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The effect of inflammatory bowel disease in the elderly population

Ozgursoy Uran BN[1] ✲, Unsal Avdal E[2], Mete A[3], Akbas D[4]

1. MSc, Lecturer., Izmir Kâtip Celebi University Health Science Faculty, Nursing Departmen, Izmir, TURKEY
2. PHD, Associate Professor. Izmir Katip Celebi University, Faculty of Health Sciences Izmir, TURKEY
3. Nurse, Izmir Katip Celebi University Ataturk Training and Research Hospital, Izmir, TURKEY
4. Nurse, Bozyaka Training and Research Hospital, Izmir, TURKEY

✲ **Corresponding Author:**
Izmir Katip Celebi University, Faculty of Health Sciences Izmir / TURKEY, e-mail: bernanilgun@gmail.com

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ABSTRACT

Inflammatory bowel disease's (IBD) incidence and prevalence are increasing globally, and also the number of older patients with IBD is set to increase. Elderly population has a significant impact on costs of health care deliver. Therefore it is important to understand and optimize health care delivery to the elderly, particularly among those with chronic diseases such as inflammatory bowel disease. The characteristics of IBD in the elderly shows some differences compared to patients with younger age. Besides elderly onset or presentation of disease demonstrates differences in terms of clinical presentation, diagnosis, clinical course, and complications of both the disease and treatment when compared with early onset disease. The purpose of this review is to explain the IBD features in the elderly patients different from young patients.

Keywords: IBD, Crohn's disease, Ulcerative colitis, elderly, geriatric people, nursing

Abbreviations: OECD - Economic Co-operation and Development, CD - Crohn's disease, UC - Ulcerative colitis, IBD – Inflammatory Bowel Disease

1. INTRODUCTION

The elderly population is defined as people aged 65 and over. According to the Economic Co-operation and Development (OECD) 2014 data, the top five countries with the highest elderly population are Germany (21.45%), Italy (21.25%), Finland (19.94%), Estonia (18.38%) and Spain (18.31%) respectively. By contrast, the top five countries with the lowest elderly population are Korea (12.66%), Chile (10.04%), Turkey (7.84%), Colombia (7.32%) and Mexico (6.68%) respectively (OECD, Accessed 2017).

The older population—persons 65 years or older—numbered 46.2 million in 2014. They represented 14.5% of the U.S. population, about one in every seven Americans. People 65 years or older represented 14.5% of the population in the year 2014 but are expected to grow to be 21.7% of the population by 2040 (US Dep. of Health and Human Services, Accessed 2017).

This aging population has a significant impact on costs of health care deliver. Therefore it is important to understand and optimize health care delivery to the elderly, particularly among those with chronic diseases such as inflammatory bowel disease (Sinha, 2011; Long, Kappelman, Martin, Chen, Anton & Sandler, 2014).

Inflammatory bowel disease's (IBD) incidence and prevalence are increasing globally, and also the number of older patients with IBD is set to increase. The rising global incidence of IBD, its negligible impact on mortality and an ageing population will all contribute to increasing numbers of "elderly" patients with IBD. The incidence and prevalence of the IBD comprising Crohn's disease (CD) and ulcerative colitis (UC) is increasing worldwide (Nimmons & Limdi, 2016; Cosnes, Gower-Rousseau, Seksik & Cortot, 2011; Molinié et al, 2004).

Limited data are available on the incidence and disease course of the elderly population with IBD. At least according to published data from North America and Western Europe, it may not be as uncommon as previously suspected (Lakatos et al, 2010).

In the study of Lakatos et al (2010) 11.6% of the UC patients and 4.2% of the CD patients were diagnosed when above the age of 60 years in total 1420 IBD patients between year of 1977 and 2008.

Incidence of IBD in the elderly was reported to be between 4 and 8/100000 in an American and European population study (Ha & Katz, 2013).

