Original Article

Clinical and Demographic Profile of Inflammatory Bowel Disease Patients in a Tertiary Center in Eastern Nepal

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Abstract

Background: Chron's disease (CD) and Ulcerative colitis (UC) comprise of Inflammatory Bowel disease (IBD) which are chronic inflammatory disease of gastrointestinal tract. This study aims to determine the clinical and demographic profile of IBD patients.

Methods: The study was a cross-sectional study done at BP Koirala institute of Health Sciences, Dharan from 15th September 2025 to 14th February 2026. Demographic and clinical data waere collected from patients with established IBD.

Results: Out of 62 patients, 48(77.41%) had UC and 14(22.58%) had CD with male predominance (M: F- 1.81:1). The mean age of IBD patients at diagnosis was 45.14±17.52. The median time between onset of symptoms and diagnosis was 14 (2-48) months in CD and 7.5 (2-24) months in UC. CD mostly affected the ileocolonic location 42.85% and had inflammatory behavior (non stricturing and non-penetrating) in 50%. Extensive colitis (E3) and Left side colitis (E2) were found in 43.75% and 41.66% respectively in UC. The most common extra intestinal manifestation was arthritis and arthralgia at 17.74%. Most of the IBD patients were treated with conventional drugs, mesalamine, prednisolone and azathioprine. Biologics were used in only 9.67%.

Conclusions: UC had predominance over CD in IBD. Most of the patients with IBD were male and in age group 30-60 years. E3 and E2 diseases were equally distributed in UC. While most of the CD patients had ileo-colonic involvement and inflammatory behavior. Treatment of IBD is mostly by traditional drugs like mesalamine, prednisolone and azathioprine due to high cost of biologics therapy.

Introduction

Inflammatory Bowel diseases (IBD) are chronic, idiopathic, recurrent inflammation of gastrointestinal tract that comprise of two types of disorders: Crohn's disease (CD) and ulcerative colitis (UC).[1] The studies have suggested multifactorial origin, involving genetic susceptibility, environmental factors, gut microbiota, and innate and adaptive immunity.[2]

IBD once limited to the Western world is increasing in Asian and African countries. This suggests that westernization of lifestyle and urbanization may have influences in acquiring IBD.[3] First case of CD and UC was reported in English literature by Probert et al. in 1990.[4] Next case of CD was detected in 2009 in resected specimen of ileum from Eastern Nepal.[5]

IBD is increasing in Nepal due Westernization of lifestyles. The data of IBD is scarce in this region. This study aimed to identify the clinical and epidemiological profile of IBD patients attending a tertiary center in Eastern Nepal.

Methods

This was a hospital based observational cross-section study conducted in the Department of Gastroenterology and Hepatology of BP Koirala Institute of Health Sciences, Dharan between 15th September 2025 to 14th February 2026. The ethical clearance for the study was obtained from Institutional Review Committee (IRC) Ref. No. IRC/117/082-083. IBD patients over 18 years old (age at their last medical appointment) with confirmed disease through clinical, laboratory, endoscopic, histological, and/or radiological evaluation were included in the study after taking consent. Those patients with unclassified colitis, colorectal cancer, infectious colitis were excluded from the study.

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Sample size was calculated by using formula $n=Z^2x\ (pxq)/d^2$

According to study conducted in Nepal by Bhattarai K et al.[6] in 2024 the prevalence of IBD was 4.16% where they have detected 52 cases among 1248 patients who underwent colonoscopy. Thus, taking prevalence of 4.16% sample size was calculated by using formula

$n=Z^2x\ (pxq)/d^2$

Here,

n= sample size

p=prevalence, 4.16%

q=1-p

d=margin of error, 5%

Z=1.96 at 95% Confidence interval (CI)

$n=1.96^2x\ 0.416\ x\ (1-\ 0.416)/\ 0.0.5^2$

= 61.26

A minimum of 62 samples would be collected.

The demographic data including age, sex, residence and schooling were collected. The clinical data regarding family history of IBD, Montreal classification, time between symptom onset and diagnosis, extraintestinal manifestations, need for hospitalization, pharmacological, and surgical treatment were recorded. Data was entered into SPSS Version 20 software. Frequency, percentage, mean ± standard deviation (SD) or median (range) were calculated to express the descriptive statistics.

