Clinical pattern of inflammatory bowel disease in Southern Saudi Arabia: a retrospective cohort study

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ABSTRACT

Background & Study Aim: Inflammatory bowel disease (IBD) is characterized by chronic inflammation of the gastrointestinal tract, caused by a dysregulated immune response to the host intestinal microflora. The main types of IBD are ulcerative colitis (UC) and Crohn's disease (CD). Ulcerative colitis causes long-lasting inflammation and ulceration in the innermost linings of the large intestine (colon) and rectum, while Crohn's disease is characterized by inflammation of the lining of the digestive tract. The present study was conducted to assess magnitude, epidemiological pattern, and complications of IBD in Aseer region of Southern Saudi Arabia.

Patients & Methods: A retrospective study targeting patient records of all patients with IBD, who were diagnosed with CD and UC over the period between 1980 and 2019 at gastroenterology unit, Aseer central hospital. The data were extracted from the patients' files covering the demographic data, signs and symptoms at the onset of disease, laboratory data, radiological findings, and endoscopic findings.

Results: The study included 134 patients, of whom 68 (50.7%) were diagnosed with ulcerative colitis (UC) and 66 (49.3%) with Crohn's disease (CD). Considering the endoscopic findings, the CD patients have maximum site of lesion at terminal ileum, followed by the descending and sigmoid colon. Whereas in UC patients the most recorded endoscopic site affected was the descending colon followed by sigmoid colon, and then transverse colon. Anemia was the most frequent complication affecting both groups of patients.

Conclusion: IBD is no longer an uncommon ailment in KSA. UC is in a sound state, while CD is escalating considerably and far outnumbering UC.

Key words: Inflammatory bowel diseases (IBD), ulcerative colitis (UC), Crohn's disease (CD), Computed Tomography (CT), Magnetic Resonance Imaging (MRI)

Introduction

Inflammatory bowel disease (IBD) is a chronic inflammatory disorder affecting gastrointestinal (GI) tract, mainly small and large intestine. There are two major types of IBD: Crohn's disease (CD) and ulcerative colitis (UC). However, there is a small group (10%) of patients who are not classified as having either CD or UC; those are categorized as intermediate colitis(1, 2). The exact cause of IBD is unknown but there are many current hypotheses implicating a combination of genetic, environmental and immunoregulatory factors in pathogenesis of IBD (1, 3). The infectious microbes, ethnic origin, genetic susceptibility, and a dysregulated immune system can result in mucosal inflammation. The incidence and prevalence of IBD are higher in the northern part of the world such as Europe and Canada. However, recent studies have reported an increase in the incidence and prevalence of IBD in the Middle East and Gulf countries which were previously known to have low incidence and prevalence (4, 5, 6). A few reports from Saudi Arabia, mainly from Riyadh, have shown an increase of the incidence and prevalence of IBD (7, 8, 9). This increase has been attributed to the westernization of the lifestyle and improvement in sanitization (10).

Both CD and UC are commonly diagnosed before the age of 30 years, although a small group is detected at an older age between 50s and 60s(11). CD usually affects any part of the gastro-intestinal tract from mouth to anus. Smoking has been reported to reduce the risk of UC, but in contrast, increases the risk for CD. Furthermore, previous reports documented a slight gender difference as CD has been reported to be higher in women, whereas UC is reported to be higher in the male population (9, 12).

CD and UC are chronic, relapsing diseases in which symptoms vary from patient to patient and may range from mild to severe in intensity. The commonly experienced symptoms are dysentery, abdominal pain, weight loss, and arthralgia (9, 10, 11). Once IBD has been diagnosed, the symptoms can often be effectively managed. However, CD and UC are chronic illness where disease may recur and complications may flare up.

The aim of this study was to estimate the prevalence of IBD in Aseer region and to study the demographic, clinical pattern, and course of the disease in terms of therapeutic management with medications and surgical interventions.

