Assessment the Characteristic Features of Colorectal Cancer among Patients Attending Tikrit Teaching Hospital from 2009-2013

*Nisreen Mohammed Ibraheem, ** Nesseer Qahtan Alrawi, ** Ali Kair Aldeen Banoosh

*Department of Family and Community Medicine, Medical College, Tikrit University

** Department of Community Medicine, Tikrit Teaching Hospital

Abstract:

Background: Colorectal cancer is a frequent malignant gastrointestinal tumor. The studies in the "Iraqi Cancer Registry" from eighties revealed that the incidence of this cancer in Iraq duplicated up to (2.6%), but six to thirteen percent in the developed countries and higher in industrial countries about seventeen to fifty percent. It is the second cause of death in the western countries; colorectal cancer is ranked, after lung and prostate cancer in male, while it is after breast and lung cancer in females. The disease is frequent among elderly but (6-8%) of patients were 40 years and younger. Colorectal cancers are of favourable prognosis if early diagnosis and treatment provided. This study aims to assess the frequency of colorectal cancer in Tikrit city, to highlight the recently noted increase in frequency among young.

Patients and Methods: The current study is cross-sectional study done in January 2014 when all recorded cases of colorectal cancer 2009-2013 involved in the study. It enrolled (172) patients with colorectal cancer chosen as a convenience sample. Data collected from hospital records (records between the 1st of January 2009 to the 31st of December 2013) in statistic unit in Tikrit Teaching Hospital. The demographic information, distribution, presentation, histopathological types and staging have been described. The staging system used in this study was the modified Dukes' staging system [(6)].

Results: Of the (172) patients involved in this study, 94 patients (54.7%) were males and 78(45.3%) were females with a male: female ratio of (1.2:1), mean age was (51.4) years and peak age of occurrence was (60-69) years age group.

The main presenting symptom was abdominal pain (42.4%). The most common site of the tumor was the rectum (35%) and (97.8%) of cancers were adenocarcinomas of which (66.7%) were moderately differentiated. (38%) of cases were at Duke's stage B when diagnosed.

Conclusion: The study showed an increase colon cancer frequency during the year 2013 compared with previous years, with a notable increase among young adults, high percentage of them presented with advanced and aggressive disease.

Recommendations: Increase awareness of population about the importance of colorectal cancer screening to discover a disease at early stage which can be treated completely.

Keywords: Colorectal carcinoma, Male, Young adult.

Introduction:

The colo-rectum is frequently affected by tumor if compared with other gastrointestinal tract portions [(1)]. Among visceral malignancies, colorectal cancer is a higher death rate in both sexes. Recently, it is diagnosed at age forty but peaks of occurrence at age (60-75) year[(2)]. Invasive colorectal cancer developed in (6 %) [(1)].

The "global cancer data base (GLOBCAN) 2008" is determined the incidence rate and mortality rate in 182 countries, the colorectal cancer was (9.7%) from other 27 cancers and it

preceded by lung (12.7%) and breast (10.9%) cancer. The world wide incidence (20.4%), (14.4%) for men and women subsequently, mortality rate (9.7%) (for men) and (7.0%) (for women) per year [1].

In Iraq, the incidence still lower than developed and industrialized countries [3]. The incidences of colon and rectum cancer are relatively low in the Arab world; in spite of it is ranked after breast cancer in many Arabian nations [4].

Colorectal cancer as change in bowel habits, such as diarrhea, constipation, or narrowing of the stool, rectal bleeding, cramping or abdominal (belly) pain, weakness and fatigue, or unintended weight loss [5]. Environmental factors are related positively to colorectal cancer [5]. Environmental factors probably account for (70%) of all 'sporadic' colorectal cancers [6]. The disease frequently diagnosed in urban population particularly high socioeconomic level [5]. Colorectal cancer diagnosis is done by taken different areas sampling of colon, typically during colonoscopy or sigmoidoscopy, **CT scan**, **MRI** [7]. A **cell type** and grade are reported by pathologist. (98%) of patients had **adenocarcinoma** but seldom cases had **lymphoma** or **squamous cell malignancy** [8]. Colorectal cancer invasiveness is determined by Dukes classification [9].

Immunochemistry assay is showed that **cyclooxygenase-2** enzyme high in half of colorectal adenoma. Inhibition of this enzyme play a role in prevention of colorectal tumors [10]. It has been known for the last two decades that adolescents and young adult patients with colorectal cancer have a poorer prognosis and more aggressive disease than older adults [11, 12].

Aim of the study:

Assessment the characteristic features colorectal cancer among patients attending Tikrit Teaching Hospital from 2009-2013, and highlight the recently noted increase in frequency among young.

Objectives:

1. Determine the occurrence of colorectal cancer among patients attending Tikrit Teaching Hospital.
2. Identify the frequency of colorectal cancer according to age group, gender, and residence, chief complain, and site of tumor among patients attending Tikrit Teaching Hospital
3. Clarify the frequency distribution of colorectal cancer among the patients attending Tikrit Teaching Hospital by Dukes staging system and malignancy type.

Patients and Methods:

The current study is cross-sectional study performed from first to the end of January 2014. It enrolled (172) patients with colorectal cancer chosen as a convenience sample from all cases (records) admitted to hospital for other diagnoses. At first all records that include colorectal cancer isolated then classified according to year of patients' admission to Tikrit Teaching Hospital. The data were collected by a special form (questionnaire). Data collected include all recorded cases of colorectal cancer from the beginning of 2009 to the end of December 2013, patient's information obtained from statistical unite records in Tikrit Teaching Hospital. The demographic information, distribution, presentation, histopathological typing and staging have been described. The staging system used in this study was the modified Dukes' staging system [6]. All

information was taken from hospital records. Data presented by simple figures and table, in addition to mathematical presentation as mean and ratio.

