Impact of COVID-19 on non-COVID related treatment patterns and outcomes in patients with inflammatory bowel disease (IBD)

Scott M. Myers[1], Pamala A. Pawloski[2], Catherine M. Lockhart[2]

[1]PearlDiver Technologies, Colorado Spring, CO, USA [2]Biologics and Biosimilars Collective Intelligence Consortium (BBCIC), Alexandria, VA, USA

BACKGROUND

- The COVID-19 epidemic disrupted healthcare delivery and access to non-COVID related care globally.[1]
- Even patients not directly infected with COVID-19 experienced significant changes to healthcare procedures, routines, and access.[2]
- IBD patients experienced negative impacts in diagnosis and treatment patterns, particularly in the first year of the pandemic.[3]
- Delayed IBD diagnosis can lead to intestinal damage, fibrosis, and need for surgical intervention.[4]
- Disruption to IBD treatments can lead to negative outcomes such as relapse, increased hospitalization rates, higher healthcare expenditures, and greater risk of severe comorbidities.[5]

OBJECTIVE

- Determine the effect of COVID-19 restrictions on treatment patterns, COVID vaccination rates, and outcomes among patients treated with advanced therapies for IBD utilizing real-world claims data.

METHODS

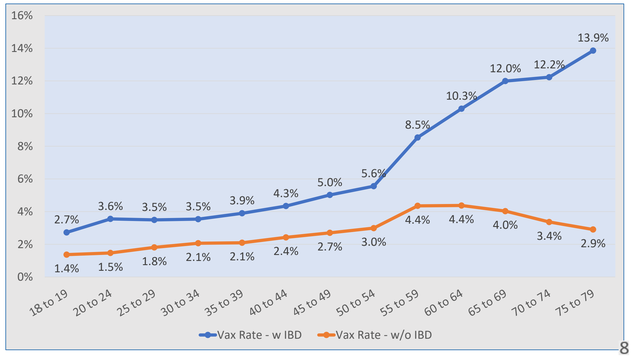
- Data Source: PearlDiver Mariner170 all-payer national claims database.
- Inclusion Criteria:
- Age ≥ 18 at first diagnosis of Crohn's disease (CD) or ulcerative colitis(UC).
- At least 1 claim for advanced therapy between 2018 and 2022
  - adalimumab, certolizumab, golimumab, infliximab, vedolizumab, ustekinumab, etanercept, rituximab, natalizumab, baricitinib, or tofacitinib.
- Rates of COVID vaccination visible in claims, COVID infection, changes in IBD treatment patterns, and IBD-related hospitalizations were evaluated by calendar year.
- IBD patients were matched 1:1 using nearest neighbor propensity scores comparing individuals with no history of IBD diagnosis (controls).

LIMITATIONS

- COVID vaccination reporting is limited to those billed using ICD and CPT claims codes (ICD-10-P-XW013S6, ICD-10-P-XW013T6, ICD-10-P-XW013U6, ICD-10-P-XW023S6, ICD-10-P-XW023T6, ICD-10-P-XW023U6, CPT-0001A, CPT-0002A, CPT-0003A, CPT-0011A, CPT-0012A, CPT-0013A, CPT-0031A).
- COVID infection rates are based on ICD diagnosis codes. Positive results from home testing not followed by a COVID healthcare visit are not reflected in these numbers.

