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# Comparison of Inflammatory Bowel Disease at Younger and Older Age*

J. Greth[1], H.-P. Török[1,3], A. Koenig[2], C. Folwaczny[1,3]

[1]Medizinische Poliklinik und [2]Medizinische Klinik, [3]Chirurgische Klinik und Poliklinik, Standort-Innenstadt, Klinikum der Ludwig-Maximilians Universität, München, Germany

*Abstract*
*Objective:* In a substantial number of patients inflammatory bowel disease develops past the age of 40 years. However, data about the clinical presentation and disease behaviour in this age group are scarce.
*Methods:* The following parameters were evaluated retrospectively in 191 consecutive patients with inflammatory bowel disease: Gender, age at diagnosis, leading symptoms, disease localization and behaviour (e. g. fistulizing, fibrostenotic or inflammatory), extraintestinal manifestations, medication, smoking habits, dysplasia, cancer and mortality.
*Results:* In 16 % of patients inflammatory bowel disease had been diagnosed past the age of 40 years. In elderly patients with ulcerative colitis male gender was predominant. Diarrhea, abdominal pain and anaemia were observed more frequently in younger patients, whereas the remainder of parameters showed an equal distribution in both age groups.
*Conclusions:* Younger patients are frequently afflicted by symptoms which potentially impair the quality of life. However, in this retrospective single center evaluation the disease localization and behaviour of inflammatory bowel disease in elderly patients was comparable to young adults. Due to a potential referral bias, these data await confirmation in larger prospective multicenter trials.

*Key words:* Inflammatory bowel disease; Elderly; Clinical course; Crohn`s disease; Ulcerative colitis

## Introduction

Inflammatory bowel disease is not exclusively a disease of young adults. A bimodal age distribution has been described repeatedly [1-4] and literature data about the proportion of older patients range between 7 and 38 %. The definition of "old" patients varies remarkably between studies and every chosen age limit is arbitrary. According to the Vienna classification, patients with Crohn`s disease can be divided into two groups depending on the age of onset (< and ≥ 40 years) [5]. Due to its widespread use this classification was employed herein and the two age groups were also applied in ulcerative colitis. In the elderly population a different clinical presentation [6] and a more severe and complicated clinical course were described [7], although recent studies did not confirm these observations [1-3]. However, the substantial proportion of "older" patients with inflammatory bowel disease and differences concerning side effects of medical therapy, which might be more pronounced in older patients [3], underscore the clinical relevance of this issue. In the current study we evaluated possible differences concerning the clinical presentation and disease behaviour in inflammatory bowel disease depending on the age at onset.

## Patients and Methods

The medical charts of 229 patients with inflammatory bowel disease who had been treated in our clinic between 1997 and 2003 were reviewed. 191 patients were eligible for this study, whereas in the remaining patients the availability of data was insufficient for retrospective assessment. Crohn`s disease was classified according to the Vienna classification [5]. The following parameters were evaluated: Gender, age at diagnosis, leading symptoms, disease localization and behaviour (e. g. fistulizing, fibrostenotic or inflammatory), extraintestinal manifestations, need for immunosuppressive therapy (e. g. azathioprine, 6-mercaptopurine or methotrexate), smoking habits, dysplasia, cancer and mortality. Statistical evaluation was performed using the Fisher`s exact test. The level of significance was set at a p value of less than 0.05.

## Results

The baseline characteristics of the study population are given in Table 1. 13 % of patients with Crohn`s disease (11/86) and 20 % of patients with ulcerative colitis (21/103) were older than 40 years at time of diagnosis. Both cases with an indeterminate colitis were diagnosed before age 40. In elderly patients with ulcerative colitis a male predominance was observed ($p<0.01$). Irrespective of the age a statistical insignificant female predominance was found in Crohn`s disease (Table 1). Differences were not observed with respect to disease localization or behaviour in Crohn`s disease (Table 2) or ulcerative colitis (Table 3). The following symptoms were assessed more frequently in young adults with Crohn`s disease or ulcerative colitis:

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*Table 1.* Baseline characteristics of the study population.

| Age of onset | ≥40 years (n) | <40 years (n) |
|---|---|---|
| All patients | | |
| male | 20 | 58 |
| female | 12 | 101 |
| Crohn`s disease | 11 | 75 |
| male | 4 | 24 |
| female | 7 | 51 |
| ulcerative Colitis | 21 | 82 |
| male | 16 | 34 |
| female | 5 | 48 |
| Indeterminate Colitis | 0 | 2 |
| male | 0 | 0 |
| female | 0 | 2 |

*Table 2.* Crohn`s disease according to the Vienna classification.

| | ≥40 years (n) | <40 years (n) |
|---|---|---|
| **L1** | 2 | 14 |
| **L2** | 4 | 24 |
| **L3** | 5 | 22 |
| **L4** | 0 | 15 |
| **B1** | 4 | 23 |
| **B2** | 2 | 20 |
| **B3** | 5 | 32 |