Results:

There were (9, 6, 25, 57, 75) cases with colon cancer in (2009, 2010, 2011, 2012, 2013) respectively.

The frequency of colorectal carcinoma appear higher in male patients than female patients were 92 (54.7%) male patients and 76 (45.3%) female patients, male to female ratio was (1.2:1) as in figure (1).

The result showed female patients slightly higher than male as (5, 4) in 2009, and (38, 37) in 2013 as in figure (2).

Figure (3) showed that the peak age group affected by colorectal carcinoma was (60-69) years old about (27.9%) of cases. The mean age was (54.5), (48.5) years for females, and males subsequently.

There were (54) patients below the age of 50 years (31.4%), with mean age of (30) years and a male to female ratio of (1:1), figure (4).

The study revealed an increase in occurrence of colon cancer among young adults particularly between (2011 -2013), figure (5).

Regarding the frequency of colorectal affected patients according to residence, there were 107 (62.3%) of the patients lived in urban areas; while 65 (37.7%) lived in rural areas of Tikrit as in table (1).

The presenting symptom was known in (97) patients and unknown in the remainder because of the deficiency in their records. Abdominal pain was the main presenting symptom in 41 cases (42.4%), followed by bleeding per rectum in 21 cases (21.6%), constipation 15 cases (16%), abdominal distension in 10 cases (10.3%), pallor and fatigue in 6 cases (6.2%), weight loss in (1.0%), diarrhoea in (1.0%), vomiting in (1.0%), while in (1.0%) of patients colorectal cancer was detected incidentally, figure (6).

Among (103) patients with registered site of the tumor in the records, the commonest site of the tumour was the rectum in 36 (35%) of the patients followed by sigmoid colon in 16 patients (15.5%) then the rectosigmoid in 15 patients (14.5%), caecum in 8 patients (7.7%), ascending colon in 7 patients (7%), descending colon in 7 patients (7%), hepatic flexure in 4 patients (4%), splenic flexure in 4 patients (4%) and anus in 4 patients (4%). Transverse colon tumors were the least (2%), figure (7).

Histopathological reports for 172 cases revealed that, adenocarcinomas represent the commonest pathological type (97.8%) which is more frequent than other types, figure(8).

According to the degree of differentiation of adenocarcinomas, (66.7%) were moderately differentiated, (20.8%) well differentiated and (12.5%) poorly differentiated adenocarcinomas, figure (9).

The most common pathological stage according to modified Dukes staging system was Dukes B in (37.9%) of patients followed by stage C (24.2%), stage A (21.2%) while stage D was (16.7%), figure (10).

Young adults presented with more advanced stages having a higher percentage of stage C and D as shown in figure (11).

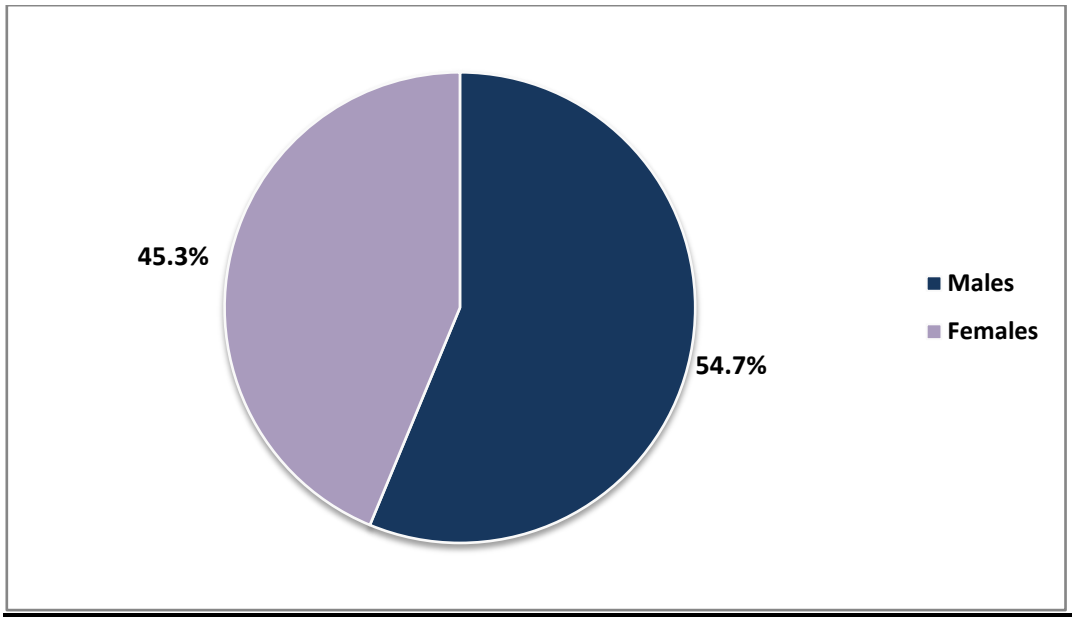

Figure (1): Frequency of patients with colorectal cancer according to sex.

