

Clinical and Demographic Profile of Patients with Crohn's Disease in Specialized Hospital for Gastrointestinal and Liver Diseases and Surgery in Al-Najaf Province

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ABSTRACT

Background: Crohn's disease (CD) It is a chronic inflammation that occurs in the digestive system. This disease is widespread in developing countries. **Aim of study:** To estimation the ratio of clinical and demographic data of CD patients at Specialized Hospital for Gastrointestinal and Liver Diseases and Surgery in AL- Najaf Province. **Patients and Methods:** Demographic and clinical data were obtained by medical analysis data to patients attended into Specialized Hospital for Gastrointestinal and Liver Diseases and Surgery in AL- Najaf Province from October 2022 to March 2024. **Results:** Sixty-four patients diagnosed with Crohn's disease participated in this study. The findings indicated that the majority of individuals infected with this disease were women, with the age group of 30 to 39 years being the most prevalent among the infected population. The findings indicate that freelancers and housewives are the most impacted by this disease. The results indicated that the majority of patients visiting the hospital are from Najaf Governorate. The disease was diagnosed through biopsy samples collected from different regions of the digestive system, and the treatment for the majority of patients involved immunosuppressant medications. **Conclusions:** Despite the increasing incidence, we highlight the Education and a extra intestinal manifestation in this study, and reflecting a high need for hospitalization and immune-modulatory, and uses biological treatment, and surgery.

Keywords: Crohn's Disease, Pharmacological Treatment, Biopsy, Endoscopy, Immunosuppressants.

Article Information

Received: June 26, 2024; Revised: August 30, 2024; Online: September, 2024

1.INTRODUCTION

The digestive system in mammals is considered one of the complex biological systems whose primary function is to digest food. This system consists of two halves: the upper, which includes the mouth, pharynx, esophagus, and stomach, and the lower half, which includes the duodenum, jejunum, ileum, small intestine, large intestine, cecum, colon, rectum, and anus. The function of the upper half of the digestive system is to carry out the chemical digestion of food entering the mouth, which facilitates the process of analyzing and absorbing nutrients in the small intestine, where food is transferred to the lower half of the digestive system. As for the lower half of the digestive system, the digestion process continues and the absorption of most nutrients continues in the jejunum until it reaches the final digestion processes in the large intestine, and the extra water and nutrients are extracted and transported through the bloodstream for the body to benefit from them. As for the waste, it exits the body through the anus through colon contractions that push the waste out of the body, and

this process is called defecation. (Ogobuiro et al., 2023).

IBD is a term commonly used for Crohn's disease (CD) and ulcerative colitis (UC). They are immune inflammatory diseases in the digestive tract. In the CD, inflammation extends across the entire thickness of the intestinal wall from the mucous membrane to serosa. The disease is on the path of relapse and conversion. With multiple setbacks, the CD can progress from mild to moderate inflammatory cases initially to severe penetration (fistula) or tightening disease (Lightner et al., 2019; Marazuela et al., 2019; Aksan et al., 2019; Huang et al., 2019). Crohn's disease can affect all part and any part of the digestive system. About one third of patients have a small participation in the intestine, especially the final foliage, also there are 20 % have only colon participation and about 50% have participation in both the colon and the small intestine. In this

disease no cure and patients suffer from seizures of calm and relapse in unpredictable times. Finally there leads to poor quality of life (Khan et al., 2019). The characteristic transmural inflammation can include the entire GI tract from mouth to the perianal area; although most frequently involve ileum terminal and colon right. The initial lesion starts out as an infiltrate around an intestinal crypt. This goes on to develop ulceration first in the superficial mucosa and then involves deeper layers. As inflammation progresses, non caseating granulomas form involving all layers of the intestinal wall. It also can develop into the classic cobblestone mucosal appearances. The inflamed areas of the intestines are replaced by scarring as Crohn's flare settles (Greuter et al., 2018).