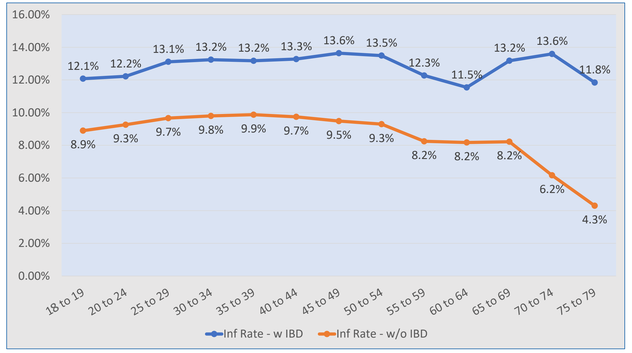
RESULTS

Figure 1. COIVD-19 Vaccination Rates - IBD Cohort



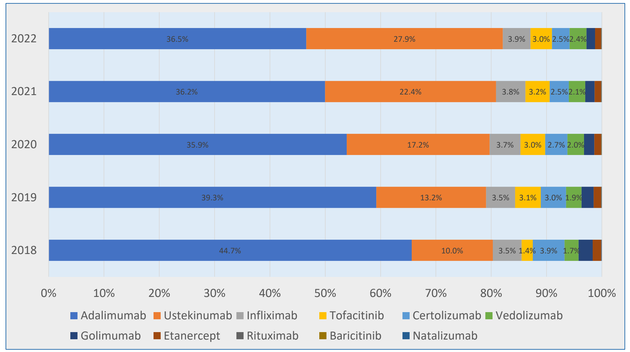
- Rates are based on total within each cohort ('with IBD' and 'without IBD')
- Age range based on age at first IBD diagnosis

Figure 2. COIVD-19 Infection Rates - IBD Cohort



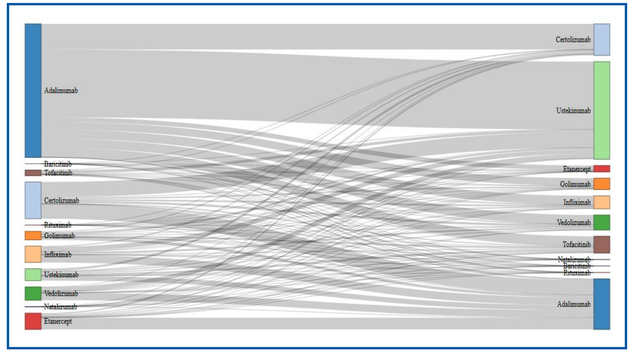
- Rates are based on total within each cohort ('with IBD' and 'without IBD')
- Age range based on age at first IBD diagnosis
- Infection rates based on claims containing a diagnosis for COVID-19

Figure 3. IBD Advanced Therapies by Year



- Patients with ≥1 advanced therapy
- Counts based on membership in cohort receiving each therapy by year

Figure 4. IBD Advanced Therapy Switching



- Last claim for origin therapy must occur between 01 Jan 2018 and 31 Dec 2022
- Drug switched to reflects the next advanced therapy chronologically following cessation of origin therapy

CONCLUSION

- 143,806 patients (58% female) with IBD were included.
- Patients with IBD were more likely to receive a COVID-19 vaccine (5.4%) vs controls (2.6%).
- COVID-19 infection rates were higher in the IBD population (13.0%) vs controls (9.2%).
- From 2018 to 2022, adalimumab was the most common treatment (38.6%), followed by ustekinumab (17.9%), infliximab (3.7%), certolizumab (2.9%), and tofacitinib (2.7%).
- Adalimumab use declined from 44.7% in 2018 to 35.9% in 2022, and certolizumab use declined from 3.9% (2018) to 2.5% (2022); however, ustekinumab use increased from 10.0% (2018) to 27.9% (2022), and tofacitinib, one of the only orally administered options, use increased from 1.4% (2018) to 3.0% (2022).
- Non-COVID hospitalizations decreased from 13.8% in 2019 to 13.3% in 2020, 12.5% in 2021, and 10.4% in 2022.
- COVID-19 vaccination and infection rates were higher among patients with IBD, particularly in ages 65+.
- IBD patients experiencing non-COVID hospitalizations decreased from 2018 (6.4%) to 2022 (4.2%).
- Adalimumab was most utilized from 2018 to 2022, but its use decreased over time (45% to 37%). Ustekinumab use increased over the same period (10% to 28%).
- When switching occurred from 2018 to 2022, the primary switch was from adalimumab to ustekinumab.

REFERENCES

[1]Blumenthal et al., N Engl J Med 2020;383:1483-1488 DOI: 10.1056/NEJMsb2021088
[2]Williams et al., Int J Med Students 11Jun2024;DOI: 10.5195/ijms.2024.2088
[3]Derks et al., Inflammatory Bowel Diseases 2024;30:146-149 DOI: 10.1093/ibd/izad055
[4]Lv et al., World J Gastroenterol 30(35):3954–3958;DOI: 10.3748/wjg.v30.i35.3954
[5]Chan et al., Intestinal Research 2017;15(4):434-445;DOI: https://doi.org/10.5217/ir.2017.15.4.434

SPONSORSHIP

Biologics and Biosimilars Collective Intelligence Consortium (BBCIC)