

Retrospective analysis of colon cancer incidence and treatment regimens at Sabratha national cancer institute (2021-2023).

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ABSTRACT

Background: The colon is part of the digestive system. Digestive system absorbs vitamins, minerals, carbs, fats, proteins, and water from meals and helps the body eliminate waste. The colon is the longest section of the large intestine, then the rectum and anal canal. Cancer is a disorder in which the body's cells grow out of control. Colorectal cancer is a type of cancer that begins in the colon or rectal. It is also known as "colon cancer. It is the second biggest cause of cancer-related deaths globally. By 2040, the annual incidence of colorectal cancer would rise to 3.2 million new cases and 1.6 million deaths (WHO, 2023). **Objective:** This study aims to analyze trends and outcomes in colon cancer patients diagnosed between 2021 and 2023 using data gathered from patient records, at the Sabrata National Cancer Institute (SNCI). Also, research aims to shed light on the effectiveness of treatment approaches and their impact on patients. **Methods:** Gather data from patient records, cancer registries, and treatment databases at the National Cancer Institute in Sabratha. Through our 5-month study (from June to November 2024) within the archives of the National Cancer Institute in Sabratha, inclusion criteria were determined for patients diagnosed with colorectal cancer. Specify the period for analysis (2021 - 2023). Collect information on demographics (age, gender, ethnicity), stage at diagnosis, treatment modalities (surgery, chemotherapy, radiation), and survival outcomes. **Results:** According to our research peak age groups for colon cancer diagnoses are 50-59 years (28%) and 60-69 years (28%), indicating the need for targeted screening and prevention efforts. The FOLFOX regimen is utilized by 67 patients (19%), indicating it as the predominant therapy. Xeloda (Capecitabine) is used by 14 patients (4%), representing a significantly lower proportion compared to FOLFOX. **Conclusion:** Guidelines for Colorectal Cancer Screening are advised Screenings After the age of 45, screening ought to begin. Frequent screenings are recommended. People with Crohn's disease or ulcerative colitis may need to have early screenings. A personal or family history of polyps or colorectal cancer. Early screening may be necessary for genetic syndromes such as Lynch syndrome or familial adenomatous polyposis.

KEYWORDS: Colorectal cancer, Colon cancer, Folfox, Xeloda (Capecitabine) and Sabrata National Cancer Institute (SNCI).

INTRODUCTION

The colon is part of the digestive system. The digestive system absorbs nutrients (vitamins, minerals, carbs, fats, proteins, and water) from meals and helps the body eliminate waste. The digestive system consists of the oesophagus, stomach, small and large intestines [1]. The colon is the longest section of the large intestine, then the rectum and anal canal form the final section of the large intestine finally the anal canal ends at the anus (National Center Institute, 2023) [2] and [3]. Cancer is a disorder in which the body's cells grow out of control. Colorectal cancer is a type of cancer that begins in the colon or rectal. It is also known as "colon cancer (Centers for diseases control and prevention CDC, 2024) [4]. It is the second biggest cause of cancer-related deaths globally. There were significant geographical variations in incidence and fatality rates. The incidence rates were highest in Europe, Australia, and New Zealand, with the highest mortality rates in Eastern Europe. By 2040, the annual incidence of colorectal cancer would rise to 3.2 million new cases and 1.6 million deaths (WHO, 2023), Sometimes abnormal growths, called polyps, form in the colon or rectum [5]. Over time, some polyps may turn into cancer. Colorectal polyps (abnormal growths in the colon or rectum that can turn into cancer if not removed) and colorectal cancer don't always cause symptoms, especially at first. Colon cancer happens when cells in the colon develop changes in their DNA [6] and [7]. A cell's DNA holds the instructions that tell the cell what to do. The changes tell the cells to multiply quickly. The changes let the cells continue living when healthy cells die as part of their natural lifecycle. This causes too many cells. The cells might form mass called a tumour [8]. The cells can invade and destroy healthy body tissue. In time, the cells can break away and spread to other parts of the body. When cancer spreads, it's called metastatic cancer. In 2024, there will be 152,810 new instances of colorectal cancer, according to the American Cancer Society [9]. Estimates indicate that 81,540 cases will be attributed to men and 71,270 to women [10]. Of these, 46,220 will be rectal cancer and 106,590 will be colon cancer. With a projected 53,010 deaths in 2024—a modest rise over the 52,550 deaths from the disease last year—CRC (2021). is the second most common cause of

