

ORIGINAL ARTICLE

Risk of Thrombosis and Mortality in Inflammatory Bowel Disease

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ABSTRACT

Background and Aim: Inflammatory bowel disease patients are more susceptible to risk of developing thrombosis, which leads to increased morbidity and mortality. The majority of hospitalized patients had venous thrombosis with active disease, but numerous cases occur in outpatient setting. The aim of the present study was to evaluate the risk of thrombosis and mortality in inflammatory bowel disease.

Methodology: This cross sectional study was conducted on 218 inflammatory bowel disease patients at the department of Medicine, Pak International Medical College Peshawar and Poonch Medical College / CMH Rawlakot Azad Kashmir for duration of six months from March 2021 to August 2021. Demographic details and thrombosis profile along with ultrasonic and magnetic resonance imaging were investigated. All the patients were enrolled based on confirmed diagnosis of inflammatory bowel disease through histological findings, radiological and endoscopic evidences. Demographic details such as age, gender, and clinical details such as risk factors of thrombosis, smoking history, duration of disease, surgeries and pharmaceutical treatment, family history, and use of contraceptive were all recorded. Inflammatory bowel disease activity was defined based on CRP values and medical impression. Optimized treatment such as infliximab was considered in cases where doses increased to 10 mg/kg or interval reduced to 4-6 weeks whereas adalimumab was considered for interval of 1 week. For data analysis, SPSS version 21 was used.

Results: Out of 218 patients, 130 (59.8%) were Crohn's disease (CD) diagnosed patients and 88 (39.2%) were diagnosed with ulcerative colitis (UC). Females 118 (54%) were prevalent than males 100 (46%) and the average age was 33.6±12.5 years with a mean disease duration of 9.72± 4.75 years. The 130 CD patients disease location was as follows: ileal in 23 (17.7%), colonic in 11 (8.5%), and ileocolonic in 27. (20.8%). The prevalence of upper GI involvement and upper GI restriction was 13 (10%) and 11 (8.5%) respectively. Based on behavior of disease (n=119), the prevalence of non-stricturing, non-penetrating, penetrating, and structuring were 31 (26.1%), 54 (41.4%), and 34 (28.6%) respectively. Out of 88 UC patients, the prevalence of pancolitis, left-sided disease, and proctitis were 55 (62.9%), 19 (21.6%) and 14 (15.9%) respectively.

Conclusion: Our study found that preliminary evidence for the higher venous thromboembolism risks in patients with IBD associated with ulcerative colitis, steroid use, and ageing. The findings may help to raise clinician awareness and prevent IBD patients from venous thromboembolic complications.

Keywords: IBD, Venous thromboembolism, Risk factors

INTRODUCTION

Globally, inflammatory bowel disease (IBD) is considered as the common chronic inflammatory disorders [1, 2] and affecting 84.3 people per 100,000 people [3-5]. Inflammatory bowel disease is a chronic inflammatory disorder that can affect the gastrointestinal system, typically affecting both intestines [6]. Two special cases of IBD are Crohn's disease and ulcerative colitis [7]. Based on IBD types, the variations in inflammation can cause significant mutilation to the colon's mucosal lining or gastrointestinal tract parts [8, 9]. Furthermore, indeterminate colitis was referred to cases where and Crohn's disease and ulcerative colitis cannot be distinguished [10].

Thrombosis has a direct impact on people's quality of life and significantly contributes to mortality. According to the literature, patients with Crohn's disease (CD) and ulcerative colitis (UC) have a three to fourfold increased risk of thrombosis compared to patients with no inflammatory bowel disease (IBD) [11]. Deep venous thrombosis affects over 500,000 US population in each

year [12]. The mortality rate for DVT is around 3%, and after pulmonary thromboembolism (PTE) is more than 15% during initial 3 months [13]. Venous thrombosis various risk factors includes malignancy, surgery, cardiovascular failure, contraceptive usage, smoking, and pregnancy [14]. Thrombosis risk increases in IBD patients. The present study aims to evaluate the risk of venous thrombosis in inflammatory bowel disease.

METHODOLOGY

This cross sectional study was conducted on 218 inflammatory bowel disease patients at the department of Medicine, Pak International Medical College Peshawar and Poonch Medical College / CMH Rawlakot Azad Kashmir for duration of six months from March 2021 to August 2021. Demographic details and thrombosis profile along with ultrasonic and magnetic resonance imaging were investigated. All the patients were enrolled based on confirmed diagnosis of inflammatory bowel disease through histological findings, radiological and endoscopic evidences. Demographic details such as age, gender, and

clinical details such as risk factors of thrombosis, smoking history, duration of disease, surgeries and pharmaceutical treatment, family history, and use of contraceptive were all recorded. Inflammatory bowel disease activity was defined based on CRP values and medical impression. Optimized treatment such as infliximab was considered in cases where doses increased to 10 mg/kg or interval reduced to 4-6 weeks whereas adalimumab was considered for interval of 1 week. The institutional review board gave their approval and informed written consent was taken.

Parameters such as age, IBD disease location, gender, duration, and behaviour, treatment, IBD family history, body mass index (BMI), oral contraception usage, haemoglobin, platelet count, steroid use, C-reactive protein (CRP), and smoking status were all tested as potential risk factors.

