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Incidence and Treatment of Patients Diagnosed With Inflammatory Bowel Diseases at 60 Years or Older in Sweden

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BACKGROUND & AIMS: Diagnosis of inflammatory bowel diseases (IBD) is increasing among elderly persons (60 years or older). We performed a nationwide population-based study to estimate incidence and treatment of IBD. **METHODS:** We identified all incident IBD cases in Sweden from 2006 through 2013 using national registers and up to 10 matched population comparator subjects. We collected data on the patients' health care contacts and estimated incidence rates, health service burden, pharmacologic treatments, extra-intestinal manifestations, and surgeries in relation to age of IBD onset (pediatric, <18 years; adults, 18–59 years; elderly, ≥60 years). **RESULTS:** Of 27,834 persons diagnosed with incident IBD, 6443 (23%) had a first diagnosis of IBD at 60 years or older, corresponding to an incidence rate of 35/100,000 person-years (10/100,000 person-years for Crohn's disease, 19/100,000 person-years for ulcerative colitis, and 5/100,000 person-years for IBD unclassified). During a median follow-up period of 4.2 years (range, 0–9 years), elderly patients had less IBD-specific outpatient health care but more IBD-related hospitalizations and overall health care use than adult patients with IBD. Compared with patients with pediatric or adult-onset IBD, elderly patients used fewer biologics and immunomodulators but more systemic corticosteroids. Occurrence of extra-intestinal manifestations was similar in elderly and adult patients, but bowel surgery was more common in the elderly (13% after 5 years vs 10% in adults) ($P < .001$). The absolute risk of bowel surgery was higher in the elderly than in the general population, but in relative terms, the risk increase was larger in younger age groups. **CONCLUSIONS:** In a nationwide cohort study in Sweden, we associated diagnosis of IBD at age 60 years or older with a lower use of biologics and immunomodulators but higher absolute risk of bowel surgery, compared with diagnosis at a younger age. The large differences in pharmacologic treatment of adults and elderly patients are not necessarily because of a milder course of disease and warrant further investigation.

Keywords: CD; UC; Age Differences; Bowel Resection; Colectomy.

The incidence of elderly onset inflammatory bowel disease (IBD) (defined as onset at ≥60 years of age[1]) is expected to increase, because of an ageing population[2] and a rising incidence of IBD worldwide.[3] Studies on the incidence of IBD have presented large variations in incidence rates (IRs) between age strata in the elderly (Supplementary Table 1)[4–26] with IRs for Crohn's disease (CD) between 3 and 6, and IRs between 3 and 17 per 100,000 for ulcerative colitis (UC) in aggregated data for individuals above 60 years of age.[11–13]

The disease characteristics of IBD seem to differ by age at onset.[27] Population-based studies have suggested that late-onset IBD has a milder clinical course, based on a proportionally lower frequency of treatments with immunomodulators and biologics,[11–13] a lower rate of extra-intestinal manifestations,[12,13] yet similar surgery rates.[11–13] However, more recent studies have described a more aggressive disease in elderly onset UC,[28] and higher rates of IBD-associated surgery compared with younger age groups.[29] The use of medical treatment data as a proxy for disease characteristics in patients with elderly onset IBD may be misleading,[1,30–34] because drug treatment in the

Abbreviations used in this paper: **CD, Crohn's disease; CI, confidence interval; HR, hazard ratio; IBD, inflammatory bowel disease; IBD-U, inflammatory bowel disease unclassified; ICD, International Classification of Disease; IR, incidence rate; IRR, incidence rate ratio; UC, ulcerative colitis.**

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EDITOR'S NOTES

BACKGROUND AND CONTEXT

Diagnosis of inflammatory bowel diseases (IBD) is increasing among elderly persons (60 years or older).

NEW FINDINGS

Elderly onset IBD was associated with a lower use of biologics and immunmodulators and a higher absolute risk of bowel surgery compared to younger patients.

LIMITATIONS

Swedish healthcare system offers universal access practically free of charge. The results may not be generalizable in countries where the individual bears more of the cost of medical treatment.