Patients and Methods

This is a retrospective record based study targeting all records of 134 patients with IBD, who were diagnosed with either CD or UC over a period from 1980 to 2019 at the gastroenterology unit, Asser central hospital (ACH), Abha, Saudi Arabia. This is the main tertiary hospital in Aseer region, southern part of Saudi Arabia, serving more than two million people. The hospital has a total clinical capacity of 574 beds, and contains the latest modern medical devices and technologies that rarely present in most of the hospitals in some of the developed countries. The data were extracted with the help of specially designed data collection tools to minimize extraction errors. The data extracted covered the demographic details of the patients, signs and symptoms at the onset of the disease, date of onset, time interval between the disease onset and the time of diagnosis, laboratory, and radiological and endoscopic findings. The present study was approved by the Ethics Committee of Aseer Central hospital.

Statistical analysis

The data were extracted, revised, coded and fed into statistical software IBM SPSS version 22. All statistical analysis was performed using two tailed tests and alpha error of 0.05 and P value less than or equal to 0.05 was considered to be statistically significant. Descriptive analysis is based on frequency and percent distribution for all patients' demographics, clinical data, radiological and endoscopic findings.

Results

Epidemiology of patients with IBD

The study included 134 patients of whom 68 (50.7%) were diagnosed with ulcerative colitis (UC) and 66 (49.3%) with Crohn's disease (CD). For patients with Crohn's disease, 65.2% were below the age of 30 years and 66.7% were men. A total 15.2% overweight patients were recorded and 89.4% of them had the disease for 9 years or less. Regarding ulcerative colitis, 45.6% were aged less than 30 years, and 54.4% were men. Obesity was recorded among 11.8% of the cases and 86.8% had the disease for 9 years or less (Table 1).

Clinical presentation of patients with IBD

Table (2) demonstrates the clinical presentation of the study population. The most recorded physical signs among CD cases were abdominal tenderness (36.4%) followed by skin lesion (21.2%), and pallor (18.2%). On the other hand, the frequency of the same physical signs among patients with UC was 33.8%, 29.4%, and 25% respectively.

Considering symptoms, the most reported symptoms by patients with CD were abdominal pain (87.9%), followed by weight loss (47%), and bloody diarrhea (42.4%), while the frequency of these symptoms reported by UC patients were: 75%, 64.7%, and 33.8% respectively.

Radiological findings

According to radiological findings, the most frequent affected sites detected by CT in CD cases were: ileum (67.4%), sigmoid colon (37.2%), ileocecal (30.2%), and jejunum (25.6%). In contrast, in UC, the lesions were seen in sigmoid colon (72.2%), descending colon (66.7%), transverse colon (55.6%), and ascending colon (27.8%). Specific CT pathological findings reported among CD cases was wall thickening which was found in the majority of the cases (84.6%). This was followed by wall enhancement (15.4%), and abscess formation (12.8%). However, in UC, the reported corresponding CT findings were 80%, 20%, and 13.3% respectively. MRI was done in only 25 patients who showed that the most affected site of lesion among patients with CD were: rectum (40%), anus (26.7%), and then sigmoid colon (26.7%). While in UC, all lesions detected with MRI were confined to the rectum. Details of MRI pathological findings in CD patients included wall thickening (62.5%), wall enhancement (37.5%), and perianal fistula (25%). However, the frequencies of these abnormal MRI findings in UC patients were evenly distributed at 50%.

Disease behavior and extent of the disease

The endoscopic findings are shown in Table 3. It is clear that terminal ileum was the main site affected (41.2%) among CD cases. Other affected sites were the descending, sigmoid colon (35.3% for each), and the ileocecal valve (31.4%). It was alarming that the majority of patients with UC (69.65%) had pan-colitis, while 21.4 % had proctitis, and 8.9% had left sided colitis.