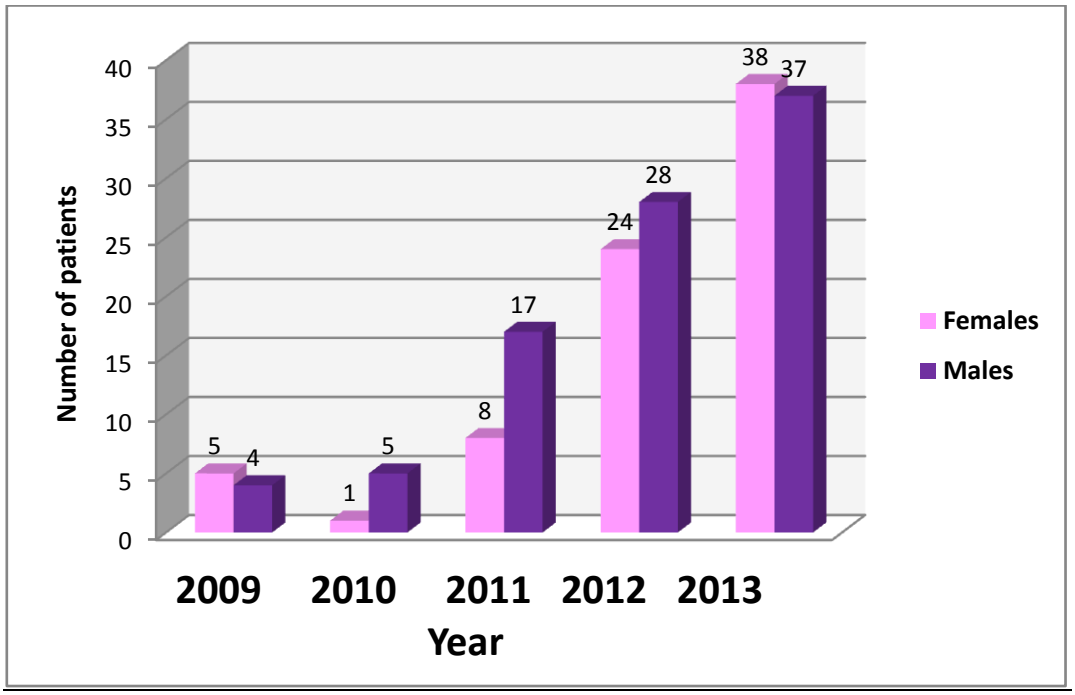

Figure (2): Frequency distribution of patients with colorectal carcinoma by year and sex.

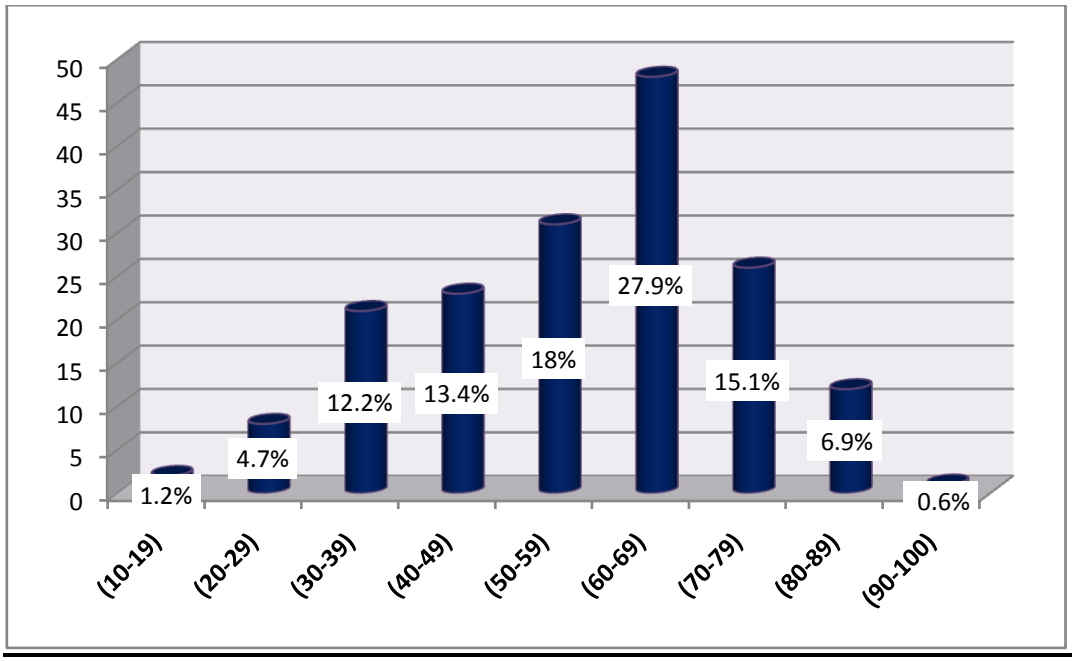

Figure (3): Frequency distribution of patients with colorectal carcinoma according to age groups.