In Turkey, the incidence of UC is 2.6/100 000 and the incidence of CD is 1.4/100 000. The reliability of endoscopy and colonoscopy in the elderly is at the same level as the reliability of endoscopy in young patients. However, the accompanying excess of illness and bleeding in the elderly affect mortality and morbidity (Gokturk & Karaca 2012; Qureshi et al, 2006; ASGE, 2013; Goral, 2016). Therefore, the blood in elderly people with UC should be monitored closely.

Approximately 35-40% of geriatric patients present to a doctor with gastrointestinal problems at least once a year. IBD is one of these problems. So we aimed to explain this differences in this article.

2. IBD CLINICAL PRESENTATION IN THE ELDERLY PATIENTS

The characteristics of IBD in the elderly shows some differences compared to patients with younger age. Besides elderly onset or presentation of disease demonstrates differences in terms of clinical presentation, diagnosis, clinical course, and complications of both the disease and treatment when compared with early onset disease (Saygılı et al, 2017; Gispert & Chaparro, 2014).

The clinical features, symptoms, the quality of life, therapeutic options, the efficacy of treatment and possible side effects of treatment in young and elderly patients with IBD are some significant differences. The wide differential diagnosis of IBD in elderly patients may result in a delay in diagnosis (Nimmons & Limdi, 2016; Sturm et al, 2017). In table 1, CH and UC are discussed about location, symptoms, disease behaviour, extra-intestinal manifestations, family history and cancer risk.

Most common features in the young, such as diarrhea, abdominal pain, and anemia, tend to be less frequent, whereas loss of weight, bleeding, fever, and paradoxically, constipation are more common symptoms in the elderly with CD. Elderly onset of the disease has milder activity with more stable clinical course. For example, stricturing and fistulating disease with ileocolonic involvement is comparably less frequent than in young individuals. However, despite milder disease activity, comorbidities, drug interactions, and increasing organ dysfunction can be problematic and management of the patients and treatment strategies can still be challenging (Katz & Feldstein, 2008; Charpentier et al, 2014; Saygılı et al, 2017).

Although fever, weight loss, bleeding, abdominal pain, extra-intestinal symptoms and systemic complaints are less common in elderly patients. The most common problem for elderly patients is that they cannot reach the hospital and cannot keep the medical

treatment effectively. Rectal hemorrhage is more common in elderly patients with CD and abdominal pain is reported at the first admission (Sturm et al, 2017; Nimmons & Limdi, 2016; del Val, 2011).

In elderly patients, increased age is an independent risk factor for hospital fatality. The worse outcomes in hospitalised elderly IBD patients, higher mortality and economic impact from health resource utilization underpin the need for further prospective research into the natural history and well-designed clinical trials for therapy in this population (Nimmons & Limdi, 2016).

In table 2, it is explained that conditions commonly confused with IBD in elderly patients include complicated diverticular disease (diverticulitis and diverticular bleeding), medication-associated diarrhoea (NSAIDs, antibiotics and others), infectious diarrhoea, ischaemic colitis, radiation colopathy and microscopic colitis (Nimmons & Limdi, 2016).

In some studies, it has suggested that relapse in UC may be more severe in elderly patients. In the elderly patients with UC, more hospitalization is seen compared to young adult patients in the first episode (del Val, 2011; Katz & Pardi, 2011; Sturm et al, 2017).

Elderly CD patients have more colonic involvement and inflammatory disease compared to younger patients, but younger CD patients have a lower frequency of strictures and fistula. Colonic involvement was reported to be most common, and clinical course did not demonstrate difference according to Montreal classification system. The incidence of colectomy is lower in elderly patients (1.9% vs 4.3% in older and younger patients). In older patients with CD, surgical resection is more common than younger patients (Laskatos, et al, 2011; Sturm et al, 2017).

Absence of perianal disease and strictures are the other main diversions from what is typically seen in younger population. These facts are directly responsible for disease severity, and absence of these behavioral aspects can be beneficial side of CD in the elderly. Otherwise, presence of comorbidities can make treatment of the elderly population challenging. As the clinical disease activity is milder, with very low rate of perianal disease, fistulation, or severe strictures, and with colonic involvement more common, need for use of biologics is less frequent in this group (Van Assche et al, 2010).