Results

A total of 62 patients of established IBD were included in the study. Out of 62 patients 48(77.41%) were patients with UC and 14(22.58%) were with CD. There were 40 male and 22 female patients of IBD. Out of 40 male patients 30 were of UC and 10 were of CD. Similarly, 18 females were of UC and 4 were of CD. The age distribution of IBD patients is given in (Fig. 1).

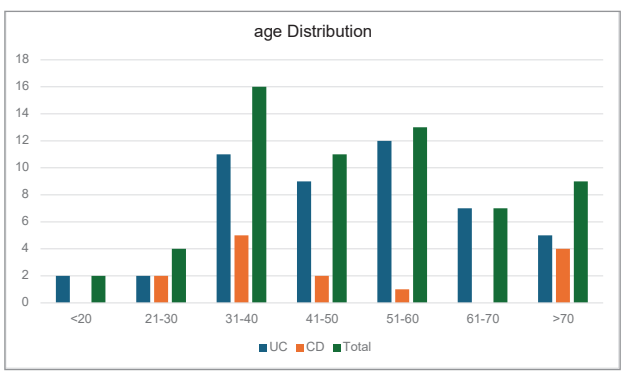

Figure 1. Age Distribution of Inflammatory Bowel Disease patients

The mean age of diagnosis of IBD was 45.14±17.52 years, UC 45.81±17.01 years and CD 42.85±19.68 years. Most of the IBD patients resided in urban areas 40(64.51%). Majority of the patients had no formal education 21(33.87%) and those with primary education were 13 (20.96%). Most of the patients did not smoke during their lifetime 52(83.87%). The demographic profile of the IBD patients is shown in (Table 1).

Table 1. Demographic profile of Inflammatory Bowel Disease patients

	Ulcerative colitis n (%)	Chron's Disease n (%)	Total n (%)
Mean age at diagnosis (years) Mean ± SD	45.81±17.01	42.85±19.68	45.14±17.52
Sex (M: F)	1.66:1	2.5:1	1.81:1
Residence			
Urban	31(64.58%)	9(64.28%)	40(64.51%)
Rural	17(35.41%)	5(35.71%)	22(35.48%)
Education			
Primary level	12(25%)	1(7.14%)	13(20.96%)
High School	11(22.91%)	7(50%)	18(29.03%)
Graduation and above	8(16.66%)	2(14.28%)	10(16.12%)
No formal education	17(35.41%)	4(28.57%)	21(33.87%)
Smoking			
Current	1(2.08%)	0	1(1.61)
Former	6(12.50%)	3(21.42%)	9(14.51%)
Never	41(85.41%)	11(78.57%)	52(83.87%)

The median delay in symptoms onset to diagnosis was 7.5 months in UC with range of 1-24 months and 14months with range of 2-48 months in CD. Only 6.45% of IBD patients had family history of IBD. 98.38% of patients were admitted at least once since the diagnosis of IBD. Arthritis and arthralgia were the most common extra intestinal manifestations 17.74% followed by oral lesions 3.22% and skin lesions 3.22%. The clinical profile of IBD patients are given in (Table 2).

Table 2. Clinical profile of Inflammatory Bowel Disease patients

	Ulcerative colitis n (%)	Chron's Disease n (%)	Total n (%)
Diagnostic delay (months) Median (Q1-Q3)	7.5	14	8
Disease duration (years) Mean ± SD	4.85±3.23	4±2.25	4.66±3.04
Family history of IBD	4(8.33%)	0	4(6.45%)
Hospitalization At least 1 since diagnosis	48(100%)	13(92.85%)	61(98.38%)
Extraintestinal manifestations			
Joint	7(14.58%)	4(28.57%)	11(17.74%)
Oral	1(2.08%)	1(7.14%)	2(3.22%)
Skin	2(4.16%)	0	2(3.22%)
Ocular	0	0	0
Hepatobiliary	0	0	0

Oral mesalamine 48(100%) followed by Prednisolone 42(87.50%) was the most common drug prescribed in UC. Prednisolone was used in 8(57.14%), azathioprine in 7(50%) and mesalamine 5(35.71%) in CD. Small molecule drug (Janus Kinase inhibitor) Tofacitinib was used in 3(6.25%) of UC. Biologics (Adalimumab) was used in 5(35.71%) cases of CD and one (2.09%) of cases in UC. Five (35.71%) CD cases had at least one surgical intervention in the past. Management of IBD patients is given in (Table 3).