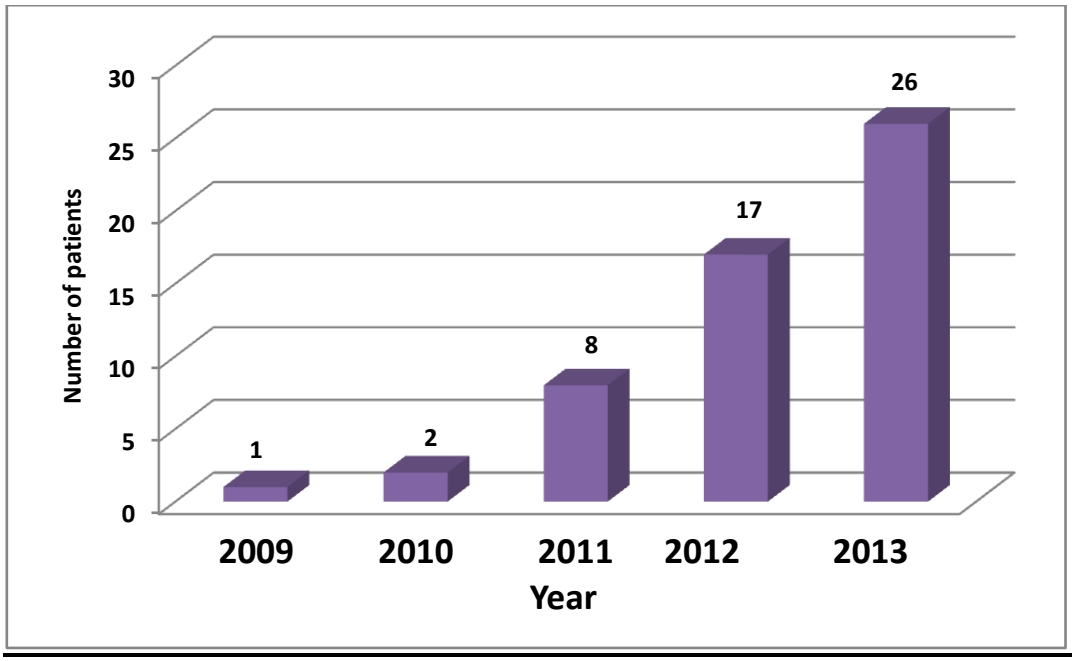

Figure (4): Frequency distribution of colorectal cancer patients aged <50 years.

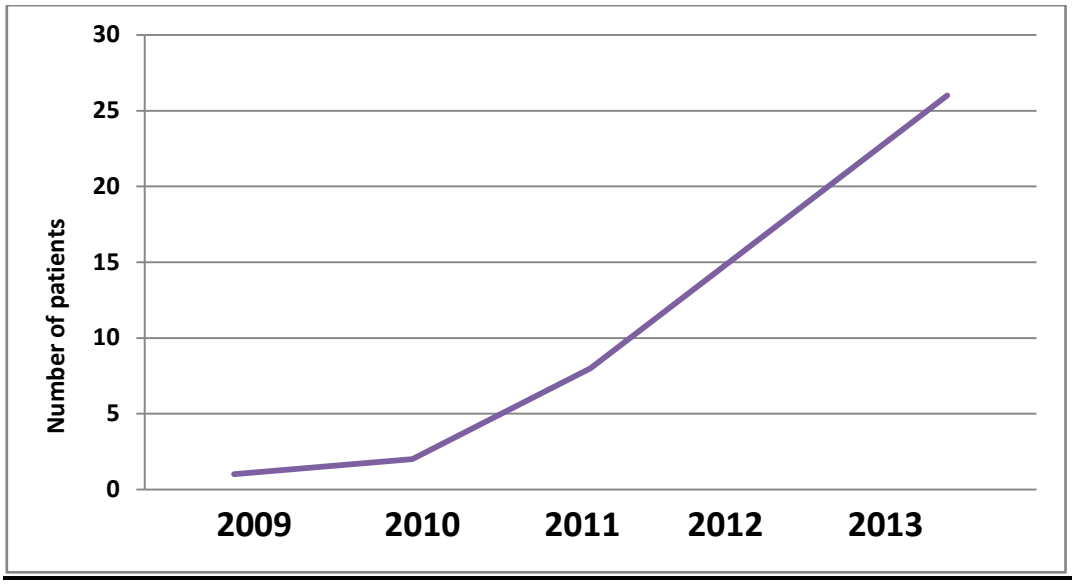

Figure (5): Frequency distribution of colorectal cancer patients aged <50 years showing increased numbers between 2009 -2013.

Table (1): The relation between residence and colorectal cancer.

Residence	Colorectal cancer cases	
	Number	%
Urban	107	62.3
Rural	65	37.7
Total	172	100