Moreover, due to the character of involvement and this milder clinical course, need for surgical treatment is comparably less frequent when compared with young patients. This can be an advantage when higher mortality and morbidity rates are considered with regard to surgical intervention in elderly patients with IBD (Picco & Cangemi, 2009).

At the study of Saygili et al (2017) in Turkey, clinical findings, such as involvement, clinical presentation, and treatment choices were similar to results previously reported in the study of Lakatos et al. It is easily observed that CD behaves a little differently in the elderly compared with younger patients. Natural course of the disease is different, apart from additional clinical characteristics of an elderly patient. Principal difference is localization of the disease, which is more prominent in colonic region (Saygili et al, 2017).

Elderly patients represent an increasing proportion of the IBD population. Stenosing and colon-only disease was characteristic for elderly CD patients, with the absence of change in disease behavior and a lower risk for surgery in patients with IBD. The left-sided location and not proctitis was predominant in elderly population with UC. The disease course in the elderly was milder, with fewer fulminant episodes, less systemic steroid exposure, and a trend for fewer colectomies. Although the absolute risk was low, UC-associated dysplasia and/or cancer developed quicker in the elderly patients (Laskatos et al, 2010).

Table 1

Phenotypic characteristics of inflammatory bowel disease in elderly-onset inflammatory bowel disease

CLINICAL FEATURES / DISEASE	Crohn's Disease	Ulcerative Colitis
Location	Colonic or ileo-colonic	Left sided or extensive disease more common than isolated proctitis
Symptoms	Less bleeding and abdominal pain than younger	Less diarrhoea, abdominal pain and weight loss than younger patients
Disease behaviour	Inflammatory; less progression to penetrating and structuring disease	More likely to remain stable
First episode	More severe than in younger patients	More severe than in younger patients

Extra-intestinal manifestations	Less common than in younger patients	Less common than in younger patients
Family history	Less common	Less common
Cancer risk	Higher risk of non-Hodgkin lymphoma with thiopurines and of non-melanoma skin cancer with anti-TNF therapy	Higher risk of non-Hodgkin lymphoma with thiopurines and of non-melanoma skin cancer with anti-TNF therapy

* Nimmons D, Limdi JK. Elderly patients and inflammatory bowel disease. World J Gastrointest Pharmacol Ther 2016; 7(1):51-65.

Table 2
Differential diagnosis of IBD

Disease	Clinical Characteristics	Additional Features
Segmental colitis associated with diverticulosis	-Diarrhoea with bleeding -Abdominal pain	-Segmental peridiverticular distribution -Rectum and proximal colon spared
Radiation colitis	-Diarrhoea with bleeding and abdominal pain/cramps -Proctitis (urgency and tenesmus) -Symptoms often weeks to years after abdominal or pelvic radiation	-Telangiectasia and fibrosis seen at histology
NSAID-induced colitis	-Diarrhoea with recurrent abdominal pain -Obstruction or perforation -Iron deficiency anaemia	-Lesions isolated -Any part of intestine may be affected -Diaphragm like small bowel strictures -Exacerbate existing IBD
Ischaemic colitis	-Sudden onset of abdominal pain -Diarrhoea with bleeding	-Segmental distribution of colitis -Typically sigmoid/left sided colitis
Infective colitis	-Diarrhoea with bleeding -Constitutional symptoms such as fever	-Possible pseudomembranes with Clostridium difficile colitis -Stool cultures usually diagnostic -Rapid resolution with appropriate antibiotic therapy
Solitary rectal ulcer	-Bleeding per rectum with straining	-Mucosal thickening -Crypt architectural distortion -Collagen deposition and smooth muscle in lamina propria

NSAID: Nonsteroidal anti-inflammatory drug; CD: Crohn's disease; UC: Ulcerative colitis.
* Nimmons D, Limdi JK. Elderly patients and inflammatory bowel disease. World J Gastrointest Pharmacol Ther 2016; 7(1):51-65.

