Descriptive Study of Colorectal Cancer in Iraq, 1999-2016

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ABSTRACT

Background: Colorectal cancer has increased in the last decades, which constitutes about 10% of cancer mortality. It becomes the second and third most common cancer in women and men respectively.

Objective: To explore the factors for colorectal cancer in Iraq including age, gender, family history, diabetes, smoking, serum carcinembryonic antigen (CEA) as a predictor factor, stages of cancer, bowl habit, and symptoms.

Patients and methods: This study was conducted in surgical unit at Alkathymia Teaching Hospital, Baghdad and in Al-Jammhory Teaching Hospital, Mosul, during the period from Feb-1999 to June-2016. This is a case series study for 956 patients with colorectal cancer. The data gathered included: age, gender, family history, diabetes and smoking, serum CEA, stages of the disease, bowl habit and symptoms. Data are presented as mean and percentage, and were analyzed by using Chi square goodness of fit test. p values ≤ 0.05 were considered significant.

Results: Colorectal cancer patients with ages between 25-50 years were significantly (p≤0.01) higher than the patients with > 50 years or <25 years. Male patients (57.9%) were significantly (p≤0.01) higher than female patients (42.1 %). The rate of patients with family history was 39.4% of the total patients. Diabetic and smoking patients presented 28.7% and 37.9%, respectively. Patients with serum CEA > 5 ng/mL presented the high percentage (83.6%) and they were highly significant (p ≤ 0.001) than patients with serum CEA less than 5. Stage 2 (48.2%) was significantly (p≤0.01) higher than stage 1 (16.6%), 3 (20.6%) and 4 (14.5%), respectively. For bowl habit, constipation presented 75.8% was significantly higher than diarrhea (14.5%). In addition, symptoms of bleeding per rectum (71.1%) were significantly higher than symptoms of pain (28.2%).

Conclusion: Colorectal cancer is significant disease in Iraq. Middle age patients presented the highest percentage. Education of patients about bowl habit and symptoms of colorectal cancer should be applied especially constipation and bleeding per rectum.

دراسة وصفية لمرض سرطان القولون في العراق 1999-2016

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أ فرع الجراحة، ب فرع الفسلجة، ج فرع الباطنية، كلية طب نينوى، جامعة نينوى، الموصل، العراق، د فرع الادوية، كلية الصيدلة، جامعة اوروك، بغداد، العراق

الخلاصة

الخلفية: لقد إزداد مرض سرطان القولون في العقود الأخيرة بحيث شكل 10% من وفيات السرطان. وأصبح سرطان القولون الثاني والثالث الأكثر شيوعا في الإناث والذكور على التوالي.

هدف الدراسة: لإستكشاف عوامل سرطان القولون في العراق. وشملت الدراسة العمر، الجنس، تاريخ العائلة، مرض السكر، التدخين، مصل دم مستضد السرطان المضغي، مراحل تطور السرطان، طبيعة القولون، والأعراض.

المرضى وطرق العمل: أجريت الدراسة بوحدة الجراحة في مستشفى الكاظمية التعليمي/ بغداد وفي مستشفى الجمهوري التعليمي/ الموصل للفترة من شباط 1999- حزيران 2016 . وكانت دراسة سلسلة حالات على 956 مريض بسرطان القولون. وشملت دراسة المرضى على العمر والجنس والتاريخ العائلي ومرض السكري والتدخين. وتم قياس مستضد السرطان المضغي. كما تم دراسة مراحل السرطان، طبيعة القولون، وأعراض المرض. وقدمت النتائج بالمعدل والنسبة المئوية وحللت إحصائيا بإستعمال إختبار مربع كاي التلائم. وأعتبرت ألإحتمالية $p \leq 0.05$ إختلافا معنويا.