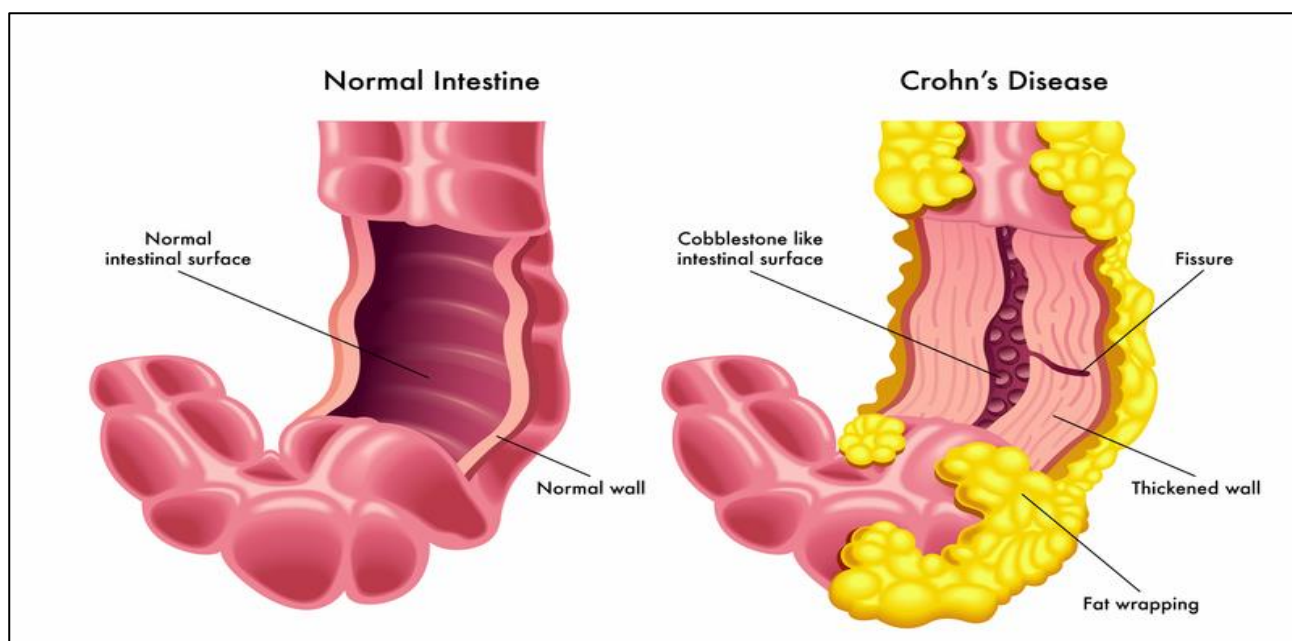


Figure (1): Comparison between normal intestine and Crohn's Disease.

Patients with Crohn's disease develop persistent granulomas, which lead to inflammation in the intestines and may lead to obstruction due to the narrowing caused by these granules. Crohn's disease may lead to enterovesical fistulas and vaginal fistulas in women. These granules may help in diagnosing

the disease if they are present, but they are not considered essential in diagnosing the disease (Ranasinghe et al., 2023). Diarrhea, malabsorption, weight loss, abdominal pain, and anorexia are possible symptoms of the small bowel involvement. (Fumery et al., 2019). Magnetic resonance imaging of the intestine can

diagnose fistulas and intestinal obstruction. Plain X-rays are used to monitor the small intestine and monitor fistulas that may affect the terminal ileum. People who have a fistula cannot undergo colonoscopy or CT. Nuclear imaging also reveals sites of inflammation. (Honap et al., 2021). (Viola et al., 2021). Before treatment for Crohn's disease, the level of thiopurine methyltransferase must be checked and all vaccinations against many diseases such as whooping cough, diphtheria, tetanus, viral hepatitis A and B, mumps, German measles and other diseases must be taken, because the

2. PATIENTS AND METHODS

2.1. Participants

Sixty-four patients with Crohn's disease were admitted to the Specialized Hospital for Gastrointestinal and Liver Diseases and Surgery in AL-Najaf Province from October 2022 to March 2024 and were enrolled. The hospital has intensive care lounges, a biological treatment lounge, hospital consulting departments, ultrasound, radiology, and a library, as well as three lobbies with individual rooms. The hospital is specialized in receiving medical cases that require complex examinations, such as upper gastrointestinal endoscopy, lower gastrointestinal endoscopy, or esophageal motility examination device.