Table 3. Management of Inflammatory Bowel Disease patients

Pharma-cological treatment	Ulcerative colitis n (%)	Chron's Disease n (%)	Total n (%)
Prednisolone	42(87.50%)	8(57.14%)	50(80.64%)
Mesalamine	48(100%)	5(35.71%)	53(85.48%)
Azathioprine	5(10.41%)	7(50%)	12(19.35%)
Tofacitinib	3(6.25%)	0	3(4.83%)
Adalimumab	1(2.09%)	5(35.71%)	6(9.67%)
5-ASA Enema	3(6.25%)	0	3(4.83%)
Surgical Treatment At least 1 IBD related surgery	0	5(35.71%)	5(8.06%)

Majority of the CD patients had L3 (ileo-colonic) disease with B1 (nonstricturing and nonpenetrating) disease. UC patients almost had extensive colitis in 21(43.75%) and left-sided colitis in 20(41.66%) (Table 4).

Table 4. Montreal Classification of Inflammatory Bowel Disease Patients

Parameters	Ulcerative colitis n (%)	Chron's Disease n (%)
Age at diagnosis (A)		
A1 (≤16 years old)	1(2.08%)	1(7.14%)
A2 (17–40 years old)	19(39.58%)	6(42.85%)
A3 (>40 years old)	28(58.33%)	7(50%)
Disease Location (L)		
L1 (terminal ileum)	-	2(14.28%)
L2 (colon)	-	4(28.57%)
L3 (ileo-colon)	-	6(42.85%)
L4 (upper GI)	-	2(14.28%)
Disease extent (E)		
E1 (proctitis)	7(14.58%)	-
E2 (left-sided colitis)	20(41.66%)	-
E3 (extensive colitis)	21(43.75%)	-
Disease Behavior (B)		
B1 (nonstricturing, nonpenetrating)	-	7(50%)
B1p (perianal disease modifier)	-	1(7.14%)
B2 (stricturing)	-	4(28.57%)
B2p (perianal disease modifier)	-	1(7.14%)
B3 (penetrating)	-	1(7.14%)
B3p (perianal disease modifier)	-	0

Discussion

Inflammatory Bowel Disease (IBD) is a chronic disease having lifelong continuous cycles of remission and recurrence, although not fatal have effect on quality of life and poses economic burden for the patients and health care system. It is considered as a global public health problem.[7] IBD was regarded as disease of Western countries in 20th century. IBD has been increasing globally, and prevalence is rising in Asia. This rise in the burden of IBD in Asia could be associated with changes in environmental factors, such as improvement in hygiene, socioeconomic status changes, and Westernized diets.[8] The case detection rate has increased due to various factors, including industrialization, access to healthcare facilities, and improved diagnostic modalities.[3]

Studies from West have shown bimodal age distribution in IBD patients with first peaking in 20-40 years and second peaking in 60-80 years. The second peak is pronounced in UC than CD and is absent in Asian epidemiological studies.[9] The mean age at diagnosis of our patients was in the 40s (IBD 45.14 years, UC 45.81 years and CD 42.85 years) which was similar to the study from Brazil where the mean age for IBD was 45.5years, UC was 47.87 years and 42.66 years for the CD patients.[10] Studies from Nepal reported mean age of (IBD 39.67 years, UC 42.56 years and CD 35.80 years) and (IBD 39.67 years, UC 38.3 years, CD 31.8 years) respectively, which were lower than that of this study.[6,11] The average age at diagnosis of IBD patients in North America, Oceania, and Western Europe ranged between 31 to 34 years.[12] Our study points toward the need for a more vigilant approach for early detection of the patients with IBD in their earlier stages.