IMPACT

The authors found no evidence of milder clinical course in elderly-onset IBD. The large differences in pharmacological treatment of adults and elderly patients warrant further investigation.

elderly is complicated by comorbidity and polypharmacy[35] with the potential for adverse effects.[36,37] The proposed differences between adult and elderly onset IBD could therefore reflect a cautious attitude among clinicians regarding treatment of the elderly, rather than actual differences in clinical course.

So far, studies on elderly onset IBD have been restricted to tertiary care centers,[11–13] selected multiple tertiary care centers,[28,38] or regional databases,[29,39] and national data are lacking. In Sweden, high-quality data from prospectively collected registers with full coverage enables assessment of both health care[40]and drug use[41] in the whole Swedish population. The aim of this study was to perform a nationwide study investigating the clinical course of IBD in elderly patients by estimating the incidence and describing the treatment of IBD.

Methods

Design

We conducted a cohort study where medical treatment, IBD-related surgeries, extra-intestinal manifestations, and health care use were assessed in relation to age at IBD onset. We also compared health care use and surgery rates in IBD patients and matched reference individuals from the general population.

Register Sources

The unique personal identity number, issued to all Swedish residents,[42] was used to link records from the following nationwide and population-based registers:

The National Patient Register, which holds dates on hospital admissions since 1964, with national coverage since 1987. From 1997 and onwards surgical day care procedures, and since 2001, non-primary outpatient physician visits have been reported to the register. Visits to general practitioners (ie, primary care in Sweden) are not included. Main and contributory diagnoses are coded according to the International Classification of Disease (Tenth Revision since 1997, ICD-10) codes and assigned by the treating physician.[40]

The Prescribed Drug Register contains data on all prescribed drugs dispensed from pharmacies in Sweden from 1 July 2005 and onwards. The coverage of the register is complete for prescriptions in ambulatory care (both specialist and primary care), while in-hospital drug treatment is generally not recorded.[43] Overall, more than 99% of non-infusion biologics use is captured in the Prescribed Drug Register, but infusion biologics are covered to a lesser extent. About 20% of infliximab use in 2009 was found in the prescribed drug register. However, some counties have complete coverage of infliximab in the Patient Register (eg, Stockholm county since 2007).[44]

The Total Population Register covers the entire Swedish population and includes information on age, sex, and place of residence, as well as dates of birth, death, and emigration status.[45] This register was used to identify general population comparator subjects.

Setting

In 2014 Sweden had a population of 9.7 million inhabitants.[45] The Swedish health care system is tax funded and offers universal access. Prescription drugs are provided free of charge above a threshold of 1,800 SEK annually ($185). Patients with IBD are typically diagnosed and treated by gastroenterologists (or pediatric gastroenterologists) in hospital-based outpatient facilities.

Identification of Patients With IBD

The Swedish National Patient Register was used to identify all patients with a first-ever diagnosis of UC, CD, or IBD unclassified (IBD-U) (the list of ICD codes used is provided in Supplementary Table 2) from Jan 1st, 2006 to Dec 31st, 2013. We excluded all patients with an IBD diagnosis before 2006 (diagnosis from inpatient care 1987–2005 or outpatient care 2001–2005). Using 2006 as the first year in the study enabled (a) standardized definition of IBD based on registers with complete coverage from inpatient and outpatient care and prescribed drugs, and (b) up to 42 years of washout with respect to IBD diagnoses from inpatient care, and up to 5 years of washout with respect to IBD diagnoses from non-primary outpatient care, thus minimizing the risk of misclassifying prevalent IBD patients as incident IBD patients. Because the National Patient Register at the time of linkage was updated through 2014, 2013 was used as the last entry year in the study to allow the possibility of a second visit for IBD within 1 year of the first visit.

The definition of IBD required a minimum of 2 inpatient or non-primary outpatient care visits listing a diagnosis of IBD. This definition has a positive predictive value of 93% (95% confidence interval [CI], 87–97).[46] Patients who shifted between UC and CD but only had 1 of the diagnoses during the last 5 years were classified according to their most recent diagnosis. Otherwise, we classified patients with a mix of codes