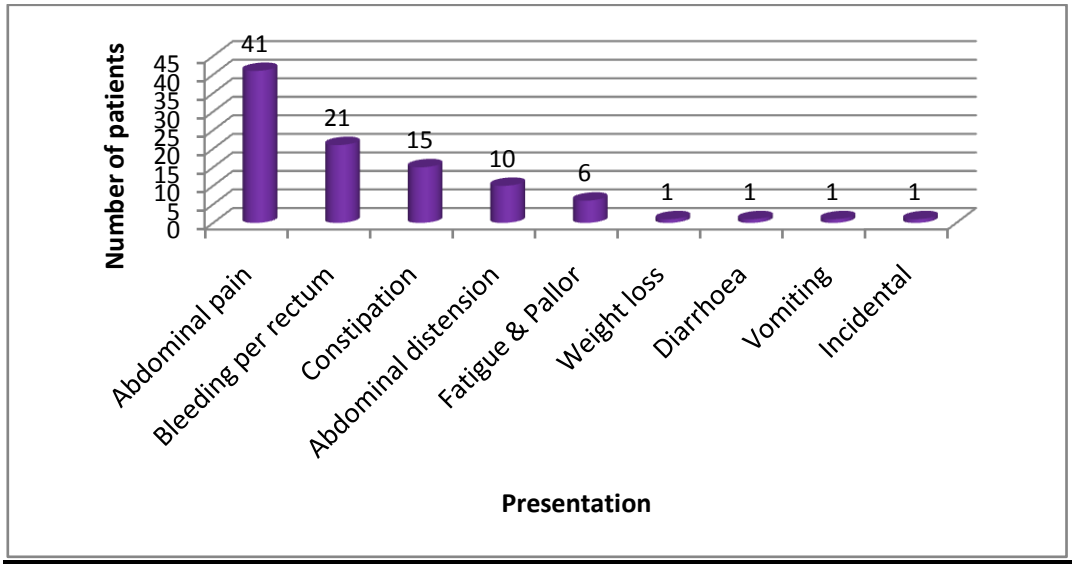

Figure (6): Frequency distribution of colorectal cancer patients by presentation.

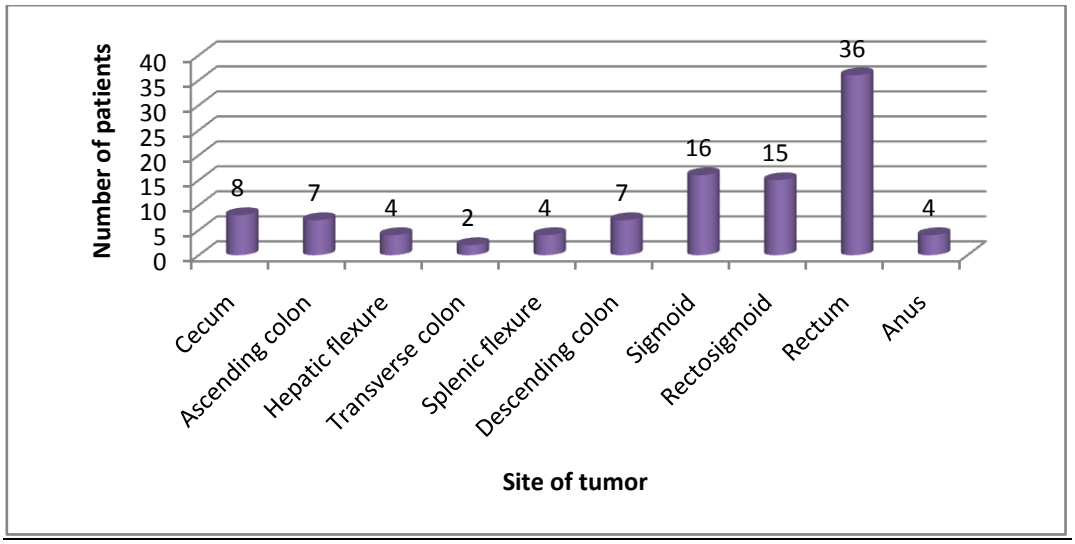

Figure (7): Frequency distribution of patients with colorectal carcinoma by site of Tumor.

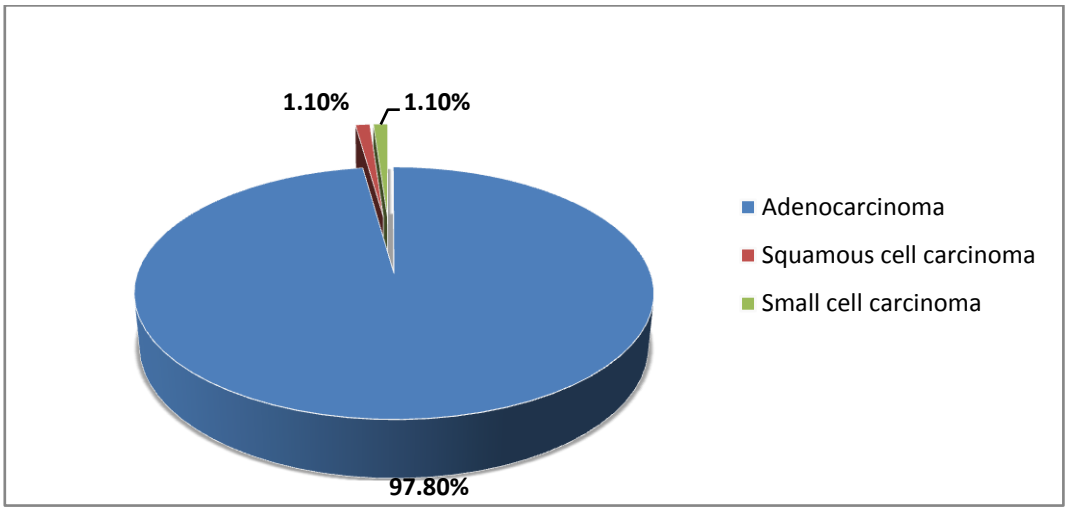

Figure (8): Percentage distribution of patients with colorectal carcinoma by type of malignancy.