cancer-related mortality in the United States [11]. The incidence rate of colorectal cancer has been alarmingly increasing since the mid-1990s, rising between 1% and 2% year among those under the age of 55, while the number of CRC cases among younger people is also on the rise. Since the mid-2000s, the youth mortality rate has likewise been rising by around 1% annually. Nowadays, colorectal cancer is the second most common cause of cancer-related deaths in women under 50 and the primary cause in males under 50 [12]. Delays in detection often result in the diagnosis of more advanced malignancies in young person's [13]. The stages of colon cancer and the methods of treatment: Stage 0 colon cancers surgery to take out the cancer is often the only treatment used. Stage I colon cancer includes cancers that were apart of Polyp, removed by colonoscopy if not by surgery (partial colectomy). Stage II colon cancer Partial colectomy and chemotherapy may needed. The main options include 5-FU and leucovorin, oxaliplatin, or capecitabine, but other combinations may also be used [14] and [15]. Stage III cancer surgery (partial colectomy) followed by chemo either Folfox or Cape Ox sometime along with radiation. Stage IV colon cancers have spread from the colon to distant organs and tissues. Some patient need surgery but most people with stage IV cancer will get chemo and/or targeted therapies to control the cancer [16] and [17]. This study aims to evaluate the colon cancer incidence over a specified period at the National Cancer Institute Sabratha, identifying any demographic changes or epidemiological patterns. Examine the various treatment regimens employed for colon cancer patients at the institute, assessing their effectiveness based on patient outcomes such as survival rates and recurrence. Investigate potential risk factors contributing to the incidence of colon cancer in the patient population, with a focus on lifestyle, genetic factors, and environmental influences. Provide data-driven recommendations for improving the early diagnosis, treatment practices, and overall management of colon cancer at the National Cancer Institute Sabratha.

MATERIALAND METHOD

Place and period of Study

Gather data from patient records, cancer

registries, and treatment databases at the National Cancer Institute in Sabratha. Through our 5-month study (from June to November 2024) within the archives of the National Cancer Institute in Sabratha, inclusion criteria were determined for patients diagnosed with colorectal cancer. Specify the period for analysis (2021 - 2023). Collect information on demographics (age, gender, ethnicity), stage at diagnosis, treatment modalities (surgery, chemotherapy, radiation), and survival outcomes.

Data Entry and Analysis

Use statistical methods to assess changes in incidence rates (Mean, Mode and percentage). In this research, we used the Excel program to know the analysis of the results of patient data. Analyzing the incidence by age groups, sex, region, and other relevant demographics.

younger age groups (20-29 years: 2%, 30-39 years: 7%). The peak age groups for colon cancer diagnoses are 50-59 years (28%) and 60- 69 years (28%), indicating the need for targeted screening and prevention efforts. As shown in figure 2.

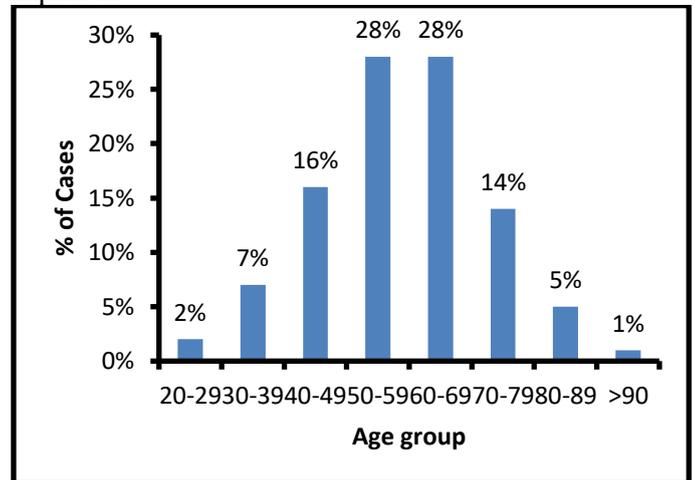


Figure 2. The age percentage of cases visiting the National Cancer Institute in Sabratha.

RESULTS

Here are the results of the key findings from the colon cancer research conducted at the Sabrata National Cancer Institute from 2021-2023.

Residential area distribution.

The study examined 360 colon cancer cases. The majority of patients were from the western region of Libya, with Tripoli (20%), Zawiya (13%), and Gharyan (8%) having the highest percentages. The southern city of Sabha had the lowest percentage at 2% as shown in figure 1.

