



## Epidemiologic Characteristics of Patients with Inflammatory Bowel Disease in Kermanshah, Iran

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### ABSTRACT

#### BACKGROUND

This study was done to define some epidemiological aspects of inflammatory bowel disease (IBD), and to describe its characteristics in west of Iran.

#### METHODS

In this descriptive study all patient with the diagnosis of IBD who were visited in university-affiliated medical centers, between 2014 and 2015 were recruited. Their demographic characteristics, disease-related manifestations, complications, disease course and their chief complaints were analyzed.

#### RESULTS

Of 156 referred individuals, 153 patients had ulcerative colitis (UC) and 3 patients had Crohn's diseases (CD). The mean age of the patients at diagnosis was 35.69±12.35 (range: 17-80) years with the most common age group of 25-35 years and slight female predominance (51.9%). More urban patients were registered (90.4%) and 57% had high school or upper education. Positive family history of the disease was in 25.6% and 66.6% had four or more family members. Furthermore, 51.9% had left sided colitis and 40.4% had pancolitis with bloody diarrhea (79.5%) and abdominal pain (68.6%) as the most common manifestations.

36.5% had other autoimmune diseases. Multiple flare was seen in 47.4%, most commonly due to drug discontinuation (26.28%). Hospital admission was reported in 34.6%. History of contraceptive pill use was in 38.8% of the female patients.

#### CONCLUSION

The demographic and clinical manifestations of IBD are usually the same as other developing countries; however, the rarity of CD is eminent. Although the accurate epidemiological characteristic of IBD in Iran is still obscure, it is not a rare disease as previously thought and it seems that gradual reception of a western lifestyle may be linked to the ongoing rise in IBD.

#### KEYWORDS:

Inflammatory bowel disease, Epidemiology, Kermanshah, Iran.

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### INTRODUCTION

Inflammatory bowel disease (IBD) includes two distinct entities; ulcerative colitis(UC) and Crohn's disease (CD) with chronic,relapsing, multi-factorial inflammatory disorder of the gastrointestinaltract but with different pathological and clinical characteristics.<sup>1</sup>

A small group (10%) of patients is categorized as indeterminate colitis because they are not classified as having either CD or UC.<sup>2</sup> The etiological factors and pathogenesis of IBD are still poorly understood but genetic and

**Table 1: Demographic features of patients with IBD (n=156)**

F/M ratio	1.07
Age/years (SD year)	31.02 ± 12.34
Smoking (%)	18.8
Urban (%)	90.4
*Higher education (%)	57
**Familial (%)	25.6

\* high school or upper education

\*\* Positive family history of disease

**Table 2: Frequency of type of bowel involvement in patients with IBD**

Pancolitis	40.9%
Left sided colitis	51.9%
proctosigmoiditis	24%
Proctitis	5.8%
Small Intestine	26%

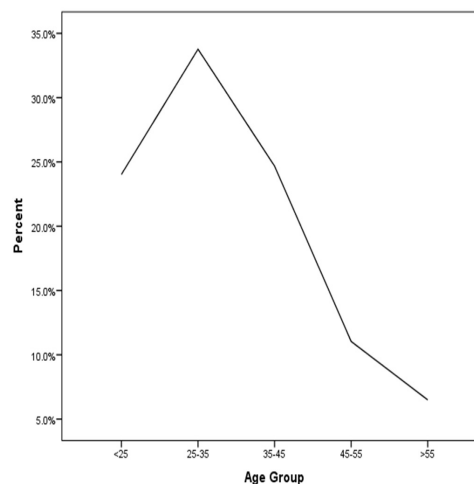
environmental agents are involved in the pathogenesis.<sup>1</sup> More than 160 susceptibility loci/genes with significant association with IBD have been identified.<sup>3</sup>

More than 100 identified genes of IBD susceptibility were not adequate to clarify the high rate of IBD in developed and developing countries.<sup>4</sup>

IBD has higher incidence in the northern parts of the world and between whites than in non-white populations. Various geographical differences and time trends in the occurrence rates of IBD in a given region may create insights into conceivable etiological factors.<sup>5</sup> Geographical location plays a potential role in IBD development and in phenotype and course of the disease.<sup>6</sup> It is important that only finite data on the IBD epidemiology exist in under developed countries.<sup>6</sup> Recently a nationwide study showed increasing incidence and prevalence of IBD in Iran.<sup>7</sup> Sporadic studies of IBD in Iran are mainly due to the lack of a public registration. We aimed to define the demographic and clinical characteristics of patients with IBD who had been visited in our university-based centers during a 1-year period. These data elucidate the profile differences of Iranian patients with IBD in comparison with other countries and may provide insight into the conceivable etiological agents.