RESULTS

Out of 218 patients, 130 (59.8%) were Crohn's disease (CD) diagnosed patients and 88 (39.2%) were diagnosed with ulcerative colitis (UC). Females 118 (54%) were prevalent than males 100 (46%) and the average age was 33.6±12.5 years with a mean disease duration of 9.72±4.75 years. The 130 CD patients disease location was as follows: ileal in 23 (17.7%), colonic in 11 (8.5%), and ileocolonic in 27 (20.8%). The prevalence of upper GI involvement and upper GI restriction was 13 (10%) and 11 (8.5%) respectively. Based on behavior of disease (n=119),

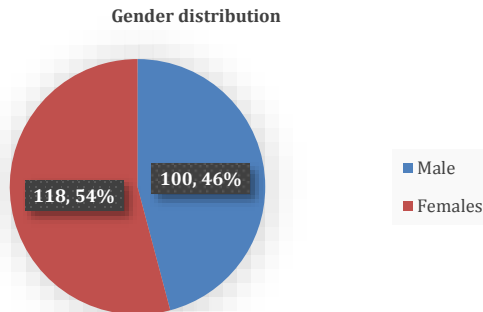


Figure 1: Gender distribution (n=218)

Table 1: Demographic details and disease location of IBD patients

Parameters	Crohn's disease (CD) (n=130)	Ulcerative colitis (UC) (n=88)
Location		
Ileal	23 (17.7%)	Pancolitis 55 (62.9%)
Colonic	11 (8.5%)	Left-sided disease 19 (21.6%)
Ileocolonic	27 (20.8%)	Proctitis 14 (15.9%)
Upper GI tract	13 (10%)	
Disease restricted to GI tract	11 (8.5%)	
Behavior		
Strictureing	34 (28.6%)	
Non-stricturing non-penetrating	31 (26.1%)	
Penetrating	54 (41.4%)	
VTE	23 (17.7%)	11 (12.5%)

The prevalence of non-stricturing, non-penetrating, penetrating, and structuring were 31 (26.1%), 54 (41.4%), and 34 (28.6%) respectively. Out of 88 UC patients, the

prevalence of pancolitis, left-sided disease, and proctitis were 55 (62.9%), 19 (21.6%) and 14 (15.9%) respectively. Gender distribution is shown in Figure-1. Location of IBD and behavior are shown in Table-I. Clinical characteristics and risk of inflammatory bowel disease are shown in Table-II. Location of venous thrombosis are shown in Figure-2.

Table 2: Clinical characteristics and risk of inflammatory bowel disease

	CD (n=23)	UC (n=11)	p-value
Venous Thrombosis			0.91
Inpatient	11 (47.8%)	6 (54.5%)	
Prophylaxis	9/11 (81.8%)	5/6 (83%)	
Outpatients	12/37 (32.4%)	7/11 (63.6%)	
Previous VTE	3/12 (25%)	0	
Clinical disease activity	6/12 (50%)	8/11 (72.7%)	

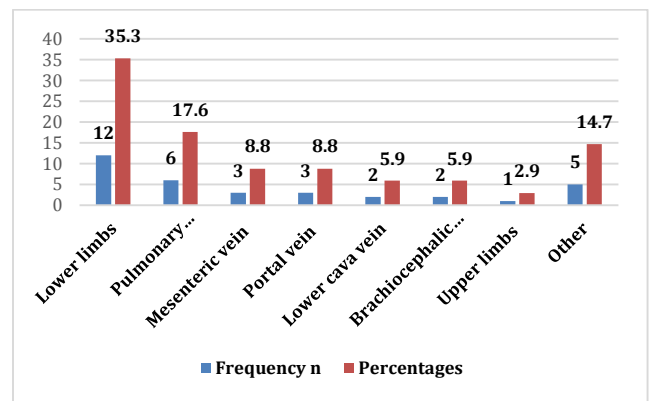


Figure 2: location of venous thrombosis

DISCUSSION

Thrombosis is common in our centre, affecting 15.6% of IBD patients enrolled in this cohort, which is consistent with other studies. Nineteen's patients (55.9%) had VTE as an outpatient complication; activity related to clinical disease had null evidence, thrombosis with null clinical symptoms were in one-third, and routine examination was used for diagnosis. Inflammatory bowel disease is difficult to manage manifestations, atypical pathophysiological mechanism, and co-existing morbidities [15]. Inflammatory bowel disease patient's most common co-morbidities [16, 17] is a predisposition to venous thromboembolic events, which is linked with a pitiable prognosis in terms of morbidity and mortality [18]. According to research, multiple mechanism such as inflammatory monocytes vascular infiltration, endothelial dysfunction, and thrombogenic factors regulation were associated with thromboembolism onset in IBD patients [19].

In this study, previous thrombosis was diagnosed in 3 (8.8%) patients, and half had clinical activity as evidenced by CRP levels and medical impression. Similarly, despite its proven efficacy, VTE prophylaxis may too enough to prevent all hospitalized patients of VTE with active disease due to the mostly occurred cases while taking heparin thromboprophylaxis [20].

Smoking, deficiency of S protein, and use of steroid were the associated factors with thrombosis. Until now, the IBD with thrombosis physiopathology has not been clearly

explained. Earlier research suggests that pro-coagulant factors elevated levels and endogenous anticoagulants decreased levels explain the IBD patient's hypercoagulable state. As a result, thrombosis in CD patients may have an elevated inflammation status, as evidenced by the increased steroids usage. Smoking is the most contributing risk factor for VTE.

Crohn's disease patients with VTE had a significantly higher proportion of deaths which is consistent with IBD patients the high mortality rate [21-23]. This emphasizes on individual risk factors importance and awareness for better stratify patients and implement adequate VTE. Our study had limitations like other studies regarding data collection.

CONCLUSION

Our study found that preliminary evidence for the higher venous thromboembolism risks in patients with IBD associated with ulcerative colitis, steroid use, and ageing. The findings may help to raise clinician awareness and prevent IBD patients from venous thromboembolic complications.

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