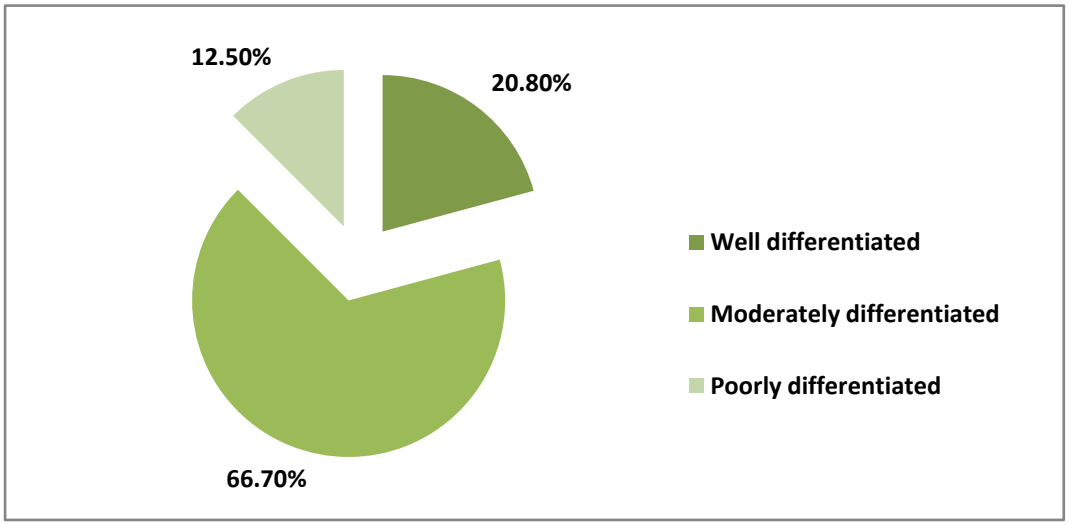

Figure (9): Percentage distribution of patients with colorectal adenocarcinoma according to differentiation.

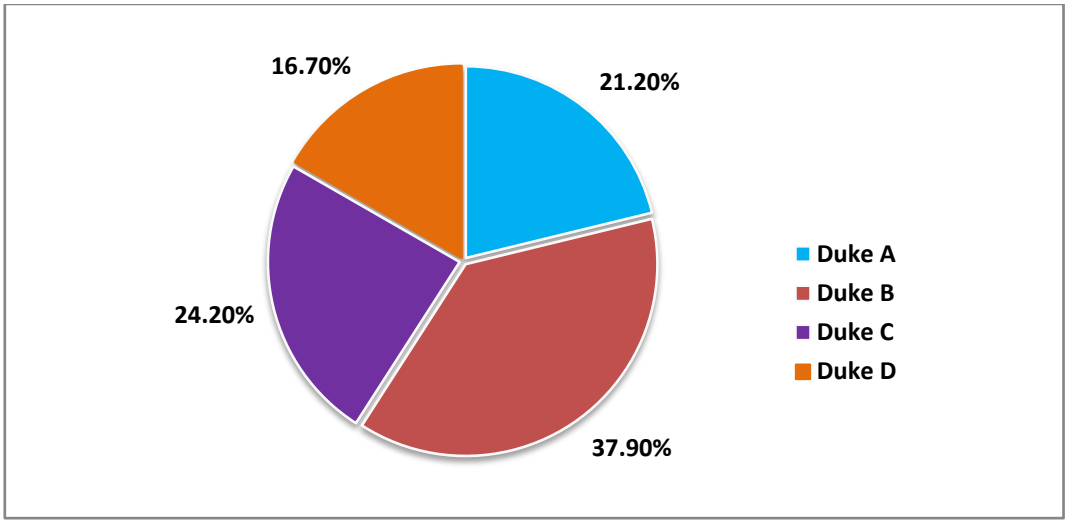

Figure (10): Percentage distribution of patients with colorectal carcinoma by Dukes Stage.

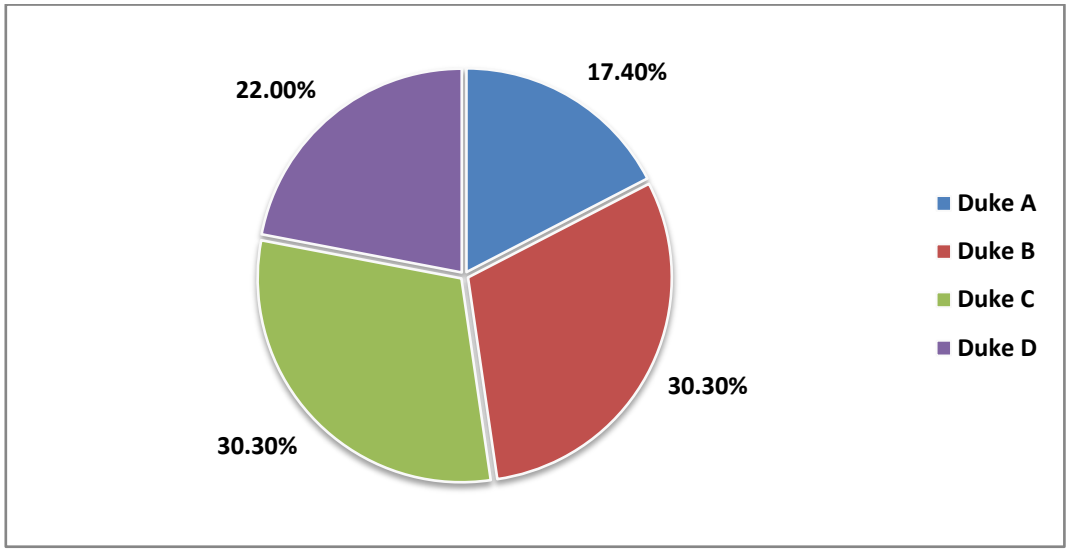

Figure (11): Percentage distribution of young adults with colon cancer by Dukes staging.

