Epidemiologic Features of Inflammatory Bowel Disease in Guilan Province, North of Iran, During 2002-2012

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ABSTRACT

BACKGROUND

The geographical incidence of IBD varies considerably. This study aimed to survey the epidemiologic features of IBD in Guilan province, North of Iran, during ten years duration.

METHODS

In this retrospective cross-sectional study, we assessed the documents of 868 patients with IBD referred to private and governmental clinics of Guilan province between 2002 and 2012. Variables such as demographic data, risk factors, diagnosis, extraintestinal manifestations and type of treatment were collected.

RESULTS

Among 868 patients with IBD, 756 patients (87.1%) diagnosed as UC and 112 patients (12.9%) as CD. The mean age of patients with UC and CD was 46.73±15.79 and 40.15±14.27 years respectively. Male/female ratio in UC and CD was 0.92:1 and 0.75:1 respectively. The most common age of disease initiation in UC was 40-59 years and in CD 20-39 years ($p<0.001$). Extraintestinal manifestations were seen in 25.4 percent of patients with IBD. Most of patients were treated with combination of two drugs: salicylates and azathioprine ($p<0.04$). The incidence of IBD gradually increased during the past 4 years in Guilan province.

CONCLUSION

This study showed that CD were presented significantly more common in younger patients than UC and totally the disease was slightly more common in female.

KEYWORDS

Epidemiology; Inflammatory Bowel Diseases (IBD); Ulcerative Colitis (UC); Crohn's Disease (CD)

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INTRODUCTION

Inflammatory Bowel Diseases(IBD) including ulcerative colitis(UC) and Crohn's Disease(CD) are chronic inflammatory disorders of the gastrointestinal tract identified by episodes of relapse and remission. Two identified subtypes of the disease involve the gastrointestinal tract in different pattern.[1] IBD had uncertain etiology; it imagined to

be caused by interplaying among different environmental, genetic and immunologic factors.[2-4] Previous study revealed that different factors such as infectious diseases and nutrition during infancy, tonsillectomy, appendectomy, lifestyle factors and diet, domestic hygiene, refrigeration of food, time scales of socioeconomic evolution, drugs (nonsteroidal anti-inflammatory drugs [NSAIDs] and oral contraceptive pills [OCPs]), smoking, intestinal pathogens, and measles vaccination play a role in IBD.[1-2] Based on geographical, racial, genetic, sexual, and habitual differences, epidemiological studies are needful.[5]

Numerous studies which have been directed on the epidemiology of IBD; show considerable differences on geographical incidence.[6-9] In recent decades, the incidence of IBD has been relatively stable, in areas such as U.S. and Europe which are precedented in incidence of IBD.[10] It is estimated that up to 1.4 million people in the United States and 250,000 people in the United Kingdom suffer from IBD.[11] However, incidence of IBD increased in previously low incidence areas such as Asia.[12-14] NG et al. expressed that the crude annual overall incidence values per 100,000 individuals were 1.37 for IBD in Asia (0.76 for UC, 0.54 for CD, and 0.07 for IBD-undetermined).[11] This increase most likely relates to improved physician awareness and diagnostic modalities, environmental and lifestyle factors according to socioeconomic change and rapid industrialization in Asian countries.[15]

Although the prevalence and incidence of IBD have not been properly studied in Iran, our country is mentioned as a country with an increasing rate of IBD.[16-18] Iran is a wide country with different ethnicities, so more studies with focus on epidemiologic and clinical features of IBD can elucidate its pattern in Iran.[19] This study aimed to survey the epidemiologic features of IBD in Guilan province, North of Iran.

MATERIALS AND METHODS

In this retrospective cross sectional study, we assessed the documents of 868 patients with IBD that referred to private and governmental clinics and hospitals of Guilan province, North of Iran, during 2002 - 2012. Patients with definite diagnosis of IBD were included. The diagnosis of IBD was confirmed based on clinical manifestation, radiologic, colonoscopic and pathologic findings and opinion of a gastroenterologist. Variables such as demographic data (age, gender, place of living), risk factors (smoking, family history, age at initiation of disease, duration of disease and age at initiation of complication), and diagnosis (site of involvement, pathologic and radiologic findings), extraintestinal manifestations and type of treatment (corticosteroids, Immunosuppressive drugs, salicylates, antibiotics and anti TNF drugs) were evaluated.

