RWD82
Treatment Patterns of Ulcerative Colitis and Crohn's Disease in Taiwan: A National Health Insurance Research Database Study

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OBJECTIVE

- This study assessed the treatment patterns for people with Ulcerative Colitis (UC) and Crohn's Disease (CD) in Taiwan, with a specific focus on targeted therapies, using Taiwan's National Health Insurance Research Database (NHIRD).

CONCLUSION

- This study underscores the prevailing use of 5-ASA and other conventional therapies in both UC and CD populations, with limited adoption of targeted therapies.
- Notably, the changing landscape of targeted therapy preferences over time suggests evolving treatment strategies for these chronic inflammatory conditions in Taiwan.
- This emphasizes the importance of ongoing research to optimize patient care to enhance treatment options.

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METHODS

Data Source

- Taiwan's National Health Insurance Research Database (NHIRD) was used to perform a retrospective claims-based analysis of people with UC and CD.
- Leveraging the NHIRD, a comprehensive claims-based database encompassing over 99.9% of Taiwan's population, we conducted a cross-sectional analysis from 2016 to 2020 annually.

Study Period

- This study included data from the NHIRD from 2016 through 2020 (the latest year of available data). The cross-sectional analyses was undertaken for each year individually from 2016 through 2020 and develop the cohorts based on the fulfillment of the inclusion and exclusion criteria for each calendar year (Figure 1).

UC and CD Population

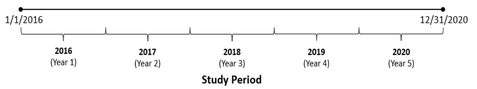
- Participants were enrolled if they: 1) held catastrophic illness certificates for UC (ICD-10-CM code K51) or CD (ICD-10-CM code K50) during the study and 2) were ≥18 years of age.

Targeted Therapy Subgroup

- Participants were stratified into cohorts based on usage of targeted therapies vs. not using targeted therapies during the one year following index. The targeted therapies used for the cohort definitions included infliximab, adalimumab, golimumab, vedolizumab, certolizumab, and ustekinumab.

METHODS

Figure 1. Study Timeline.



Statistical Analysis

- For each calendar year (January 1 through December 31) from 2016 to 2020, we estimated the use of treatments (including the use of glucocorticoids, immunomodulators, targeted therapies, and 5-aminosalicylic acid (5-ASA) therapies) for all people with UC and CD, and the targeted therapy subgroups.
- Results were reported as the total number of participants with UC/CD and the percentage of participants using each treatment

KEY RESULTS

CD Treatment Utilization (Table 1)

- In 2020 (the last year of data in the analysis), 64.76% of people with CD used a 5-ASA class of medication. This was driven largely by the use of mesalazine (oral) (60.38%). Usage of azathioprine (49.66%) and prednisolone (39.13%) was also high.
- Targeted Therapy Agents were used by 38.82% of people with CD.
- Treatment utilization across all classes of drugs increased from 2016 to 2020. For immunomodulating drugs, this increase was largely due to azathioprine, which increased from 38.71% in 2016 to 49.66% in 2020. For 5-ASA, mesalazine (oral) increased from 51.75% in 2016 to 60.38% in 2020.

UC Treatment Utilization (Table 2)

- In 2020, 69.97% of people with UC used 5-ASA. Mesalazine (oral) (62.07%) and mesalazine (topical/rectal) (33.88%) the most common overall treatments, followed by prednisolone (26.19%) and azathioprine (21.74%).
- Targeted Therapy Agents were used by 15.48% of people with UC.
- Treatment Utilization across all classes of drugs increased from 2016 to 2020.

Targeted Therapy Utilization

- This treatment mix of targeted therapy usage evolved over time for people with CD, with adalimumab exclusively used in 2016. By 2020, adalimumab represented 56.19% of targeted therapies administered, followed by vedolizumab (33.33%), infliximab (15.71%), and ustekinumab (3.02%) (Table 3).
- Among people with UC in 2016, targeted therapy mainly consisted of adalimumab (78.26%) and golimumab (21.74%), but by 2020, vedolizumab had taken the lead (46.58%), followed by adalimumab (41.07%), golimumab (11.46%), and infliximab (8.48%) (Table 3).
- For both disease areas, adalimumab lost the greatest share and vedolizumab gained the greatest share of usage (Figure 2). Utilization across all classes of drugs increased from 2016 to 2020

Figure 2. Targeted Therapy percentage point change (2016-2020).

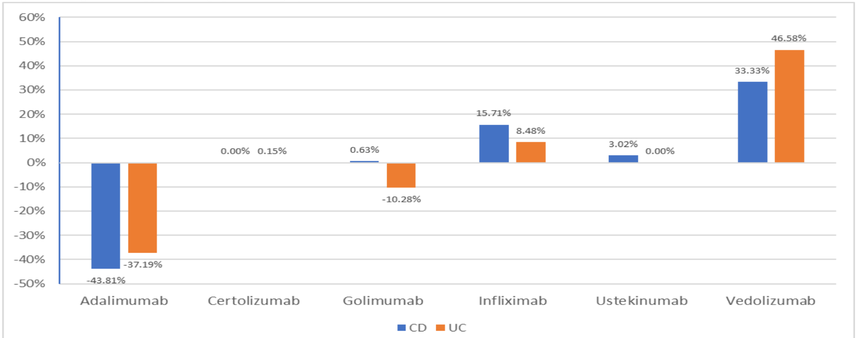


Table 2. UC Treatment Utilization over Time.