Table 3

Drug interactions of medications used in the treatment of IBD relevant to elderly patients

IBD Drugs	Drug Interaction
Aminosalicylates	-Increase levels of thiopurine metabolite 6-TGN through weak TPMT inhibition -Interact with warfarin and increase INR (particularly Olsalazine)
Metronidazole	-Increases levels of: Simvastatin; Calcium channel blockers; sildenafil and lithium -Antabuse (disulfuram) like reaction with ethanol -Increased metabolism and consequent clearance when co-administered with phenytoin and phenobarbitone -Potentiates Warfarin: May increase INR
Ciprofloxacin	-NSAIDs: Risk of seizures may be increased -Theophylline: Levels may increase -Potentiates Warfarin: May increase INR -Phenytoin: Levels of phenytoin may decrease
Corticosteroids	-Antidiabetic agents: Hypoglycaemic effects may be decreased -Calcium channel blockers: May increase corticosteroid levels -Diuretics: Hypokalaemic effects increased -Warfarin: May increase anticoagulant effects
Thiopurines	-Allopurinol: Can lead to bone marrow toxicity -Aminosalicylates: May lead to increased toxicity and cause leukopenia / myelosuppression -Clotrimazole, angiotensin–converting enzyme inhibitors: increased risk of leucopenia -Warfarin: Anticoagulant effect may decrease
Methotrexate	-Loop diuretics: Can alter methotrexate concentrations and vice versa -NSAIDs: Bone marrow suppression and gastrointestinal toxicity -Penicillins: Increase methotrexate concentration -Tetracyclines: Increase methotrexate toxicity -Theophylline levels may be increased
Cyclosporine	-Ciprofloxacin, gentamicin and vancomycin: Potentiate renal dysfunction -Anti-inflammatory drugs and histamine-2 blockers: Potentiate renal dysfunction -Azithromycin, clarithromycin: Increase cyclosporine levels -Allopurinol: Increases cyclosporine levels -Rifampicin: Decreases cyclosporine levels -Phenytoin, phenobarbital and carbamazepine: Decrease levels of cyclosporine -Grapefruit juice: Increases absorption of cyclosporine

IBD: Inflammatory bowel disease; NSAIDs: Nonsteroidal anti-inflammatory drugs; 6-TGN: 6-thioguanine nucleotide; TPMT: Thiopurine S-methyltransferase; INR: International normalised ratio.

* Nimmons D, Limdi JK. Elderly patients and inflammatory bowel disease. World J Gastrointest Pharmacol Ther 2016;7(1):51-65.

3. TREATMENT OF IBD IN THE ELDERLY PATIENTS

The principles of IBD treatment are;

- the induction and maintenance of remission,
- prevent disease and treatment-related complications,
- to improve quality of life.

Important considerations in choosing a therapeutic agent include location and severity of inflammation, disease behaviour (inflammatory, stricturing or fistulising), the presence of extraintestinal manifestations and other clinical comorbidities. In that

respect, IBD treatment in elderly patients are generally the same as in adult or young patients but with some crucial considerations. For exmaple; multiple medicines (polypharmacy), drug–drug interactions, comorbidities, etc.

The main issue is that elderly patients use multiple medicines because of other diseases. For this reason, elderly IBD patients may be incompatible with drug therapy. Polypharmacy and the complex treatments often required to achieve clinical response in IBD increase the non-adherence and medication-related mistakes. So, the most common reason for non-adherence is reported to forgetting to take the medication (Gisbert & Chaparro, 2014; MacLaughlin et al, 2005; Kane, 2008; Ha & Katz, 2013). Clinicians may be hesitant to prescribe steroids for an older patient with diabetes, as steroids could exacerbate this condition. Also, many older patients have hypertension, and certain classes of antihypertensive medications, such as antigotensin-converting enzyme inhibitors, can interact with some of the medications used to treat IBD (such as 6-mercaptopurine and azathioprine), potentially resulting in additional adverse effects (Ha, 2012).

Polypharmacy is common in elderly patients that they may be on five medications. Therefore, clinicians should be well aware of the clinical consequences of drugs used by the elderly (Table 3) (Stallmach et al, 2011; del Val, 2011; Nimmons et al, 2016).

