also occurs in younger people as well. The apparent symptoms were nearly the same in younger and older patients. Weakness and lethargy were the most common symptom in younger and older patients. Most of the patients over 40 years of age underwent left hemiectomy.

Conflict of Interest
There is conflict of interest, and the authors have self-funded this study.

Authors’ Contributions:
1st author: data collection, writing the introduction, objectives, methods, results, and discussion.
2nd author: data analysis, abstract, keywords, references, and some additions to the discussion, writing the conclusions and make all the corrections and amendments that have been sent by you.

References:

Table 3: Distribution of surgical treatment by age

<table>
<thead>
<tr>
<th>Surgical treatment</th>
<th>Age of patients (Years)</th>
<th>No.</th>
<th>%</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>≤40 (Total = 10 cases)</td>
<td>30</td>
<td>2</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;40 (Total = 25 cases)</td>
<td>30</td>
<td>14</td>
<td>56</td>
<td></td>
</tr>
</tbody>
</table>

Left hemicolectomy
Left hemicolectomy
Anterior resection
Abdomino-perineal resection
Limited resection of left colon
Colostomy only
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