**L1** Disease limited to the terminal ileum with or without spill over into the cecum
**L2** Any colonic location between cecum and rectum with no small bowel or upper gastrointestinal involvement
**L3** Disease of the terminal ileum with or without spill over into cecum and any location between ascending colon and rectum.
**L4** Any disease location proximal to the terminal ileum (excluding the mouth)regardless of additional involvement of the terminal ileum or colon.
**B1** Inflammatory disease which never has been complicated at any time in the course of disease
**B2** Stricturing disease is defined as the occurence of constant luminal narrowing demonstrated by radiologic, endoscopic or surgical-pathologic methods with prestenotic dilatation or obstructive signs/symptoms without presence of penetrating disease at any time in the course of disease.
**B3** Penetrating disease is defined as the occurence of intraabdominal or perianal fistulas, inflammatory masses and/or abscesses at any time in the course of disease. Perianal ulcers are also included. Excluded are postoperative intraabdominal complications and perianal skintags.

diarrhea (87% vs. 72%; $p<0.05$), abdominal pain (77% vs. 56%; $p<0.05$) and anaemia (38% vs. 19%; $p<0.05$). Irrespective of age and underlying diagnosis extraintestinal symptoms were more frequent in women (44% vs. 24%; $p = 0.0057$). However, the frequency of extraintestinal symptoms did not differ between both

*Table 3.* Disease localisation in ulcerative colitis.

| | ≥40 years (n) | <40 years (n) |
|---|---|---|
| distal | 5 | 19 |
| left-sided | 4 | 20 |
| pancolitis | 12 | 39 |
| backwash ileitis | 0 | 4 |

*Table 4.* Extraintestinal symptoms

| Age of onset | ≥40 years (n) | <40 years (n) |
|---|---|---|
| Extraintestinal symptoms | 11 | 58 |
| Pyoderma gangraenosum | 0 | 6 |
| Erythema nodosum | 2 | 12 |
| Episcleritis, uveitis, iritis | 3 | 8 |
| Spondylitis ancylosans | 0 | 5 |
| Arthritis | 8 | 41 |
| Primary sclerosing Cholangitis | 1 | 3 |

age groups (Table 4). Significant differences were also not observed concerning the need for immunosuppressive therapy (40% vs. 31%; $p = 0.43$) or smoking habits (smokers 10 % vs. 3 %; $p = 0.48$). Moreover, we observed significantly more smokers in Crohn`s disease than in ulcerative colitis (16% vs. 4%, $p<0.01$) but this was not dependent on the age. Both cases with colitis associated dysplasia were observed in young adults with long-standing ulcerative colitis, whereas a colitis carcinoma or death related to underlying inflammatory bowel disease were not encountered.

## Discussion

Herein, we observed a male predominance for ulcerative colitis in the older age group, which is in accordance with previous studies [4, 8]. However, a recent trial did not confirm this finding [9]. Presence of anemia and the symptoms diarrhea or abdominal pain, were predominatly reported by younger patients. This observation parallels previous results by Harper and coworkers [10]. The latter symptoms likely impair the quality of life. However, due to the retrospective nature of our study a valid numeric assessment of the quality of life or the disease activity employing widely accepted scores, such as the Crohn`s disease activity index could not be performed and, thus, it has to be kept in mind that these findings might at least partially be subjected to an observational bias.

Apart from the aforementioned parameters, no further differences between both age groups were found in particular not with respect to disease localization or behaviour. However, in the elderly some subgroups were to small for statistical evaluation. If the need for immunosuppressive therapy is used as an additional surrogate marker for a more complicated course of the disease, this parameter was equally distributed in both age groups. The same holds true for presence of ex-

traintestinal symptoms. Hence, based on our data older patients are not prone to experience a more complicated or aggressive course of Crohn`s disease or ulcerative colitis. In addition, our findings sustain the previously described association between smoking and Crohn´s disease [11, 12]. In general, we cannot exclude the possibility that the reported differences might be related to a differential referral bias as our study population stems from an university hospital and because a single center experience is detailed herein.

In summary, we did not assess major differences concerning the disease localization or behaviour between elderly and young adults with inflammatory bowel disease. These data await confirmation in larger, preferably multi-centric prospective trials, which might possibly correlate clinical observations with the genetic background of inflammatory bowel disease.

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*Address for correspondence:*
PD Dr. med Christian Folwaczny
Medizinische Poliklinik Innenstadt, Ludwig-Maximilians-Universität München
Pettenkoferstr. 8a
D-80336 München
Germany
Tel.: 0049-89/5160-2625
Fax: 0049-89/5160-4187
E-mail: Christian.Folwaczny@medinn.med.uni-muenchen.de