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Prevalence of Chronic Narcotic Use Among Children With Inflammatory Bowel Disease

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BACKGROUND & AIMS: **Narcotic analgesics are not recommended for long-term management of pain for patients with inflammatory bowel disease (IBD), particularly pediatric patients. We compared chronic use of narcotics among children with IBD and the general population and investigated factors associated with narcotic use in the pediatric IBD population.**

METHODS: **This cross-sectional study included children (younger than 18 years old) with continuous enrollment in a large administrative claims database from 2010 through 2011 (n = 4,911,286). Children with IBD were identified through diagnosis codes and dispensation of IBD medication (n = 4344); they were matched for age, sex, and region with 5 children without IBD (n = 21,720). Chronic narcotic use was defined as ≥3 dispensements of narcotics. We estimated prevalence odds ratios (PORs) and 95% confidence intervals (CIs), comparing narcotic use on the basis of IBD status and evaluating variables associated with narcotic use by patients with IBD by using conditional and unconditional logistic regression.**

RESULTS: **The prevalence of chronic narcotic use was 5.6% among children with IBD vs 2.3% in the general population (POR, 2.6; 95% CI, 2.2–3.0). Compared with the general population, POR for chronic narcotic use was significantly higher for pediatric IBD patients with psychological impairment (POR, 6.8; 95% CI, 4.3–10.6) than those without (POR, 2.3; 95% CI, 1.9–2.7). Older age, increased healthcare utilization, fracture, and psychological impairment were strongly associated with chronic use of narcotics among children with IBD.**

CONCLUSIONS: **Chronic narcotic use is common in pediatric IBD patients, particularly among those with anxiety and depression. Increased awareness of psychological comorbidity, screening, and treatment may reduce symptoms that lead to narcotic use and its complications.**

Keywords: Crohn's Disease; Ulcerative Colitis; UC; CD.

Narcotics may be prescribed to patients with inflammatory bowel disease (IBD) for temporary pain relief such as to treat an acute flare or alleviate pain after surgery. However, long-term narcotic analgesia is not recommended because of gastrointestinal (GI) side effects, tolerance, and possibility of addiction.[1–4] Furthermore, narcotic use among adult patients with IBD has been associated with increased risk of mortality, serious infection, sleep disorders, pneumonia, and psychiatric disorders.[5–8] In children, chronic treatment with narcotics has additional potential adverse clinical sequelae such as the potential risks of growth failure, malnutrition, opportunistic infections, and hepatosplenic lymphoma.[1]

Although pain control is an important aspect of disease management in pediatric IBD, little is known about chronic narcotic use in children. In a large, primarily adult study of administrative claims data, nearly half of patients with IBD had at least 1 narcotic prescription during a 2-year period, and 20% had ≥3 narcotic prescriptions.[9] Referral center studies of adults with IBD have reported prevalence of narcotic use and dependency of 13% and 3%–4%, respectively.[8,10,11]

Factors associated with narcotic analgesia in adults include IBD-related surgery, polypharmacy, increased pain, more symptoms, worsened disease activity, and smoking.[8–10,12,13] Associations between chronic pain, narcotic use, depression, and anxiety suggest that treating psychiatric comorbidity should be considered as an

Abbreviations used in this paper: **CI, confidence interval; EphMRA, European Pharmaceutical Market Research Association; GI, gastrointestinal; IBD, inflammatory bowel disease; ICD-9-CM, International Classification of Diseases, Ninth Revision, Clinical Modification; PBIRG, Pharmaceutical Business Intelligence and Research Group; POR, prevalence odds ratio.**

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alternative to reliance on analgesics in adult patients.[14] Although children with Crohn's disease are at increased risk of anxiety and depression,[15] the relationship between narcotic use and psychiatric conditions has not yet been assessed in the pediatric IBD population.

Describing the characteristics of children with IBD with long-term narcotic use is important to define the magnitude of this problem in the pediatric population and to identify potential strategies or interventions to reduce chronic narcotic use. The objectives of this study were to compare the prevalence of chronic narcotic use among children with and without IBD and to identify variables associated with narcotic treatment in the pediatric IBD population.