Medical management

As shown in Table 4, the majority of patients with CD (70%) received Azathioprine in addition to biological therapy and calcium supplement in 50% of them, while 43.3% received corticosteroids. The corresponding percentages in patients with UC were 59.7% for both Azathioprine and Amino Salicylates, 64.5% for calcium supplements, and 50% for steroids.

Complication of the disease

The spectrum of complications (Table 5) was as follows: anemia (58.1%) among patients with CD and 79.2% of UC patients. Moreover, 35.5% of UC patients had toxic mega colon and 32.3% of CD patients had intestinal obstruction.

Table 1: Personal characteristics of patients with inflammatory bowel diseases in Aseer Central Hospital

Personal data	Diagnosis			
	Crohn's Disease (n=66)		Ulcerative colitis (n=68)	
	No	%	No	%
Age (in years)				
< 30 years	43	65.2%	31	45.6%
30-39	14	21.2%	17	25.0%
40+	9	13.6%	20	29.4%
Sex				
Male	44	66.7%	37	54.4%
Female	22	33.3%	31	45.6%
Body mass index				
Normal	56	84.8%	60	88.2%
Overweight/ obese	10	15.2%	8	11.8%
Disease duration (in years)				
1-4	20	30.3%	14	20.6%
5-9	39	59.1%	45	66.2%
10+	7	10.6%	9	13.2%

Table 2: Clinical presentation of cases of IBD in Aseer Central Hospital

Clinical presentation		Diagnosis			
		Crohn's Disease		Ulcerative colitis	
		No	%	No	%
Physical sign at initial presentation	Aphthous ulcer	1	1.5%	1	1.5%
	Abdominal tenderness	24	36.4%	23	33.8%
	Abdominal mass	6	9.1%	6	8.8%
	Eye signs	8	12.1%	4	5.9%
	Skin lesion	14	21.2%	20	29.4%
	Pallor	12	18.2%	17	25.0%
	Other	10	15.2%	2	2.9%
Symptoms	Abdominal pain	58	87.9%	51	75.0%
	Bloody diarrhea	28	42.4%	44	64.7%
	Rectal bleeding	7	10.6%	11	16.2%
	Weight loss	31	47.0%	23	33.8%
	Constipation	12	18.2%	1	1.5%
	Tenesmus	3	4.5%	6	8.8%
	Fever	13	19.7%	1	1.5%
	Joint pain	3	4.5%	5	7.4%
	Mouth ulcer	5	7.6%	0	0.0%
	Nausea/vomiting	13	19.7%	4	5.9%
	Other	3	4.5%	4	5.9%

Table 3: Endoscopic clinical findings for cases of IBD in Aseer Central Hospital

Endoscopy findings	Crohn's Disease		Ulcerative colitis	
	No	%	No	%
Terminal Ileum	21	41.2%	4	7.1%
Ileocecal valve	16	31.4%	4	7.1%
Cecum	10	19.6%	12	21.4%
Ascending colon	13	25.5%	25	44.6%
Transverse colon	13	25.5%	38	67.9%
Descending colon	18	35.3%	41	73.2%
Sigmoid	18	35.3%	40	71.4%
Rectum	14	27.5%	33	58.9%
Anus	13	25.5%	9	16.1%

Table 4: Treatment received by cases of IBD in Aseer Central Hospital

Treatment received	Diagnosis			
	Crohn's Disease		Ulcerative colitis	
	No	%	No	%
Steroid	26	43.3%	31	50.0%
Azathioprine (Imuran)	42	70.0%	37	59.7%
Aminosalicylates (5-ASA)	22	36.7%	37	59.7%
Metronidazole	1	1.7%	2	3.2%
Ciprofloxacin	3	5.0%	1	1.6%
Methotrexate (MTX)	1	1.7%	2	3.2%
Biological therapy	30	50.0%	23	37.1%
Iron supplements	9	15.0%	12	19.4%
Calcium supplement	30	50.0%	40	64.5%