This study revealed male predominance with Male: female ratio of 1.66:1 in UC and 2.5:1 in CD. Our findings were similar to that of studies done by Paudel et al. where there were male predominance with male: female ratio of 1.4:1 in UC and 1.7:1 in CD.[13] However, Pathak et al. reported almost equal incidence of UC between both sexes with a male-to-female ratio of 1.04:1.[14] Another study revealed a female predominance with a female: male ratio of 1.35:1.[6] Most patients in this study resided in urban areas 64.51%. IBD has been linked to urbanization, adoption of a Western lifestyle including food habits and genetically susceptible hosts.[2] The median delay in diagnosis was 7.5 months with range of 1-24 months in UC and 14 months with ranging of 2-48 months in CD. In developed countries, more than 75% of patients are diagnosed in less than 12 months, with a longer time observed for those with CD. The delay is due to limited access to healthcare which is responsible for a higher frequency of complications, need for surgery, and worse quality of life rates.[2] Nonspecific symptoms, low grade chronic inflammation of disease

condition also plays a part in delay of diagnosis.[15] In our part of world, ignorance about disease condition, poverty and lack of IBD referral center also plays a role.

Family history is present in 7% to 12% in developed countries with predominance among CD patients and concordance between the types of IBD.[2] In this study family history was present in 4(8.33%) of UC patients only which was discordant than that study. Most of the patients, 98.38%, had admission to hospital during the course. This signifies delay in diagnosis and treatment. This may be due to lack of adherence to the treatment as well. The common extraintestinal manifestation (EIM) was related to joints, arthritis and arthralgia 17.74% which was like that of study by Bhattrai S et al. where arthralgia and arthritis were found in (20%) followed by recurrent oral ulcers (15%).[16] In another study incidence of EIM was 12%.[14] The most common disease location in CD was ileocolonic 42.85% and behavior was inflammatory (nonstricturing and nonpenetrating) and perineal involvement was 14.28%. This was in accordance with studies from Nepal and abroad.[2,6] Extensive colitis (E3) and left sided colitis (E2) was found in 43.75% and 41.66% respectively in UC patients which was similar to study from Nepal.[6] However study from Brazil had 50.4% of patients with E3 disease.

Treatment of both UC and CD consists of induction and maintenance of remission. The treatment has revolutionized over previous decade with invention of biologics and small molecules.[17] Studies have demonstrated the ineffectiveness of salicylates for the management of CD and have been reserved for mild colonic presentation only.[2] This was also reflected in this study where only 35.71% of CD patients were on salicylates. While all patients of UC were on Salicylates. Azathioprine was used in 10.41% of UC patients and 50% of CD patients in this study. A study from Nepal reported hundred percent use of azathioprine in patients with CD and only 11% in those with UC.[6] This may be since most of the UC patients in this study were maintained on salicylates.

Biologics use has been advocated upfront for both induction and maintenance of remission.[18] The biologics and small molecules available in Nepal are adalimumab (TNF-α antagonist) and tofacitinib (Janus kinase inhibitor). 35.71% of CD patients and 2.09% of UC patients were treated with biologics. A Brazilian study reported higher use of biologics (56.1%) in CD patients.[2] This may be due to the greater severity of CD and more access to the expanded treatment. Similar study from Nepal in IBD patients, the biologics was used only 3.84%.[6] This may be because biologics cost is higher and it is also not covered by Insurance policy in Nepal. The cost of 40 mg of adalimumab injection ranged from 194.29 to 302.22 US$, and 100 mg of infliximab injection ranged from 386.85 to 496.12 US$ in India.[19] This amount is higher and even out of reach for most of the patients in Nepal. 35.71% of CD patients had surgical interventions in this study. A study from Brazil reported 52.80% surgery in CD patients.[2] It may be due to delay in diagnosis and initiation of efficacious therapy. The early diagnosis and introduction of immunomodulators and biologic therapy in moderate to severe cases contribute to reducing the need of surgical interventions.[20]

Conclusion

IBD is public health concern in Eastern Nepal. UC show predominance over CD in IBD. Males were more effected than females. Most of the patients belonged to 30-60 age group which is the working population. Almost equal number of UC patients had extensive colitis and left side colitis. While CD patients most of them had ileo-colonic involvement and non-structuring and non-penetrating behavior. Arthralgia and Arthritis were the commonest extra intestinal manifestation. Patients were managed mostly with salicylates, corticosteroids and immunomodulators. Only ten percent of IBD cases received biologics which was lower than Western countries and cost of the therapy was the concerning point. Government insurance should cover the cost of biologics for utmost management of IBD.

Conflict of Interest: None.

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