2.2. Data sources

The data of demographic, laboratory, and medications were extracted from patients who come to the hospital. Available tests for patients are: Blood tests, Virology tests. Biochemistry tests, Auto immunity tests, Renal functions, and Liver functions are all included. All patients diagnosed by Endoscopy and Biopsy. Another methods to diagnosed the disease are : Abdominal CT and Abdominal ultra-sound.

presence of high levels of thiopurines and failure to take the necessary vaccinations will reduce the effectiveness of treatment. It is also necessary to diagnose the chest with an X-ray and perform a Mantoux test before starting treatment (Sandborn et al., 2020).

The our study aimed to estimation the ratio of clinical and demographic data of CD at the Specialized Hospital for Gastrointestinal and Liver Diseases and Surgery in AL-Najaf Province.

2.3. Covariates

Based on recorded data, several covariates were selected for analysis , these are included age, gender, extra intestinal manifestation, Residence, and Education .

2.4. Data analysis

We relied on calculating the number and percentage in analyzing the data of incoming patients.

3.RESULTS AND DISCUSSION

3.1. Demographic Characteristics

Sixty four patients attended to Specialized Hospital for Gastrointestinal and Liver Diseases and Surgery in AL- Najaf Province, The most of patients were Females (n.37) and Males were (n.27) as show in table (3.1). Their age groups range from 10 to 69 years old. The more affected age stage by crohn disease were between 30-39 years old as show in table (3.2).

As shown for many other immune-mediated disorders, inflammatory bowel diseases exhibit a gender bias. distinct illness presentation and activity influenced by female-specific variations results in a distinct progression between men and women. Women have X chromosome-related genetic inclination to get inflammatory bowel disease. The condition of active illness at

the time of conception, pain sensation, and gastrointestinal symptoms might all be severely impacted by female hormone fluctuations therefore affecting the pregnancy. Women with

inflammatory bowel illness report lower quality of life, more psychological stress, and less sexual engagement than males (Lungaro et al., 2023).

Table (3.1): Distribution of patients according to Sex group.

Sex	CD No.64	Percentage (%)
Female	37	(57.81%)
Male	27	(42.19%)

Table (3.2): Distribution of patients according to Age group.

Mean of age	CD No.64	Percentage (%)
10-19	13	(20.31%)
20-29	18	(28.13%)
30-39	22	(34.38%)
40-49	5	(7.81%)
50-69	2	(3.13%)

The predominant age range for the diagnosis of Crohn's disease is between 15 and 35 years. Individuals may endure Crohn's disease for as long as five years prior to obtaining a diagnosis, or they may have an asymptomatic variant of the condition. Crohn's disease may be hereditary, with individuals having an increased likelihood of developing the ailment if a close family is affected (Grinman et al., 2022).

Diseases associated with age develop during an individual's life due to hereditary traits that have diminished in their advantageousness. The relationship between optimal natural immunity and lifespan is established. Chronic antigenic stimulation, including infections, perpetually influences immunological senescence. A reduced pathogen load environment enhances the probability of longevity. It is possible to expect a balanced immune response and alter the probability of experiencing severe inflammatory reactions in the presence of a low pathogen load (Saavedra et al., 2023). Research

on ageing has revealed that as individuals become older, their capacity to manage certain illnesses diminishes. This phenomenon was termed "inflamm-aging." The persistence of inflammatory stimuli serves as a "first hit," increasing individuals' vulnerability to age-related ailments. Advanced organ-specific age-related diseases are mostly induced by a "second hit," characterised by the lack of robust protective gene variants (Badal et al., 2020).