النتائج: كان مرضى سرطان القولون بعمر 25-50 سنة أعلى معنويا ($p \leq 0.01$) من المرضى بعمر أكبر من 50 سنة وكذلك من المرضى بعمر أقل من 25 سنة. وكان نسبة الذكور (57.1%) أعلى معنويا ($p \leq 0.01$) من نسبة الإناث (42.1%). كان نسبة المرضى الذين لهم تاريخ عائلي هو 39.4% من كل المرضى. وكانت نسب المرضى السكريين والمدخنين 28.7% و 37.9% على التوالي. وكانت النسبة الأكبر للمرضى بمصل دم مستضد السرطان المضغي أكبر من 5 نانغ/مل (83.6%) وهي أعلى معنويا ($p \leq 0.001$) من النسبة في المرضى أقل من 5 نانغ/مل . وكان المرضى في المرحلة 2 من المرض (48.2%) أعلى معنويا ($p \leq 0.01$) من مرضى المرحلة 1 (16,6%) والمرحلة 3 (20,6%) والمرحلة 4 (14.5%) على التوالي. ومن طبيعة القولون كان المرضى المصابين بالإمساك هو 75.8% أعلى معنويا من المرضى المصابين بالإسهال (14.5%). بالإضافة الى ذلك، كان عدد المرضى المصابين بأعراض النزف من القولون 71.1% أعلى معنويا من المرضى المصابين بأعراض الألم (28.2%).

الاستنتاج: يعتبر سرطان القولون ذو أهمية في العراق. ويمثل المرضى من متوسطي العمر أعلى نسبة. ويجب تثقيف مرضى سرطان القولون حول طبيعة القولون وأعراضه وخاصة الإمساك والنزف من القولون.

الكلمات المفتاحية: سرطان القولون، مستضد السرطان المضغي، مراحل السرطان، طبيعة القولون.

INTRODUCTION

In western countries, colorectal cancer has increased in the last decades which accounts about 10% of cancer mortality.[1] It becomes the second and third most common cancer in women and men respectively.[2] In developed countries, colorectal cancer has also increased, the reason of increased mortality of colorectal cancer was attributed to population aging, dietary habit, smoking, low physical activity, and obesity.[1]

In Iraq, several descriptive studies were conducted in colorectal cancer, the colorectal cancer was low but has increased in the last few years.[3] The descriptive Iraqi studies of colorectal cancer included age, gender, signs, and symptoms.[4,5]

Carcinoembryonic antigen (CEA) is the most commonly tumor marker for colorectal cancer and the concentration in tumors is much higher than nonmalignant tissues.[6] Serum CEA was still the best tumor marker as independent prognostic factor for colorectal cancer.[7] The level of serum CEA predicts under-staging and the possibility of recurrence.[8]

This work was conducted in order to give a descriptive study for colorectal cancer patients regarding age, gender, family history, smoking and diabetes and serum CEA, stages of cancer, bowl habit, and symptoms.

PATIENTS AND METHODS

The study was conducted in Alkathymia Teaching Hospital, Baghdad and in Al-Jammhory Teaching Hospital, Mosul during the period from Feb-1999 to June-2016. This is a case series study for 956 patients with colorectal cancer. The data collected included: age, gender and family history. Other factors for the patients were also studied including diabetes and smoking. The study included smokers with 15 to 20 cigarettes per day for more than 5 years. Serum CEA was measured as a predictor factor for the diagnosis and severity of the disease. Stages of the disease, bowl habit and symptoms were also evaluated. The estimation of serum CEA based on fluorescence immunoassay technology using sandwich immune assay.[9]

Data are presented as percentages, and were analyzed by using Chi square test goodness of fit. p values ≤ 0.05 were considered significant.

Statistical analysis was performed by using SPSS package version 16.

RESULTS
Table 1 shows that patient ages were between 25-50 years were the higher proportion of patients and were significantly ($p \le 0.01$) higher than the other patients with ≥ 50 years or ≤ 25 years. Male patients (57.9 %) were significantly ($p \le 0.01$) higher than female patients (42.1%). Patients with family history were 39.4% of the total patients. Diabetic and smoking patients presented 28.7% and 37.9%, respectively. Most of the patients had serum CEA ≥ 5 ng/mL (83.6%) and they were highly significant ($p \le 0.001$) than patients with serum CEA less than 5. Stage 2 (48.2%) was significantly higher than stage 1 (16.6%), 3 (20.6%) and 4 (14.5%).

For bowl habit, constipation presented 75.8% was significantly higher than diarrhea (14.5%). In addition, symptoms of bleeding per rectum (71.1%) was significantly higher than symptoms of pain was 28.2%.

Table 1. Descriptive study of colorectal cancer in Iraq (No.=956).