Extraintestinal manifestations consist of musculoskeletal, ocular, renal, dermatological, hepatic and pulmonary systems involvements. According to Esmat et al.,our diagnosis of UC was also based on the evidence of diffuse mucosal disease of colon with different proximal extentions from the rectum,superficial inflammation, crypt abscess, cryptitis and rectal involvement without any evidence of small bowel involvement other than backwash ileitis, in the same way CD was defined as skip lesions at endoscopy, cobblestone appearance, mucosal ulceration on colonoscopy, aphtus lesion found during upper endoscopy, deep inflammation or chronic terminal ileal inflammation with or without radiologic evidence of skip lesions, structuring disease, fistulizing disease existence of perianal disease(skin tags, abscess, fistula),[20] or small intestinal involvement and noncaseating granulomas. Indeterminate colitis (IC) was defined as an active and patchy architectural distortion, in the absence of small bowel involvement after radiologic evaluation, ileal intubations, an inconclusive endoscopic appearance, and histologic features that were not specifically diagnostic for CD or UC.[2,3]

All the information was collected for each case and then statistical analysis of quantitative and qualitative data was conducted using SPSS software (version 18, USA) by chi square test. Frequency distributions of data were reported as mean ± SD.

Ethical Considerations:
This study was approved by ethics committee of

Gastrointestinal and Liver Diseases Research Center (GLDRC).

RESULTS

Table 1 shows the demographic and clinical profile of the total number of patients with IBD, 756 people (87.1%) had UC and 112 of them (12.9%) had CD. The mean age of patients with UC and CD was 46.73±15.79 and 40.15±14.27 years respectively. The most common age of disease in UC was 40-59 years and in CD was 20-39 years. Patients with CD were significantly younger than patients with UC ($p<0.001$). Male/female ratio in UC and CD was 0.92:1 and 0.75:1 respectively. This ratio was not significantly different between two diseases ($p=0.62$). In this study 12.6 % of patients with UC and 12.5 % in CD had a family history of IBD. 3.3% and 4.5% smoked Cigarette in patients with UC and CD respectively. Frequency of positive family history and cigarette smoking was not different between two disease groups ($p=0.9$ and $p=0.7$). The mean age at initiation of disease in patients with UC and CD was 40 and 34.5 years respectively. The most common age of disease initiation in UC was 40-49 years and in CD 20-29 years that was significantly different ($p<0.001$). The mean duration of disease was 4 and 5 years in UC and CD respectively. Most of patients suffered from disease less than five years in UC and CD. Duration of disease was significantly different ($p<0.005$). The mean age at initiation of complication was 40 years in UC and 32 years in CD. Complications significantly initiated earlier in patients with CD ($p<0.001$). In most of patients, complication was initiated at 30-39 years in UC (28%) and 20-29 years in CD (23.6%). In present study, 25.4 percent of patients with IBD suffered from extraintestinal manifestations of IBD (191 patients in UC and 30 patients in CD) (Table 1).

The frequency of arthritis, as the most prevalent extraintestinal manifestation was 36 percent.

Most of patients were treated with combination of two drugs (60% in UC and 72.3% in CD). The most common combination therapy was Salicylates and Azathioprine. Then Salicylates were the most

common drugs in both groups (38.4% in UC and 25.9% in CD). Treatment in two groups was significantly different ($p=0.04$) (Table 2). The incidence of IBD showed in Figure 1.

DISCUSSION

In the recent decades, the incidence of UC in western countries gradually increased and a few years later, a similar increase was occurred in CD. Studies in developing countries indicated that although, in comparison with Europe and North America, IBD still has a low incidence and prevalence in Asian countries, it is increasing rapidly.[21] Previous studies in Iran revealed an increasing rate of UC and CD.[18] In this study we assessed the epidemiological features of 868 patients with IBD in a clinic and hospital based study in Guilan Province during 10 past years.

Our study showed that CD was presented significantly more common in younger patients than UC. It is in agreement with previous studies.[2,22] The mean age of patients with UC and CD was 46.73 and 40.15 years respectively in our study. It was higher than similar studies. Taghavi et al. showed 34.68 years for UC and 32.97 years for CD.[17] Another study in Iran showed about 37 and 32 years for UC and CD respectively.[19]

The ratio of Male to female in this study is different with other studies (0.92:1 in UC and 0.75:1 in CD). In a report by Shirazi et al,[19] it was 1.08:1 in UC and 1.83:1 in CD.[16] Just the same as Taghavi et al. reported male/female ratio was 0.9:1 and 0.98:1 for UC and CD patients, respectively.[17] In other studies conducted by Aghazadeh et al.[23] and vahedi et al.[2] in Iran, the male/female ratio was reported to be 0.8:1 and 0.7:1 for UC, also Fallahi et al.[24] and Derakhshan et al.[25] stated 1.4:1 and 1.2:1 for CD patients, in series. A review study in Asia by Prideaux showed an equal gender distribution for UC and demonstrating male predominance for CD.[12]

In Asia, positive family history was reported in 0.0-3.4% of patients with IBD that is lower than the 10-25% in Western countries.[12] In similar studies conducted by Thia et al. & Park et al. in Singapore and South korea, IBD was reported in 0.3% of patients, family.[26,27]