The result also show that patients were enrolled to the hospital from different Provence but the most patients were from AL-Najaf , as show in table (3.3).The prevalence of inflammatory bowel disease exhibits significant geographical variation. The highest incidence of inflammatory bowel diseases (IBD) have been reported in westernised nations. Recent epidemiological studies indicate a rising of inflammatory bowel disease (IBD) in regions that previously exhibited low disease rates (Osei et al., 2021). It is prevalent in developed,

industrialised countries and provinces, suggesting that urbanisation may serve as a potential risk factor. The increase in incidence commenced in the early 1990s, coinciding with alterations in governance structures and the social environment (Lakatos et al.,

2006). Finally, the results show that the most patients were from Gainer, as show in table (3.4).

Table (3.3): Distribution of patients according to Residence.

Residence:	CD No.64	Percentage (%)
Najaf	36	(56.25%)
Diwaniyah	12	(18.75%)
Babil	4	(6.25%)
Samawah	6	(9.38%)
Karbala	4	(6.25%)
Nasiriyah	2	(3.13%)

Table (3.4): Distribution of patients according to Education.

Education	CD No.64	Percentage (%)
Student	12	(18.75%)
Employee	10	(15.3.3%)
Gainer	25	(39.06%)
Housewife	17	(26.56%)

Inflammatory bowel disease (IBD) commonly impacts individuals in their late teens and early 20s, a critical period for making educational and career decisions. Individuals diagnosed with Crohn's disease and ulcerative colitis achieve educational attainment comparable to that of the general population (Rasmussen et al., 2022). The quality of life for these patients in educational settings, as assessed through the perceptions of both patients and teachers, suggests that, despite challenges related to absenteeism and physical discomfort, students generally view teachers as having positive attitudes towards providing assistance. Previous research in employment has

indicated a clustering of IBD cases among individuals in white-collar positions. However, recent data suggest that specific environmental risks for IBD, such as sedentary or indoor jobs, may correlate with white-collar occupations. Consequently, holding a white-collar job may not inherently pose a risk factor for the development of IBD. Individuals with inflammatory bowel disease (IBD) exhibit an elevated rate of nonparticipation in the labour force, with participation rates remaining relatively stable over time (Emerson et al., 2016). The majority of patients with inflammatory bowel disease (IBD) maintain their employment positions over several years.

Individuals with inflammatory bowel disease (IBD), particularly those who have had surgical interventions, experienced greater amounts of sick leave compared to individuals without IBD. A significant proportion of patients with inflammatory bowel disease (IBD) supported the idea of informing their employers about their diagnosis and reported minimal experiences of discrimination in the workplace. Additionally, employees with IBD generally viewed their employers as having equitable attitudes regarding the compensation offered to them (Gordon et al., 2023).

3.2. Clinical Profile of Crohn's disease patients

3.2.1.Extra intestinal manifestation tests

Persons with Crohn's disease or colitis frequently experience conditions outside the gastrointestinal tract, referred to as 'extraintestinal expressions.' These may include anaemia, viral infections, inflammation, osteoporosis, kidney disorders, and liver conditions, as illustrated in Table 3.5. Extraintestinal manifestations include the following:

3.2.1.1- CBC :

The outcomes indicate that forty-nine patients underwent a complete blood test (CBC) as it aids in the diagnosis of anaemia. Crohn's disease impacts the gastrointestinal tract during iron absorption. The presence of white blood cells (WBCs) will be noted, particularly in cases of infection, along with the observation that platelet levels may be elevated (Kaitha et al., 2015).

3.2.1.2- Biochemistry:

The results show fifteen patients doing Vit D test, in order to observe the level of Vit D, Also estimate albumin in twenty patients to show if affected by this disease because it affects its absorption in the intestine, especially since the

site of infection is in (cecal and ileal), as well as triglycerides and others (Bikle *et al.*, 2021).

3.2.1.3- Virology tests

Virology tests were conducted on patients such as: EBV in eighteen patients. One of the causes of autoimmune diseases such as Crohn's disease and ulcerative colitis is human infection with viruses such as the Epstein-Barr virus, which is known to infect lymphocytes, specifically B cells, and this virus can also lead to cancers such as Hodgkin's lymphoma (Dehghani et al., 2023).