Discussion:

Colorectal cancer is very frequent in Western countries than Eastern. But recently the incidence increased in Eastern countries [13], this result may be due to westernization of lifestyles. Population is imbalanced between caloric intake and physical activity that cause obesity and metabolic syndrome [13], also including lack of exercise, consumption of processed meats, and alcohol use [14]. Recent study revealed that there were (9) patients with colon cancer in 2009, with progressive increased of recorded cases about (75) patients in 2013, this may be because availability of new equipments (CT scan, MRI) in Tikrit Teaching Hospital that made diagnosis done in a hospital with no need for referral to other hospitals or centers, availability of chemotherapy at this year, also improvement of recording system by statistical unite staff at 2013 affect the number of recorded cases. Occurrence

of colorectal cancer in Tikrit is 12 in 100,000 individuals. The frequency of colorectal carcinoma appear higher in male patients than female patients were 92 (54.7%) male patients and 76 (45.3%) female patients, with male: female ratio is 1.2:1.

In comparison to Iraq cancer registry, the incidence of colorectal carcinoma was (4.55%) of whole body malignancy in 2002 [13]; while the incidence rates in Kurdistan were (3.93%) for males and (3.12%) for females in 2009 [15]. The researcher in Turkey in 2010-2012 assured that incidence among men was 17, and 11.7 in women per 100 000 persons, male: female showed male predominance as (60.7%) for male and (39.3%) for female [16].

This study showed that, there were (54) patients below the age of 50 years (31.4%), with mean age of (30) years and a male to female ratio of (1:1), its compatible to Kurdistan study [15], and agreed with other study done in United States which revealed an increase in colon cancer among young adults (below 50 y) [7]. This high percentage may be due to in increases in the consumption of sweetened beverages and decreases in the consumption of milk containing colorectal cancer protective calcium, also parallel increases in colorectal cancer incidence rates and may be a contributing factor [14]. But two previous studies done in Baghdad assured that the disease affect only (17.5%) and (20%) at young adults [17, 18], while Turkey studies disagreed with recent study which showed peak age group affected are those (60-70) years old [16], and Iran study showed highest number of patients were between ages 50-70 years old, while (16.5%) of patients were 40 years age or younger [19].

The current study showed that young adults (<50years) presented with more advanced stages having a higher percentage of stage C and D about (30.3%) for each, mostly because of lack of clinical awareness and delay in diagnosis of tumor in young adults. Current study also supports previous studies in developing countries, previous study in Baghdad [18] and Kurdistan [20] which showed that the presentation of colorectal carcinoma is not different between young and old patients. The associations between dietary and behavioral factors and colorectal cancer have been observed in adults older than 50 years, including lack of exercise, consumption of processed meats, and alcohol use. But so far, data on these associations in younger people are lacking [21]. Current research is exploring potential associations between colorectal cancer and variations in the gut microbiome, exposure to environmental toxins, and changing patterns in the use of statin and antibiotics during the past several decades [14].

Regarding the frequency of colorectal affected patients according to residence, there were 107 (62.3%) of the patients lived in urban areas; while 65 (37.7%) lived in rural areas of Tikrit. Other studies in Iraq and other neighbouring countries not found significant relation between residence and colorectal cancer because lack of registry, and patients may be not search medical advice and treatment till death in rural areas. Other study in Japan found higher incidence in urban areas may be because an urbanization (westernization) or increasing in intake of fatty food [22].

The presenting symptom was known in (97) patients and unknown in the remainder because of insufficient

information in their records. Abdominal pain was the main presenting symptom in (42.4%), followed by bleeding per rectum, constipation (16%), while other study in New Zealand showed that the usual symptoms are bowel habit changes and bleeding per rectum, while loss of weight, abdominal pain, and constipation were less frequent [23].

The common site for the tumour (35%) is rectum followed by sigmoid colon in (15.5%) then the rectosigmoid in (14.5%), caecum in (7.7%), in comparison to the studies in Kurdistan [20] and other study in Baghdad [18], but as compared with study done in Iran that shows the rectum is constituted (61.6%) followed by Transverse colon (13.2%), sigmoid (8.2%), cecum (3.5%) [19].

Adenocarcinomas constituted (97.8%) of the colon cancer in this study, most was of moderate differentiation which's comparable to the study done in Iran where there the Adenocarcenoma constituted (91.8%) in and about (89.5%) with verged percents in India [24] and in Finland [16].

Deficient data recording present mainly in (2009-2010), when patients' charts were incomplete, also deficient information for (2009-2013) specially the data about risk factors and complications, treatment, and prognosis.

Conclusions:

Colorectal cancer cases increased during the last years, and affect young adults that may present with advanced stages.

Recommendation:

1. Clinicians should be aware of the possibility of colorectal cancer especially in those patients with bleeding per rectum, changes in bowel habit (especially of recent onset) with or without abdominal pain regardless the age for early detection of the disease and faecal occult blood test remain important measures for detecting tumors.
2. Screening for colorectal cancer can reduce mortality by early diagnosis, especially risky people who had family history of disease, age>50 years, and any person had rectal bleeding.
3. Educate the population about warning signs and symptoms of colorectal cancer.

References:

[1]. Carry W.D., Abelson A., Gordon S., Hoogwerf B., Lang D., Saul Nurko and et al . Current clinical medicine. Saunders Elsevier; China, 2nd edition. 2012; 489-493.