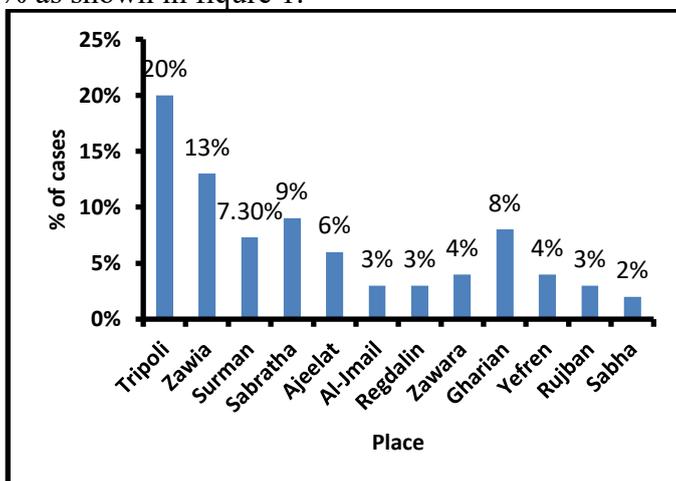


Figure 1. Percentage of cases visiting the National Cancer Institute in Sabratha.

Data gender distribution.

The number and percentage of patients (male - female) visiting the National Cancer Institute in Sabratha during the years (2021-2022-2023). As shown in figure 3.

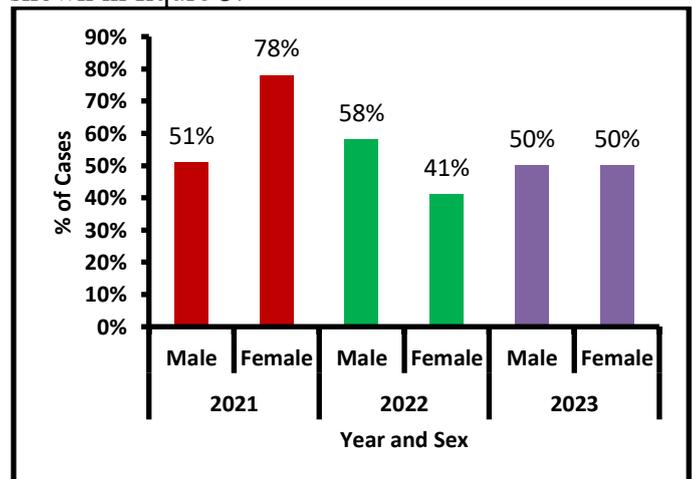


Figure 3. Percentage of male & female during (2021 - 2023) in National Cancer Institute in Sabratha.

Treatment (medicine) distribution

The FOLFOX regimen is utilized by 67 patients (19%), indicating it as the predominant therapy. Xeloda (Capecitabine) is used by 14 patients (4%), representing a significantly lower proportion compared to FOLFOX. As shown in figure 4.

Age variation

Based on the analysis provided, here are the key findings in a concise format Colon cancer is rare in

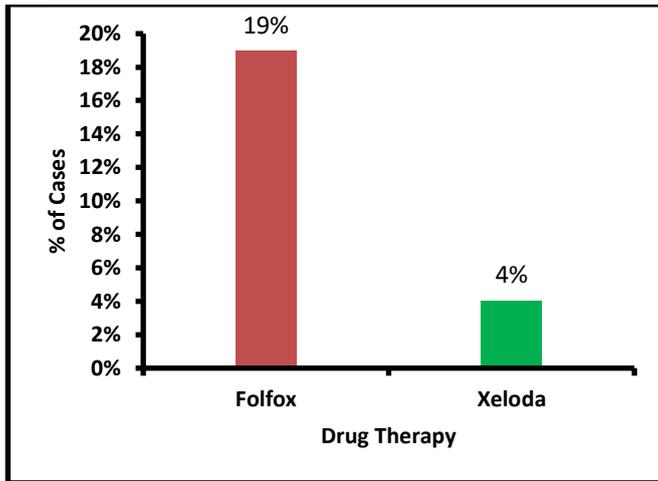


Figure 4. Percentage of cases used drug therapy in National Cancer Institute in Sabratha.

Treatment protocol distribution.

The number and percentage of patients who underwent surgery, chemotherapy, etc. As shown in 5.