Another important issue in the treatment of elderly patients is immunosuppressive medication. Treatment of elderly IBD patients with immunosuppressive medication increases the risk of opportunistic infection and possibly even malignancy. The exclusion of older patients from most therapeutic trials and lack of drug efficacy trial data in older patients, coupled with a lack of clarity of appropriate clinical end points (objective vs symptom control) may limit evidence-based decision-making (Charpentier et al, 2014; Nimmons & Limdi, 2016).

Elderly patients with underlying cognitive defects or with limited functional ability may be non-adherence with regimens involving multiple drugs taken several times a day. Daily single dosing could improve adherence and reduce the probability of recurrence in older IBD patients in particular (Hussain & Pardi, 2010).

Nurses have great responsibilities in this regard. Positive results can be achieved in terms of increasing compliance with regular nurse follow-ups or appointments. Given the risk of serious side effects in elderly patients receiving several drugs, it must be investigated possible interactions before starting therapy (Stallmach et al, 2011; Hussain & Pardi, 2010).

Difficulty using topical therapy can result from physical limitations and anal sphincter incompetence in the elderly (Katz & Pardi, 2011).

Despite all these, clinicians presume similar treatment efficacy for older versus younger patients. For example, steroids are commonly used to treat IBD, but steroids can exacerbate the osteoporosis and fractures risks. So older patients are also more susceptible to these risks. In addition, thiopurines (such as 6-mercaptopurine and azathioprine) can increase a patient's risk of non-Hodgkin lymphoma, and older patients are the age group that is most susceptible to lymphoma. Given these risks, clinicians should pay particular attention to the potential side effects associated with a particular medication when selecting a treatment strategy for an older patient (Ha, 2012).

4. CONCLUSION

The incidence and the prevalence of IBD in the elderly is set to increase. The clinical features and medical treatment options in elderly IBD patients are similar to younger patients but there are some important differences, such as comorbidities, cognitive function, poly-pharmacy, etc. However it is seen that the disease of elderly and young people with IBD is different in their clinical course. Changes in the course of the disease and in the symptoms seen are due to physical differences between the elderly population and young adults. This is due to changes in the gastrointestinal system with age. Changes in the diet affect the body's tolerance to IBD. Attack periods of the illness with age, hospitalization requirements differ from young adults in response to treatment. As a result, it is thought that the number of elderly IBD patients will increase in the future. So, more studies to define particular features are needed.

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REFERENCE

1. ASGE Standards of Practice Committee, Chandrasekhara V, Early DS, Acosta RD, et al. Modifications in endoscopic practice for the elderly. *Gastrointest Endosc* 2013; 78:1-7.
2. Charpentier C, Salleron J, Savoye G, Fumery M, Merle V, Laberenne JE, et al. Natural history of elderly-onset inflammatory bowel disease: a population-based cohort study. *Gut* 2014; 63: 423–32.
3. Cosnes J, Gower-Rousseau C, Seksik P, Cortot A. Epidemiology and natural history of inflammatory bowel diseases. *Gastroenterology* 2011; 140: 1785-94.

