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International variation in medication prescription rates among elderly patients with inflammatory bowel disease☆

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Abstract

Background and aims: The elderly represent a growing demographic of patients with IBD. No study has previously described variations in care or medication prescriptions in senior patients with IBD. We compared prescription rates among elderly patients with IBD in four countries using health administrative data.
Methods: Databases from the United States (US), United Kingdom (UK), Denmark and Canada were queried. Variation in prescription rates between countries was assessed in patients ≥65 y with prevalent IBD who had ≥1 prescription for an IBD-related medication in a given

Abbreviations: ASA, aminosalicylates; CD, Crohn's disease; DIN, Drug Identification Number; GPRD, General Practice Research Database; IBD, inflammatory bowel disease; MP, mercaptopurine; ODB, Ontario Drug Database; SASP, sulfasalazine; TR, Thompson Reuters; UC, ulcerative colitis; UK, United Kingdom; US, United States.

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quarter between 2004 and 2009. Patients were identified using previously-reported, validated algorithms. Country-specific rates were compared in each quarter using Fisher's exact test.

Results: In patients with Crohn's disease, Canada and US had higher prescription rates for oral 5-ASA ($P<0.0001$ in all quarters) and infliximab ($P<0.05$ in 22/24 quarters), while the US had higher rates of thiopurine usage ($P<0.05$ in 23/24 quarters). Canada had greater rates of methotrexate prescriptions ($P<0.05$ in 21/24 quarters analyzed). In patients with ulcerative colitis (UC), rates of oral steroid usage was lowest in the US ($P<0.05$ in 22/24 quarters) and oral 5-ASA use was highest in the US and Canada ($P<0.0001$ in all quarters). Canada and Denmark used more rectal therapy than the US. Infliximab usage in UC was significantly higher in the US and Canada after 2006.

Conclusions: Significant variation in medication prescription rates exists among countries. Future research should assess whether these differences were associated with disparities in outcomes and health care costs.

1. Introduction

Low fertility and mortality rates are contributing heavily to the aging of populations in developed nations. Countries with the highest percentage of elderly individuals include the United States (US), Canada, and the European countries.[1] The aging population has a huge impact on costs of health care delivery. For example, in Canada alone in 2005, individuals 65 and older accounted for 13.7% of the population, but 60% of all acute care service spending. It is therefore important to study and optimize health care delivery to the elderly.[2] Individuals with inflammatory bowel disease (IBD) represent a chronic disease population with a growing elderly component. Up to 1/3 of new cases of Crohn's disease (CD) occur in elderly patients,[3] and those with long-standing IBD are aging, accounting for a large segment of elderly individuals living with IBD. Little is known about the therapies used internationally in the treatment of IBD in the elderly. A recent study of US hospital discharges showed that geriatric IBD patients accounted for a disproportionate number of admissions; 25% of all IBD-related hospitalizations in 2004.[4] These admissions were associated with substantial morbidity and increased mortality when compared to younger patients. As therapeutic agents have significant implications in both cost and outcomes in IBD, it is important to study prescribing patterns in the elderly and of interest to compare practice patterns internationally.

While variations in care are ubiquitous in medical practice, they can suggest variation in provider or patient preference, regional differences in clinical practice guidelines, as well as system-level differences such as financial reimbursement and insurance policies.[5] Additionally, identification of care variation may facilitate observational and health services research to better understand healthcare utilization, and drug safety in future studies. Previous description of care variations in children with IBD has prompted a quality improvement movement which has positively impacted their outcomes.[6,7] No such assessment of variation in the care of elderly patients with IBD has been undertaken. In this study, we used large, health administrative datasets from the United States of America (US), Canada, the United Kingdom (UK), and Denmark to assess prescription variation among elderly patients with IBD.

2. Materials and methods

This study was approved by the research ethics boards of participating institutions, or has been considered not to be research on human subjects based on analysis of previously collected and de-identified data. Data were shared in aggregate without individual patient data shared across jurisdictions.

2.1. Data sources

We used health administrative or primary care databases to determine medication prescription rates for elderly patients in four jurisdictions. Patients were identified using validated combinations of diagnostic codes derived from both inpatient (except in patients from the UK) and outpatient contacts with their respective health systems. Data from the US were drawn from Thompson Reuters (TR) MarketScan databases (Ann Arbor, Michigan) including the Commercial Claims and Encounters database (January 1, 2000–December 31, 2009), the Medicare Supplemental and Coordination of Benefits database and the Medicaid Multi-State external database (January 1, 2006–December 31, 2009). The TR Commercial data are projectable to the US population covered by employer-sponsored insurance (58% of population) and the TR Medicare data are projectable to the U.S. population with Medicare and supplemental insurance. US Medicare patients required supplemental pharmacy coverage to be included in the TR databases. In 2007, 23% of the 44 million Medicare beneficiaries received their drug benefits through an employer or union-sponsored health plan. The database includes the Medicare-covered portion of payment (represented as Coordination of Benefits Amount), the employer-paid portion, and any out-of-pocket patient expenses. The Medicaid data in the TR database are representative of 12 geographically dispersed US states; these states cannot be identified to ensure anonymity of the population. The number of people >65 years (y) contained within these databases who were eligible for this study ranged from 193,534 to 338,036 from 2004 to 2006 and increased to 2,063,515 to 2,508,534 from 2007 to 2009. Patients with IBD were identified using a previously-described algorithm.[8,9]