Disability from inflammatory bowel disease among employees in West Germany

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SUMMARY The statistics of the German social security system were used to analyse the epidemiology of inflammatory bowel disease (IBD) in Germany and to assess its impact on disability. Patients granted disability pension for IBD were compared with a control group of patients disabled from other causes. Crohn’s disease and ulcerative colitis led to disability in significantly younger patients than other diseases. Disability from Crohn’s disease was 2-0-fold more common in women than men (95% confidence interval: 1·8-2·3), while disability from ulcerative colitis was similar in both sexes. White collar employees were affected by both diseases more frequently than blue collar employees, the ratio being 1·3 (1·2-1·5) in Crohn’s disease and 1·6 (1·4-1·8) in ulcerative colitis. Although IBD is relatively rare, it has severe socioeconomic implications, because compared with other diseases, predominantly young age groups become disabled.

The epidemiology of inflammatory bowel disease (IBD) – that is, Crohn’s disease and ulcerative colitis, has been described in multiple studies from the United States,1-14 the United Kingdom,15-12 Israel,1-12 and the Scandinavian countries.15-17 Although inflammatory bowel disease is quite frequent in West Germany, until now only one published report has dealt with the epidemiology of IBD in Germany.19 In the present study, the statistics of the German social security system were used to analyse the epidemiology of IBD in Germany. Patients granted disability for IBD were compared with patients granted disability for other medical causes. Comparing these two populations, we sought to describe the characteristics of IBD patients with regard to their age, sex, and occupational status.

Methods

SUBJECTS According to German law on social security every employee holds mandatory a disability insurance. The social security system covers 20 million employees – that is, 93% of the German workforce. Civil servants and entrepreneurs or others self-employed with incomes above certain thresholds are covered by a separate governmental insurance system and private insurance companies, respectively. A disability pension is most often granted after a long or complicated case history in which illness has been examined by physicians several times. As disability pension is costly, the report recommending disability payments is scrutinised by the granting insurance company. The insurance company may ask additional consulting physicians to review the case and confirm the diagnosis.20 The age and sex specific numbers of subjects granted a disability pension are accumulated by the Verband Deutscher Rentenversicherungsträger and published annually.20 In addition to age and sex, the numbers are broken down by occupational status, – that is, blue versus white collar employees. The statistics are coded according to the International Classification of Diseases (ICD). In the 9th revision of the ICD used by the Verband Deutscher Rentenversicherungsträger since 1982, regional enteritis (Crohn’s disease) and idiopathic proctocolitis (ulcerative colitis) have been assigned the codes 555 and 556, respectively. In the statistics before 1982, Crohn’s disease and ulcerative colitis were listed together under the summary code 563 (chronic enteritis and ulcerative colitis) of the 8th
revised the ICD. The present study was based on the statistics from 1982 to 1986.

Inflammatory bowel disease patients were compared with all other disability patients serving as controls. The risk of contracting IBD associated with sex and occupational status was assessed by the odds ratio (OR). In calculating the odds ratio for female versus male sex, the confounding effect of age and occupational status was controlled by the procedure of Mantel and Haenszel. Similarly, the confounding effect of age and sex was controlled in calculating the odds ratio for white versus blue collar occupation. The confidence limits of the odds ratio were calculated by the method of Miettinen. The overall significance for the set of $2 \times 2$ tables was tested by the Mantel Haenszel modification of the $\chi^2$ test.\[1\] The age distributions of IBD patients and controls were compared by simple $\chi^2$ test.\[2\]

### Results

On average, 279,000 employees per year were granted a disability pension for medical causes. From 1982 to 1986, 1321 employees were granted a disability pension because of Crohn’s disease, and 766 employees were granted a disability pension because of ulcerative colitis. Table 1 shows disability from Crohn’s disease, ulcerative colitis, and other causes by age, sex, and occupational status. The age distribution of both Crohn’s disease and ulcerative colitis was significantly different from that of other diseases: for Crohn’s disease $\chi^2=5328$, df=6, $p<0.0005$; for ulcerative colitis $\chi^2=545$, df=6, $p<0.0005$ (Figure). In Crohn’s disease, the largest fraction of disability pensions was granted to patients younger than 40 years with a small secondary peak occurring at the age 60 to 64 years. In ulcerative colitis, a bimodal age distribution was also found. Compared with Crohn’s disease, the second peak was larger and affected more age groups. Similar age distributions were found in men and women (Table 1).

Disability from Crohn’s disease was 2.0-fold more common in women than men (95% confidence interval: 1.8–2.3, $\chi^2=154$, $p<0.001$), while disability from ulcerative colitis was similar in both sexes: OR=1.1 (0.9–1.2, $\chi^2=0.5$, $p>0.05$). Disability from both diseases occurred more frequently in white than blue collar employees. In Crohn’s disease, the odds ratio for white versus blue collar occupation was OR=1.3 (1.2–1.5, $\chi^2=25$, $p<0.001$). In ulcerative colitis it was OR=1.6 (1.4–1.8, $\chi^2=36$, $p<0.001$).

### Discussion

In the present study, the data base of the social security system served to assess morbidity from Crohn’s disease and ulcerative colitis in West Germany. Similar to the United States and most northern European countries, the German data show
that women contract Crohn’s disease more frequently than men.\(^1\) Female predominance was less marked in ulcerative colitis than in Crohn’s disease. The reason why women become affected more frequently is unknown. Although the difference between male and female occurrence is not striking, the consistency of this pattern in most European countries and the United States is remarkable.

Crohn’s disease and ulcerative colitis show similar age distributions. In comparison with other diseases, younger age groups become disabled. Although IBD is relatively rare it has severe socioeconomic implications. Some studies found a bimodal age distribution of IBD with a secondary smaller peak of incidence occurring at ages 55 to 65 years.\(^2\)\(^3\) In the present study, the age distributions of both diseases also suggest bimodality with the secondary peak being more pronounced in ulcerative colitis than in Crohn’s disease.

Both Crohn’s disease and ulcerative colitis are associated with significantly higher disability among white than blue collar employees. Other studies have also revealed a higher socioeconomic and educational status of patients with IBD as compared with the general population.\(^4\)\(^5\) A study from Copenhagen, Denmark, showed a higher percentage of subjects with high educational and economic level among patients with ulcerative colitis than in the general population.\(^6\) A study from England suggested subjects in the managerial and skilled manual groups to be more prone to develop Crohn’s disease.\(^7\) In the United States army, Acheson and Nefzger found that more cases with ulcerative colitis than controls had come from professional, managerial, or proprietary levels of employment before entering the army.\(^8\) It appears that white collar employees, high social classes, or professionals are more exposed to some environmental factor which induces or favours the development of IBD.

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References