4. del Val JH. Old-age inflammatory bowel disease onset: a different problem? *World J Gastroenterol* 2011; 17: 2734-39.
5. Gisbert JP, Chaparro M. Systematic review with meta-analysis: inflammatory bowel disease in the elderly. *Alimentary Pharmacology & Therapeutics* 2014; 39: 459–77.
6. Gokturk S, Karaca C. The epidemiology of inflammatory bowel disease (İnflamatuar barsak hastalıkları epidemiyolojisi). *Turkiye Klinikleri J Gastroenterohepatol-Special Topics* 2012; 5(3): 11-6
7. Goral V. GIS hemorrhage seen in the elderly and conditions to be taken into consideration when using anticoagulants (Yaşlılarda görülen GİS kanamaları ve antikoagülan kullanımında dikkat edilmesi gereken durumlar). *Current Gastroenterology (Güncel Gastroenteroloji)* 20/1: 67-74.
8. Ha CY, Katz S. Clinical outcomes and management of inflammatory bowel disease in the older patient. *Curr Gastroenterol Rep* 2013; 15: 310.
9. Ha CY. Diagnosis and treatment of inflammatory bowel disease in older patients. *Gastroenterology and Hepatology*, 2012; 8(10): 669-670.
10. Hussain SW, Pardi DS. Inflammatory bowel disease in the elderly. *DrugsAging* 2010; 27: 617–24.
11. Kane SV. Strategies to improve adherence and outcomes in patients with ulcerative colitis. *Drugs* 2008; 68: 2601–9.
12. Katz S, Feldstein R. Inflammatory bowel disease of the elderly: a wake-up call. *Gastroenterol Hepatol (N Y)* 2008; 4: 337–47.
13. Katz S, Pardi DS. Inflammatory bowel disease of the elderly: frequently asked questions (FAQs). *Am J Gastroenterol* 2011; 106: 1889-97.
14. Laskatos PL, David G, Pandur T, Erdelyi Z, Mester G, Balogh M, et al. IBD in the elderly population: Results from a population-based study in Western Hungary, 1977-2008. *Jo J Crohn Colitis,* 2011; 5: 5–13.
15. Long MD, Kappelman MD, Martin CF, Chen W, Anton K, Sandler RS. Risk factorsfor depression in the elderly inflammatory bowel disease population. *J Crohn Colitis*, 2014; 8: 113-9.
16. MacLaughlin EJ, Raehl CL, Treadway AK, Sterling TL, Zoller DP, Bond CA. Assessing medication adherence in the elderly: which tools to use in clinical practice? *Drugs Aging* 2005; 22: 231–55.
17. Molinié F, Gower-Rousseau C, Yzet T, Merle V, Grandbastien B, Marti R, et al. Opposite evolution in incidence of Crohn's disease and ulcerative colitis in Northern France (1988-1999). *Gut* 2004; 53: 843-8.
18. Nimmons D, Limdi JK. Elderly patients and inflammatory bowel disease. *World J Gastrointest Pharmacol Ther* 2016; 7(1): 51-65.
19. OECD, Elderly population (indicator). doi: 10.1787/8d805ea1-en (Accessed on 20.01.2017)
20. Picco MF, Cangemi JR. Inflammatory bowel disease in the elderly. *Gastroenterol Clin North Am* 2009; 38: 447–62.
21. Qureshi WA, Zuckerman MJ, Adler DG, et al; Standards of Practice Committee, American Society for Gastrointestinal Endoscopy. ASGE guideline: modifications in endoscopic practice for the elderly. *Gastrointest Endosc* 2006; 63: 566-9.
22. Saygılı F, Saygılı SM, Tenlik İ, Yüksel M, Kılıc ZMY, Özin YÖ, et al. Crohn's Disease in the elderly: Clinical presentation and manifestations from a tertiary referral centre in Turkey. *North Clin Istanb* 2017.
23. Sinha SK. Why the elderly could bankrupt Canada and how demographic imperatives will force the redesign of acute care service delivery. *Health Pap* 2011; 11: 46–51.
24. Stallmach A, Hagel S, Gharbi A, et al. Medical and surgical therapy of inflammatory bowel disease in the elderly – prospects and complications. *J Crohns Colitis* 2011; 5: 177–88.
25. Sturm A, Maaser C, Mendall M, Karagiannis D, Karatzas P, Ipenburg N, et al. European Crohn's and Colitis Organisation topical review on IBD in the elderly. *J Crohn Colitis* 2017; 11(3): 263-273.
26. US Department of Health and Human Services. Administration on Aging. https://aoa.acl.gov/Aging_Statistics/Index.aspx Accessed on 20.01.2017
27. Van Assche G, Dignass A, Panes J, Beaugerie L, Karagiannis J, Allez M, et al. The second European evidence-based Consensus on the diagnosis and management of Crohn's disease: Definitions and diagnosis. *J Crohns Colitis* 2010;4:7–27.