Parameters	Frequency (%)	p values
Age (years)		
≤ 25	173 (18.1%)[a]	Different letters mean significant at p value ≤ 0.01
> 25-50 $\le$	436 (45.6%)[b]	
> 50	347 (36.3)[c]	
Gender		
Male	546 (57.1%)	≤ 0.001
Female	410 (42.9%)	
Family history		
Yes	377 (39.4%)	≤ 0.001
No	579 (60.6%)	
Diabetes		
Yes	274 (28.7)	≤ 0.001
No	682 (71.3)	
Smoking		
Yes	362 (37.9)	≤ 0.001
No	594 (62.1)	
CEA (ng/mL)		
< 5	157 (16.4%)	≤ 0.001
≥ 5	799 (83.6%)	
Stages		
1	159 (16.6%)[a]	Different letters mean significant at p value ≤ 0.01
2	461 (48.2%)[b]	
3	197 (20.6%)[a,c]	
4	139 (14.5%)[a,d]	
Bowl habit		
Constipation	725 (75.8%)*	≤ 0.001
Diarrhea	139 (14.5%)	
Symptoms		
Bleeding per rectum	680 (71.1%)*	≤ 0.001
Pain	270 (28.2%)	

DISCUSSION
In the present study, colorectal cancer patients with ages range between 25-50 years were significantly higher than patients with more than 50 year old or less than 25 year old. These result are inconsistent with published litrtures.[10,11] However, colorectal cancer patients under 50 years were about the same as patients with above 50 years old, supporting that colorectal cancer was increasing in adult under the age 50 years.[12] The reason of high percentage of the patients for the range 25-50 years old in this study could be attributed to shorter life span where elderly represent small proportion of Iraqi population pyramid.

In this work, male patients were significantly higher than female patients. These results are in agreement with previously published series from in USA,[13] and Japan.[14] Estrogen plays an important role for the protection of colorectal cancer through ERβ that has anti-proliferation and apoptosis.[15] Accordingly, female had better survival than male which made the gender a significant factor for colorectal cancer survival.[16]

About 40% the patients had family history which is considered high enough to be taken into this study. Many studies were also relevant with this result.[17] Obuch *et al*[18] found that mutation of DNA was the cause of colorectal cancer. The family history factor had a role of approximately 15% - 20% of incidence of colorectal cancer in patients.[1] In addition, the risk of colorectal cancer is about two times higher for people who have more than one such relative compared with those with one relative.[19,20]

Smokers presented 37.9% of the studied patients, this percentage should be taken into consideration. Since the association of smoking and colorectal cancer was documented,[21] and the existence between smoking and the prognosis of non-metastasis colorectal cancer was observed.[22] The duration and amount of smoking was associated with elevated risk of colorectal cancer.[23] Cigarette smoking has been shown to facilitate tumor growth by induction of

angiogenesis and/or suppression of cell-mediated immunity.[24]

In this study, diabetics presented 28.7% of the colorectal cancer patients. Since this study was a descriptive study the results cannot give any connection between diabetes and colorectal cancer, though the percentage of diabetes in this study should be taken for further study. Controversial studies were found of the connection of diabetes and colorectal cancer. No statistical association between Diabetes and adenomatous polyps.[25] In addition, the risk of colon cancer recurrence appears to be similar in patients with and without diabetes at diagnosis.[26] However, poor glycemic control in type 2 diabetic patients was associated with aggressive colorectal cancer.[27]

In the present study, CEA presented 83.6% for patients of equal or more than 5 ng/mL. The cutoff value was considered 5 ng/mL.[28] Serum from individuals with colorectal carcinoma often has higher levels of CEA than healthy individuals.[29] Serum CEA can be used as tumor marker for the diagnosis of colorectal cancer.[14] However, serum CEA was with slightly elevated value with no specific pathology leading to unnecessary examination and stress to the individual.[30] Accordingly, serum CEA is not an independent marker for colorectal cancer.

Stages at diagnosis is the most important prognostic factor, five year survival of patients diagnosed with colorectal cancer was 90% for patients with localized disease, 69% for patients with regional spread, and below 12% for patients with metastatic disease.[31] In the present study, regional spread (stage 2) was the highest rate compared with other stages. The explanation of these results could be the symptoms appeared at the second stage.

Constipation was the most common change in bowl habit, while pain and bleeding per rectum were the most common symptoms. The current results are consistent with other workers who concluded delay diagnosis and hospitalization of half of the colorectal patients.[32]

In conclusion, colorectal cancer has increased in Iraq. Patients with middle ages presented the highest percentage. Education should be applied for colorectal patients about bowl habit and symptoms including constipation and bleeding per rectum.

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