Table 5: Complications recorded among cases of IBD in Aseer Central Hospital

Complications	Diagnosis			
	Crohn's Disease		Ulcerative colitis	
	No	%	No	%
Anemia	18	58.1%	19	79.2%
Intestinal obstruction	10	32.3%	1	4.2%
Sepsis	4	12.9%	0	0.0%
Toxic mega colon	11	35.5%	2	8.3%
Stricture	1	3.2%	0	0.0%
Colon ca	0	0.0%	2	8.3%
PSC	0	0.0%	1	4.2%
Fulminant colitis	2	6.5%	1	4.2%
Bowel perforation	0	0.0%	0	0.0%
Small bowel bacterial overgrowth	2	6.5%	0	0.0%
Osteoporosis	0	0.0%	2	8.3%
DVT or PE	3	9.7%	1	4.2%

Discussion

In this study we have tried to present the first hospital-based study that evaluates the prevalence and clinical pattern of IBD in the southern region of Saudi Arabia. IBD is now considered as a global healthcare issue with increasing incidence and prevalence rate in the last 20 years (13). It is our belief that the incidence of IBD is increasing in the Middle East including Saudi Arabia, due to westernization of the lifestyle with regard to eating and living habits (12, 14-16). The first reported incidence of IBD in Saudi Arabia was published in 1982 by Mokhtar and Khan estimating the incidence of CD as very low at 0.32/100,000 population (17). This low incidence was supported by El-Mouzan et al. in 2014 who reported that the prevalence of CD in Saudi Arabia in children younger than 14 to be only 0.27/100,000 population (18). Furthermore, a recent review by Taghreed reported that the incidence and prevalence of IBD in Saudi Arabia is increasing but an accurate estimate is lacking due to the limited studies in this condition (19). In our study, the ratio of patients diagnosed with UC to those diagnosed with CD was approximately 1:1, which is in contrast to the results observed from other countries, where UC was much more common than CD (20-24). This new observation has been supported by earlier studies which indicated that CD incidence is on the rise in Saudi Arabia due to the great changes in eating habits and a life style mimicking that of western countries (25, 26).

It is worth mentioning, that we found a male dominance in both patients with UC and patients with CD, in contrast to the equal sex distribution reported from other areas of Saudi Arabia and from some Asian countries (20, 21). On the other hand, IBD may occur at any age, mostly between 15-30 years; the majority of our patients with CD were younger than 30 years, in agreement with other studies from Saudi Arabia and Asian countries (19, 20, 21).

In our study, the most common clinical presentation reported in patients was abdominal pain followed by weight loss and dysentery which is consistent with what has been reported from other countries (19, 20, 24, 25). However, at the time of presentation, pan colitis was seen in most patients (69%) with UC, while, as expected the terminal ileum was the main site affected (41%) in CD patients. This finding is different from what has been reported from western countries where about 45% of patients with UC presented with proctosigmoiditis while the small and large bowel involvements were reported in 42% of patients (26-28).

Considering the therapeutic management, most of the patients with CD received Azathioprine; 43% patients received steroid at some point of their disease course, and 50% received anti-tumor necrosis factor (ANF). However, it is well acknowledged that such issues embrace a personalized approach based not only on disease extent and severity, but also on an individual patient's projected natural history of the disease. It is heartening that about half of our patients received biological therapies based on severity of the disease as recommended by recent guidelines which recommend newer biological therapies such as Tofacitinib, which seems to be most effective in patients who don't respond to infliximab, although vedolizumab may be considered as a reasonable alternative (29-31).

So, finally we can conclude that the ratio of patients diagnosed with UC to those diagnosed with CD was approximately 1:1; IBD may occur at any age, mostly between 15-30 years; the majority of patients with CD were younger than 30 years.

Study Limitations:

Certain limitations to this study include the retrospective nature and the difficulty of tracing and follow up of patients to ascertain the rates of remission and mucosal healing.

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