A different virology test conducted on eleven patients was for HCV. Individuals diagnosed with Crohn's disease (CD) exhibit an increased susceptibility to hepatitis C (HCV) and hepatitis B virus (HBV) infections, attributed to surgical and/or endoscopic interventions. The incidence of HCV infection in CD remains unknown (Yamile et al., 2020).

In a previous study, blood samples were taken from seven patients infected with HIV, as it is known that this virus is transmitted through the blood from one person to another. It was confirmed that autoimmune enteritis occurs due to immunodeficiency in these patients, because once they are infected with this virus, it suppresses their immune system, which may lead to autoimmune enteritis. Inflammatory bowel disease (IBD) and HIV infection may coexist in an individual, though such occurrences are infrequent. Consequently, the interplay between these conditions and their effects on the immune system remain inadequately understood (Vinikaite et al., 2023). Speculations suggest that the HIV-modified CD4+ lymphocyte count influences the progression of inflammatory bowel disease (IBD) and increases the risk of opportunistic infections (Schwartz et al., 2022; Siwak et al., 2022).

3.2.1.4- Renal functions analysis

Assessment of renal functions in twenty-three patients with Crohn's disease, particularly focussing on urea and creatinine levels, is essential due to the disease's extraintestinal manifestations (Ng et al., 2017). Patients with inflammatory bowel disease may experience dehydration due to persistent diarrhoea or haemorrhage. The effects of medications may also extend to other systemic disorders, or kidney tissue may be damaged due to the immune system attacking the glomeruli and tubules. People with Crohn's disease may develop kidney stones or retroperitoneal fibrosis, which can lead to damage to the kidney tissue and damage to the entire kidney (Van and Hoffman, 2022). Therefore, a correct and timely diagnosis of kidney dysfunction is very important to avoid kidney damage (Inker and Titan, 2021).

The identification of renal disorders in the IBD patients is commonly performed through the assessment of serum creatinine levels. Serum creatinine level is the primary method for evaluating kidney function. Serum creatinine levels may be affected by various factors not directly related to glomerular filtration rate (GFR), such as muscle mass, f medication use, and dietary habits (Lee et al., 2023). This report presents a case of significant fluctuations of creatinine levels in serum of patient with Crohn's disease, despite the absence of histological indications of kidney injury (An et al., 2022).

3.2.1.5- Liver function tests is conducted on twenty nine patients, Because Crohn's disease may lead to fibrosis in the bile ducts inside the liver (Sura et al., 2021). Biliary diseases often occur in patients with Crohn's disease due to toxic accumulations of medications they are taking or due to an incorrect immune response. Primary sclerosing cholangitis (PSC) is very

common in conjunction with Crohn's disease (Cappello et al., 2014).

3.2.2. Pharmacological treatment

Crohn's disease currently lacks a cure; however, treatment can manage or alleviate symptoms and help prevent their recurrence. Pharmacological interventions are the primary modalities of treatment; however, surgical intervention may be necessary in certain cases. The current results indicate that immunosuppressants are more frequently utilised in the treatment or reduction of disease symptoms, as demonstrated in Table 3.6.

Crohn's disease is a chronic disease that affects all parts of the digestive system, starting from the upper half and ending with the lower half, characterises CD, resulting in diminished quality of life for affected individuals. The management of Crohn's disease entails both the induction and maintenance from stress. The available therapeutic drugs include amino salicylates, corticosteroids, immunosuppressant, and biological options. Some patients exhibit incomplete responsiveness to conventional treatments or experience a decline in efficacy over time; for these individuals, novel pharmacological options may provide potential for long-term remission with reduced relapse rates (Gade et al., 2020).

3.3. Diagnostic methods

The outcomes indicate that all patients diagnosed via endoscopy and biopsy (oesophagus, colon, ileum, duodenum, and cecum) were identified, while a lower number of patients were diagnosed through abdominal ultrasonography and abdominal CT, as presented in Table 3.7.