[2]. Beers M. H. and Berkow R. The Merck Manual of Diagnosis and Therapy. Merck and co., New York. 17th edition, 2003; 3915-3920.

[3]. Al-Humadi A.H. Epidemiology of Colon & Rectal Cancer in Iraq. *World Journal of Colorectal Surgery*. Berkeley Electronic Press. 2008,Volume 1, Issue 1.

[4]. Elsayed I.S., Malcolm A.M. and Al-Lawati J.A. and et al. Cancer Epidemiology and Control in the Arab World - Past, Present and Future. *Asian Pacific Journal of Cancer Prevention*, 2009, Vol 10; 17.

[5]. Kasper D.L. , Braunwald E., Hauser S., Longo D. , Jameson J. L. and Fauci A.S. Harrison's Principles of Internal Medicine, McGraw Hill, USA. 16th ed. 2006; (570-580).

[6]. Colledge N.R., Walker B.R. and Ralston S.H. Davidson's Principles and Practice of Medicine. Churchil livingstone Elsevier, united kingdom. 21st ed. 2010, (909-912).

[7]. Siegel R.L., Jemal A., and Ward E.M. Increase in Incidence of Colorectal Cancer Among Young Men and Women in the United States. *American Association for Cancer Research.* (2009); volume 18:1695–8.

[8]. Weerakkody, Yuranga; Gaillard, Frank. **"Colorectal carcinoma"**.

Radiopaedia.org. *Retrieved. 13 September 2014*.
[9]. Patten D.K. et al. Single Best Answers in Surgery. Hodder Education .2009; 107.
[10]. Sostres C, Gargallo C.J., Lanas A. **"Aspirin, cyclooxygenase inhibition and colorectal cancer"**. World J. Gastrointest. Pharmacol. February 2014. **5** (1): 40-9.
[11]. Andreoli T., Griggs C.C. and Loscalzo J . Cecil Essentials of Medicine. 6th edition. Saunders: Philadelphia, Pennsylvania. (2004); (376-378).
[12]. Tricoli J.V., Seibel N.L., Blair D.G. et al. Unique Characteristics of Adolescent and Young Adult Acute Lymphoblastic Leukemia, Breast Cancer, and Colon Cancer. *Oxford journals.* Uk. April 20, 2011, Vol. 103, Issue 8.
[13]. Result of Iraqi Cancer Registry 2000-2002, Iraqi Cancer Board, Ministry of health, Baghdad-Iraq 2005.
[14]. American Cancer Society. Colorectal cancer prevention and early detection. 2014.
http://www.cancer.org/acs/groups/cid/documents/webcontent/003170-pdf.
pdf Accessed December 31, 2015.
[15]. Othman R.T., Abdulljabar R., Saeed A., Kittani S.S., Sulaiman H.M., Mohammed S.A. and et al. Cancer Incidence Rates in the Kurdistan Region/Iraq from 2007-2009. *Asian Pacific Journal of Cancer Prevention,* Vol 12, 2011. (1261-1264).
[16]. Mäkelä J.T. & Kiviniemi H. Clinicopathological features of colorectal cancer in patients under 40 years of age. *International Journal of Colorectal Disease,* Springer. (2010); volume 25:823–828.
[17]. Al-Bayati S.M. and Jasim F. Colorectal cancer in a group of Iraqi patients. *Mustansiriya Medical Journal, Iraq.* 2009; 8:36-39.
[18]. Majid T.A., Shakir W.M. and Mahmmod A.S. Colorectal Carcinoma Presentation and Management. *The Iraqi Postgraduate Medical Journal* 2009, volume 8(3).
[19]. Sibiani A., Shaheen M., Fallatah H.I., Akbar H.O., Qari Y.A., Bazaraa S. andet al. Colorectal Cancer in Saudi Arabia King Abdul Aziz University Hospital: A Five Year Experience. *Journal of Medicine and Medical Sciences*. October 2011. Volum 2(10); 1126-1130.
[20]. Ibrahim E.M., Zeenldin A.A., Alkhodary T.R., Al-Gahmy A.M. and Bin Sadik B.M. Past, Present and Future of Colorectal Cancer in kingdom of Saudi Arabia. *The Saudi journal of gastroenterology*.2008, 14 (4); (178-182).
[21]. Siegel R.L., Jemal A., Ward E.M. Increase in incidence of colorectal cancer among young men and women in the United States. *Cancer Epidemiology Biomarkers Prevention.* 2009; 18:1695-1698.
[22]. Tajima K., Hirose K., Nakagawa N.,Kuroishi T., Tominaga S. Urban-rural difference in the trend of colo-rectal cancer mortality with special reference to the subsites of colon cancer in Japan. *Japanese Journal of Cancer Research*. 1985 released in 2008, Volume 76(8); 717.
[23]. Hsiang J.C., Bai W., Dinesh L. Symptom presentations and other characteristics of colorectal cancer patients and the diagnostic performance of the *Auckland Regional Grading Criteria for Suspected Colorectal Cancer* in the South Auckland population. *Journal of the New Zealand Medical Association*, September 2013, Volum 126(1382); 95,101. URL: http://journal.nzma.org.nz/journal/126-1382/5821/ ©NZMA
[24]. Chan K., Dassanayake B., Deen R. et al.: Young patients with colorectal cancer have poor survival in the first twenty months after operation and predictable survival in the medium and long-term: Analysis of survival and prognostic markers. *World Journal of Surgical Oncology* 2010, volum 8(8).