## MATERIALS AND METHODS

In this study, we collected the data of all 156 patients

**Fig.1: Age-related distribution of patients with UC and CD**

with IBD, who were visited during one-year period from 2014 to 2015 in the Gastroenterohepatology clinics of university-affiliated centers of Kermanshah province, west of Iran. The data were gathered using specially designed questionnaires containing the demographic data 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, and information about other clinical course. After obtaining informed consents the questionnaires were completed for all the patients by a trained assistant. IBD was diagnosed with histological, clinical, endoscopic, and radiological data described by Lenard-jones.<sup>8</sup> Our project was approved by institutional Ethics Committee. Analysis of data was performed using descriptive methods with SPSS software version 16. (Inc. Chicago, Il.)

## RESULTS

Overall 156 patients were registered. Of them 154 patients had UC and 3 patients had CD. The mean age of the patients with UC at diagnosis was 31.02 ± 12.34 (range: 17 - 80) years with most common age group of 25 - 35 years (figure 1) and slight female predominance (51.9%, table 1). More urban patients were registered (90.4 %) and 57% had high school or upper education (table 1). Positive family history of the disease was in 25.6% and 66.6% had four or more family members. Furthermore, 51.9% had left sided colitis and 40.4% had pancolitis (table 2) with bloody diarrhea (79.5%) and

**Table 3: Primary manifestations of patients with IBD**

Bloody Diarrhea	79.9%
Abdominal pain	71.4%
Tenesmus	61%
Weight loss	61%
Musculoskeletal pain	33.1%
Constipation	21.4%
Diarrhea	14.9%
Aphthous stomatitis	14.3%
Red eye	11.7
Skin rash	9.1%
Icter	7.8%

**Table 4: Frequency of extraintestinal manifestations of patients with IBD**

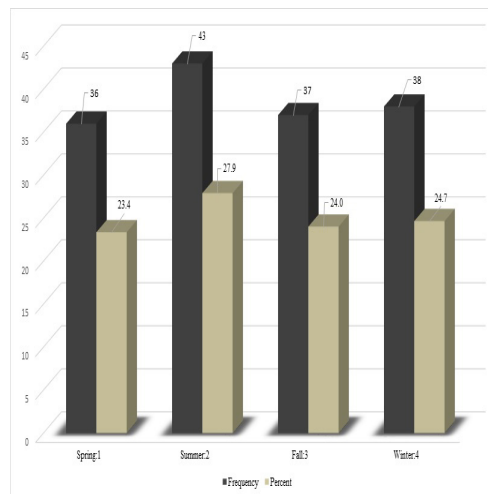
Musculoskeletal	51.9%
Eye involvement	27.9%
Skin involvement	22.7%
Liver & Biliary	11%

abdominal pain (68.6%) as the most common manifestations (table 3).

Musculoskeletal complaint was the most common extraintestinal manifestation (table 4). 36.5% had other autoimmune diseases, multiple flare with average of 2 in year was seen in 46.8%, most commonly due to drug discontinuation (26.28%). Hospital admission was reported in 34.6%. History of contraceptive pill use was in 38.8% of the female patients with an average of 6 years ingestion. Pregnancy was seen in 45% with 81.4% before disease involvement. 15.4% had surgical operations related to the disease and 18.8% were smokers with 16 packs per year smoking. Average time of breast feeding was 21 months. The disease onset show similar occurrence in four seasons (figure 2).

## DISCUSSION

We present a comprehensive description of IBD in west of Iran, which will serve as an essential resource for further studies. IBD appears to be emerging as a global disease with significant and continuing increase in the entire world.<sup>9</sup> Westernized nations have the highest incidence and prevalence of IBD. Westernization and industrialization of Asian countries like Iran with consideration of some environmental risk factors linked to the increase

**Fig.2: Seasonal variation in the onset of IBD**

of the incidence and prevalence of IBD.<sup>4,9,10</sup> However awareness of the disease and availability of diagnostic techniques may contribute.