Table (3.5) Clinical profile in CD patients.

Extraintestinal manifestation tests	CD No. 64	Percentage (%)
CBC	49	(76.56%)
Biochemistry :		
Vit D	15	(23.43%)
TG	29	(45.31%)
Albumin	20	(31.25%)
Virology :		
EBV	18	(28.13%)
HCV	11	(17.19%)
HIV	7	(10.94%)
Renal function :		
Urea	23	(35.94%)
Creatinine	23	(35.94%)
Liver function :		
AST	29	(45.31%)
ALT	29	(45.31%)
ALP	29	(45.31%)

Table (3.6): Clinical profile according to Pharmacological treatment.

Name of drug	CD No.64	Percentage(%)
Steroid	58	(90.63%)
Immuno-suppressants	60	(93.75%)
Biological medicines	58	(90.63%)
Amino-salicylates	41	(64.06%)

Table (3.7): Diagnostic methods to CD patients.

Type of diagnosis	CD No. 64	Percentage (%)
Biopsy	64	(100%)
Abdominal ultra-sonography	11	(17.19%)
Abdominal CT	4	(6.25%)

The significance of endoscopy and biopsy as initial procedures in patients with suspected Crohn's disease is confirmed, while CT and MRI continue to be the gold standard imaging techniques for diagnosing intestinal involvement and transmural lesions. (Schiavone et al., 2016). Colonoscopy and ileocolonoscopy allow for the analysis of focal lesions and the visualisation of esophageal mucosal furrowing. Each endoscopic technique possesses significant diagnostic capabilities and advantages in imaging intestinal lesions in patients (Wilkins, 2011).

CT enterography refers to the contrast examination of the intestines utilising computed tomography. This technique was presented as an alternative to traditional X-ray enteroclysis (Gatta et al., 2012). The test facilitates quantitative evaluation and identification of structural damage, as well as the assessment of Crohn's disease activity in the small intestine (Deepak et al., 2016). The primary benefit is its non-invasive nature. The test exhibits a sensitivity of approximately 97.8% to changes and disease activity (Zhang et al., 2015). CT enterography possesses exceptional spatial resolution, facilitating the acquisition of a multiplanar three-dimensional profile. The procedure necessitates the use of a contrast agent that enhances the visualisation of the intestinal lumen and walls internally (Park et al., 2016). The contrast agent consists of an iodine-based solution.

Ultrasonography diagnosis (USGD) is a non-

invasive diagnostic procedure widely accessible in numerous medical facilities. The test procedure is relatively straightforward and, crucially, devoid of any harmful side effects. Sarno et al. (2019) indicate that the prevalence of intestinal ultrasound has risen in recent years, enhancing its significance in diagnosing inflammatory bowel diseases. This examination is highly valuable, comparable to a complex computed tomography examination, due to its multiple benefits. In contrast to computed tomography, it does not subject the patient to ionising radiation. Ultrasound examination of the large intestine may reveal alterations in both the intestinal wall and the surrounding structures (Casciani et al., 2014). Intestinal wall thickening exceeding 2.5 mm is deemed abnormal and categorised as a lesion type associated with Crohn's disease. Variable echogenicity and an increased Colour Doppler signal are additional aspects observed in ultrasound, potentially indicating excessive tissue blood supply or inhibition of intestinal peristalsis (Pasternak et al., 2023).

4. CONCLUSIONS

The current research represents the inaugural examination of the clinical and demographic profile of the Iraqi population, particularly in AL-Najaf Province. The increased incidence of complicated Crohn's disease in this cohort led to a heightened demand for healthcare resources, including biological treatments, hospitalisations, and surgical interventions.

These results are important as they enhance awareness of the disease and the importance of conducting diagnostic tests and treatment to eliminate the complications that may result.

5. RECOMMENDATIONS

We recommend conducting further research to examine the importance of education and its impact on the incidence of the disease, as well as studying the impact of lifestyle on the incidence of this disease, studying the causes of the spread of the disease, the causes of relapse, and the weakness of the immune system, and preparing detailed reports on this.

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