Methods

Study Design and Data Source

This cross-sectional study used data from the Truven Health MarketScan Commercial Claims and Encounters database, an administrative claims database that has been used widely for health research including studies of IBD.[15–18] The database includes approximately 500 million insurance claims on members of the working population younger than age 65 and their dependents who have employer-sponsored health insurance coverage from 1 of approximately 100 employer-sponsored and private health plans. Information includes longitudinal data on inpatient and outpatient diagnoses and procedures linked to demographic characteristics, enrollment details, and prescription claims records.

Sample Population

The source population included all patients aged $\leq$18 years in the Commercial Claims and Encounters MarketScan database with continuous health plan enrollment and pharmacy benefits from January 1, 2010 to December 31, 2011 (n = 4,911,286). Prevalent patients with IBD were identified by using an adaptation of a validated IBD case definition that has been applied previously.[19–23] Children were classified as having IBD if they satisfied either of the following conditions: (1) three or more healthcare contacts for Crohn's disease or ulcerative colitis (International Classification of Diseases, Ninth Revision, Clinical Modification [ICD-9-CM] codes 555.xx and 556.xx, respectively) on separate days or (2) at least 1 healthcare contact for Crohn's disease or ulcerative colitis and at least 1 pharmacy claim for any of the following medications: mesalamine, olsalazine, balsalazide, sulfasalazine, 6-mercaptopurine, azathioprine, methotrexate, enteral budesonide, or biologics (infliximab, adalimumab, certolizumab, or natalizumab). IBD type was classified as Crohn's disease or ulcerative colitis on the basis of the majority of the last 9 claims. Patients who could not be classified as Crohn's disease or ulcerative colitis (n = 40) or who lived in an "Unknown" region (n = 34) were excluded. To focus on non-surgery narcotic use, children were also excluded if they had GI surgery during the study period (Current Procedural Terminology 4 codes 43020–43135, 43280–44346, 44500–45190, 45395–46505, 46700–46999, and 49000–49999; n = 684). At the time each child with IBD entered the study population, he or she was matched on age, gender, and region to 5 randomly sampled members of the study population without IBD.

Chronic Narcotic Use

Narcotic analgesic use was ascertained from dispensed prescription drug claims. Medications coded by using the National Drug Code system were mapped to European Pharmaceutical Market Research Association (EphMRA) and the Pharmaceutical Business Intelligence and Research Group (PBIRG) Anatomical Classification System drug classes. Narcotic use was defined as a claim for EphMRA/PBIRG code N02A0, and participants were classified as chronic users if they had at least 3 narcotic drug claims during the 2-year study period.

Covariates of Interest

Demographic information included age, gender, and region (Northeast, North Central, South, or West). The remaining covariates were classified by using participant data during the entire 2-year study period. Markers of healthcare utilization included the number of inpatient and outpatient contacts and the number of unique generic medications dispensed (excluding narcotic analgesics). IBD medications included oral steroids, oral and rectal aminosalicylates (including mesalamine, olsalazine, balsalazide, sulfasalazine), rectal steroids (enema, suppository, foam), 6-mercaptopurine or azathioprine, methotrexate, cyclosporine or tacrolimus, and biologics (infliximab, adalimumab, certolizumab, or natalizumab).

On the basis of prior associations with narcotic use in the literature[15,24] and clinical judgment, the following comorbidities were identified a priori by using ICD-9-CM diagnosis codes: fracture (800.xx–829.xx), trauma (830.xx–959.xx), anxiety (293.84, 300.0x, 313.0x), and depression (296.2x, 296.3x, 298.0x, 300.4x, 309.1x, 311.xx). Because psychiatric conditions may be underdiagnosed in children or under-ascertained by using diagnosis codes in claims data, prescriptions for anxiolytics (EphMRA/PBIRG code N05C0) and antidepressants (EphMRA/PBIRG codes N06A1, N06A4, N06A5, N06A9, N06C0) were also identified. Hydroxyzine was excluded from the anxiolytics category because it is not primarily used for this indication. Clomipramine and alprazolam are prescribed to treat anxiety disorders and were therefore moved from the EphMRA/PBIRG antidepressant category to anxiolytics. A summary variable for any psychological impairment was defined as any diagnosis or prescription for anxiety or depression.