Considerable differences were detected in the incidence of IBD across different geographical regions and over time.<sup>9</sup> In most of these areas as in this study CD remains rare.<sup>4</sup> It can be due to under diagnosis of CD. With emergence of IBD in developing countries, observations show the appearance of CD followed by UC.<sup>11</sup> IBD is one of the gastrointestinal diseases with the most financial implication and no medical cure, so it requires a lifetime management.<sup>12</sup> As shown here IBD involved individuals in the most productive ages with long-term financial burden on the patients, health care system, and society.<sup>13</sup> Recently two large studies showed the rising prevalence of IBD in Iran.<sup>7,14</sup> Dynamic occurrence and variations in the incidence and prevalence of IBD even during times not only emphasize the role of environmental factors in disease presentation and etiology but also prepare valuable information about the burden of the disease to be utilized by policy makers, funding agencies, and insurance and pharmaceutical companies.<sup>15</sup> Spectrum of environmental factors differ from the mode of childbirth, breastfeeding, and antibiotic exposure in infancy in early life time to smoking, major stress, diet, and lifestyle later in adulthood.<sup>15</sup> The prevalence of smoking was similar to UC smoking pattern in other study, which is much less than CD.<sup>16</sup> However most of Iranian patients with IBD did not have smoking history.<sup>17</sup> Low dietary fiber, high

saturated fats, depression, disturbed sleep, and low level of vitamin D have been related to IBD occurrence. Interventions for modifying these risk factors are among important unmet needs.<sup>15</sup> Although IBD may occur at any age, the maximum age of onset is 15 to 30 years. In this study the mean age of diagnosis was 31 years, which was similar to other studies in Iran and other Asian countries without the second smaller peak that is usually observed in later decades in developed countries.<sup>18,19,20</sup> In this survey patient aged less than 17 years were not detected although near 10% of the disease occur in children younger than 18 years.<sup>21</sup> This study showed a slight female dominance in UC, which is in contrast to equal sex distribution in other Asian countries.<sup>22,23</sup> As shows here IBD occurs more commonly in urban versus rural regions.<sup>24,25</sup> The place of residence may also affect the phenotype and clinical course of the disease.<sup>26</sup> Family history of the disease, which is greater among pediatric-onset UC and is with more disease severity, was detected in 25.6% of the patients similar to other parts of Asia and more than the results reported by Moller and colleagues in Europe<sup>27,28</sup> Bloody diarrhea was the most common presentations like another study at the disease onset.<sup>29</sup> Most of the patients had left colon involvement so higher frequency of abdominal pain could be due to the presence of concomitant irritable bowel syndrome.

Extra-intestinal manifestations have a higher frequency in Iran than other Asian countries.<sup>17</sup> As in other studies musculoskeletal manifestations are the most prevalent extra-intestinal manifestations but the percentage of affected patients was higher.<sup>29,30,31</sup> It has been suggested that with the rising of IBD extension the risk of peripheral arthritis increases.<sup>32</sup> Higher incidence of the disease extension correlates with higher musculoskeletal manifestations. Along with most studies conducted in Iran and Asian countries, majority of patient presented with left sided colitis.<sup>29,31,33,34</sup> But study results in Singapore, Thailand, and Netherland showed a higher rate of pancolitis among the patients with UC.<sup>35,36,37</sup>

No particular relation between the onset of the disease and the seasons was detected. Similar finding in a study conducted in Netherland and another study in Fars province, south of Iran was detected.<sup>29,36,37</sup> But clinical onset of UC in Japan was significantly more common

in winter and spring.<sup>38</sup> However significant increase in the onset of UC (but not CD), during December was reported from Norway.<sup>39</sup> Most common cause of disease flare was non-adherence to medical therapy. In a study conducted in Italy, 17.4% of the patients with IBD, especially young women who were followed up by general practitioners showed non-adherence to medical therapy but management by gastroenterologists associated with greater adherence to medical therapy.<sup>40</sup> In the present study, 34.6% of the patients required hospital admission during the course of the disease, which is similar to a Chilean study.<sup>29</sup> The risk of hospital admission increased with the disease extension, and the necessity for steroids and anti-TNF administration.<sup>41</sup>

Average twice flare in a year in near half of the patient, mostly because of drug discontinuation needed further attention but infection with *C. difficile*, which has similar presentations and can be a trigger for IBD flare has not been evaluated. These data can clarify the general characteristics of patients with IBD and improve management options.

The national IBD registry requires disease information which collected by accurately defined clinical questions. Scattered studies can show disease diversity and can be used as a base for observation of possible changes in disease pattern.

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#### CONFLICT OF INTEREST

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

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