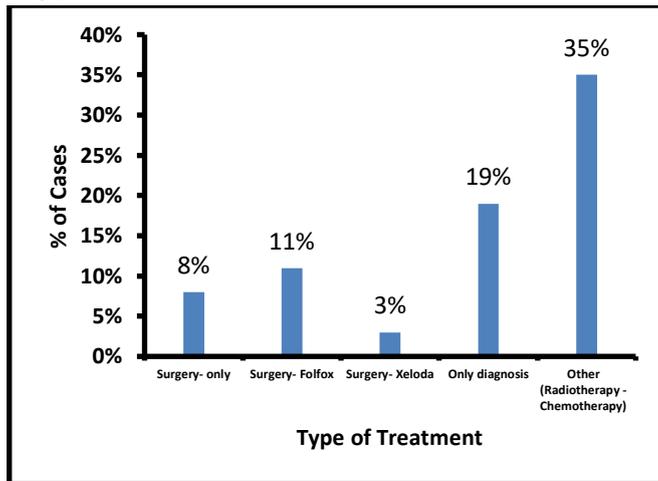


Figure 5. Percentage of cases used type of treatment in National Cancer Institute in Sabratha.

DISCUSSION

The percentage of cities that visit the National Cancer Institute Sabratha Our study data indicate that the western region of the country Tripoli 62 (20%), Zawiya 41 (13%), and then the western mountain regions Gharyan 24 (8%) due to the lack of specialized cancer centers in the city. While in the cities of southern Libya, Sabha 5 (2%) recorded the lowest percentage, which indicates the distance and lack of urban awareness or that they live in rural areas. In comparison with the first study that examines the awareness of colorectal cancer among Egyptians from different educational and socio-demographic backgrounds. The study was conducted on 940 participants aged between 18 and 86 years with different educational backgrounds to ensure good survey results from different groups [18]. The

analysis of the age distribution of colon cancer cases reveals critical trends that may assist in understanding the disease. In age Distribution Analysis. Project study data indicates a typical pattern of colon cancer incidence by age group: 20-29 years (2%) and 30-39 years (7%): These younger demographics show low incidence rates, suggesting that colon cancer is considerably rare in these populations. 40-49 years (16%): A noticeable increase begins in this age bracket, highlighting the importance of awareness and possibly early screening in this group. 50-59 years (28%) and 60-69 years (28%): These are the peak age groups for colon cancer diagnoses, indicating that screening and prevention efforts should be especially targeted towards these populations. In comparison with existing literature a young adults and Early-Onset Colon Cancer. The result findings that the younger age groups (20-39 years) represent only a small fraction of total cases align with reports from the American Cancer Society (2021) [9]. In 2021 the results displayed the Male: 62 (51%) and Female: 96 (78%), The data indicates a higher number of females in this year, with a notable percentage difference in favor of females. while in 2022 Male: 90 (58%) and Female: 63 (41%). Here, there's a significant shift: the number of males increased substantially, while female numbers decreased sharply. This year reflects growing male representation, switching the dominance from females in 2021 to males in 2022. and in 2023 Male: 41 (50%) and Female: 41 (50%) and In 2023, the numbers are equal between the sexes, indicating a potential shift toward gender balance in the population or subject matter of the study. The data from the Sabrata National Center of Cancer Treatment reveals the distribution of drug therapies among patients. The table indicates that FOLFOX is utilized by 67 patients (19%), while Xeloda (Capecitabine) is used by 14 patients (4%). This information prompts a closer examination of the potential reasons for such distribution and its implications in the context of cancer treatment. A combined total of 80 patients (22%) received surgical treatment, either alone or in combination with chemotherapy (Folfox or Xeloda. A significant portion (19%) was only diagnosed without treatment, which may reflect a need for improved early intervention or follow-up. The World Health Organization (WHO) often reports on global cancer statistics and treatment

accessibility, showcasing disparities between high-income and low-income countries [18], [19] and [20].

CONCLUSION

Guidelines for Colorectal Cancer Screening are advised Screenings After the age of 45, screening ought to begin. Frequent screenings are recommended. People with Crohn's disease or ulcerative colitis may need to have early screenings (Lashner B. (2006)). A personal or family history of polyps or colorectal cancer. Early screening may be necessary for genetic syndromes such as Lynch syndrome or familial adenomatous polyposis. Regular screening, starting at age 45, is the best method to lower the risk of colorectal cancer. Eat fruits, foods rich in fibre, and fish, while avoiding red meat. Be aware of colorectal cancer risk factors. Quit smoking, Refrain from drinking alcohol. Exercise regularly. Reducing radiation exposure.

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