Table 1: Demographic and clinical profile of patients with IBD

Variables		UC		CD		p value
		Frequency	Percentage	Frequency	Percentage	
Age	<20	26	3.5	9	8.1	0.001
	20-39	252	33.3	55	49.1	
	40-59	329	43.5	37	33	
	60-79	130	17.2	11	9.8	
	>80	19	2.5	0	0	
Gender	Male	362	47.9	48	42.9	NS
	Female	394	52.1	64	57.1	
Family history	Yes	95	12.6	14	12.5	NS
	No	661	87.4	98	87.5	
Smoking	Yes	25	3.3	5	4.5	NS
	History of previous smoking	32	4.2	4	3.6	
	No	669	88.5	103	91.9	
Age at initiation of disease	<20	48	6.3	16	14.3	0.001
	20-29	109	14.4	26	23.2	
	30-39	139	18.4	23	20.5	
	40-49	179	23.7	21	18.7	
	50-59	144	19.1	17	15.2	
	>60	137	18.1	9	8.1	
Duration of disease	<5	493	65.2	57	50.9	0.005
	5-9	202	26.8	38	33.9	
	10-14	39	5.6	14	12.5	
	15-19	17	2.2	2	0.8	
	20-24	4	0.1	0	0	
	>25	1	0.1	1	0.9	
Age at initiation of complication	<20	25	5.5	15	19.7	0.001
	20-29	64	14	18	23.6	
	30-39	128	28	17	22.4	
	40-49	98	21.4	17	22.4	
	50-59	77	16.9	5	6.6	
	>60	65	14.2	4	5.3	
Extraintestinal manifestations	Yes	191	25.3	30	26.5	NS
	No	565	74.7	82	73.5	

Table 2: The frequency of drugs that administrated for treatment of patients with IBD

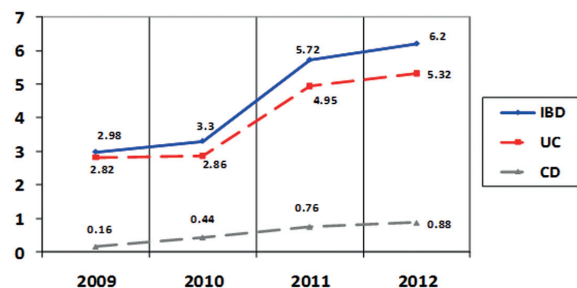| Treatment	UC		CD		p value
	Frequency	Percentage	Frequency	Percentage	
Prednisolone	3	0.4	0	0	0.04
Immunosuppression drugs	5	0.7	0	0	
Salicylates	290	38.4	29	25.9	
Antibiotics	3	0.4	2	1.8	
Anti TNF drugs	1	0.1	0	0	
Combination of 2 drugs (Salicylates and Azathioprine)	454	60	81	72.3	

Fig. 1: The Incidence of IBD during the past 4 yaers

Aghazadeh et al. and Shirazi et al. reported lower positive family history in their population.[19,23] in our study, the rate of positive family history were higher than previous studies. Our study showed that 12.6 % of patients with UC and 12.5 % in CD had a family history of IBD. Therefore, when a patient has lower GI symptom and family history of IBD, this disease should be considered for screening.

Smoking is one of the most consistently environmental influences on IBD. Studies in the West have shown that smoking is a risk factor for the development of CD but is protective for the development of UC.[12] Taghavi et al. revealed that frequency of smoking was 5.2% in UC and 7.4% in CD.[17] In our study, 3.3% and 4.5% smoked Cigarette in patients with UC and CD respectively that is lower than previous studies.

In previous studies, the prevalence of extraintestinal manifestations in IBD is approximately 25–40%.[28-30] in our study, the prevalence of extraintestinal manifestations of IBD was 25.4%.

In a report by Jiang and colleagues, 90.5% of patients were prescribed 5-ASA, whereas approximately 33.0% took steroids and 27.5% were prescribed immunosuppressors.[31] Shirazi et al. reported the majority of patients with CD (41.2%) and UC (76%) were treated with only 5-amino salicylic acid (5-ASA).[19] our study showed that most of patients were treated with combination of two drugs: Salicylates and azathioprine (60% in UC and 72.3% in CD). Then Salicylates were the most common drugs in both groups (38.4% in UC and 25.9% in CD). This difference can be related to severity of disease in patients that we did not consider it in our study.

This study showed that the incidence of IBD gradually increased during the past 4 years. Taghavi et al. also showed an obvious increase in the new cases of IBD in the past three decades. This development can be associated with augmentation of the diagnostic services and /or increase in public information, although; it is still not obvious whether this increase in Iran is attributable to the environmental features emanating from industrialization or other unfamiliar factors.[17]

As a limitation, our study was not a population based study. Also we did not assess the complication details and severity of disease. Lag time between initiations and diagnosis also did not assess in this study. So it is suggested to do population based prospective studies with considering all related factors and details of disease in future.

This study showed that CD were presented significantly more common in younger patients than UC and totally the disease was slightly more common in female. In addition, family history was more frequent in this study. It is suggested to plan more educational program to improve the time of diagnosis.

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CONFLICT OF INTEREST

The authors declare no conflict of interest related to this work.

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