UC (Prevalent cohort)	Year 2016		2017		2018		2019		2020	
	N	%	N	%	N	%	N	%	N	%
All people with UC (Prevalent cohort)	3031		3349		3665		4029		4342	
5-Aminosalicylic Acid	1969	64.96%	2244	67.01%	2506	68.38%	2781	69.02%	3038	69.97%
Sulfasalazine	248	8.18%	247	7.38%	249	6.79%	257	6.38%	256	5.90%
Mesalazine (Oral)	1675	55.26%	1959	58.50%	2205	60.16%	2460	61.06%	2695	62.07%
Mesalazine (Topical/Rectal)	891	29.40%	1048	31.29%	1202	32.80%	1333	33.09%	1471	33.88%
Immunomodulating Drugs	408	13.46%	557	16.63%	729	19.89%	881	21.87%	989	22.78%
Azathioprine	372	12.27%	520	15.53%	686	18.72%	833	20.68%	944	21.74%
Methotrexate	27	0.89%	23	0.69%	34	0.93%	35	0.87%	31	0.71%
Cyclosporin	11	0.36%	12	0.36%	7	0.19%	15	0.37%	11	0.25%
6-mercaptopurine	16	0.53%	14	0.42%	15	0.41%	16	0.40%	13	0.30%
Tacrolimus	6	0.20%	2	0.06%	2	0.05%	2	0.05%	5	0.12%
Targeted Therapy Agents	92	3.04%	281	8.39%	420	11.46%	555	13.78%	672	15.48%
Infliximab	0	0.00%	1	0.03%	10	0.27%	40	0.99%	57	1.31%
Adalimumab	72	2.38%	197	5.88%	254	6.93%	276	6.85%	276	6.36%
Golimumab	20	0.66%	97	2.90%	114	3.11%	97	2.41%	77	1.77%
Vedolizumab	0	0.00%	2	0.06%	72	1.96%	185	4.59%	313	7.21%
Certolizumab	0	0.00%	0	0.00%	0	0.00%	1	0.02%	1	0.02%
Ustekinumab	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Glucocorticoids	784	25.87%	910	27.17%	1017	27.75%	1144	28.39%	1312	30.22%
Methylprednisolone	120	3.96%	142	4.24%	157	4.28%	183	4.54%	191	4.40%
Hydrocortisone (Oral)	103	3.40%	115	3.43%	132	3.60%	154	3.82%	184	4.24%
Hydrocortisone (Topical/Rectal)	3	0.10%	3	0.09%	1	0.03%	6	0.15%	8	0.18%
Prednisolone	747	24.65%	872	26.04%	973	26.55%	1071	26.58%	1137	26.19%
Budesonide (oral)	0	0.00%	0	0.00%	0	0.00%	35	0.87%	192	4.42%

Table 1. CD Treatment Utilization over Time.

CD (Prevalent cohort)	Year 2016		2017		2018		2019		2020	
	N	%	N	%	N	%	N	%	N	%
All people with CD (Prevalent cohort)	974		1111		1264		1456		1623	
5-Aminosalicylic Acid	555	56.98%	683	61.48%	795	62.90%	920	63.19%	1051	64.76%
Sulfasalazine	82	8.42%	81	7.29%	98	7.75%	93	6.39%	96	5.91%
Mesalazine (Oral)	504	51.75%	628	56.53%	736	58.23%	859	59.00%	980	60.38%
Mesalazine (Topical/Rectal)	50	5.13%	60	5.40%	58	4.59%	70	4.81%	69	4.25%
Immunomodulating Drugs	412	42.30%	489	44.01%	629	49.76%	725	49.79%	848	52.25%
Azathioprine	377	38.71%	447	40.23%	587	46.44%	679	46.63%	806	49.66%
Methotrexate	34	3.49%	39	3.51%	42	3.32%	38	2.61%	36	2.22%
Cyclosporin	1	0.10%	1	0.09%	2	0.16%	3	0.21%	4	0.25%
6-mercaptopurine	17	1.75%	16	1.44%	16	1.27%	17	1.17%	14	0.86%
Tacrolimus	4	0.41%	6	0.54%	7	0.55%	4	0.27%	4	0.25%
Targeted Therapy Agents	266	27.31%	349	31.41%	478	37.82%	573	39.35%	630	38.82%
Infliximab	0	0.00%	12	1.08%	37	2.93%	58	3.98%	99	6.10%
Adalimumab	266	27.31%	341	30.69%	401	31.72%	389	26.72%	354	21.81%
Golimumab	0	0.00%	0	0.00%	1	0.08%	4	0.27%	4	0.25%
Vedolizumab	0	0.00%	11	0.99%	82	6.49%	161	11.06%	210	12.94%
Certolizumab	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Ustekinumab	0	0.00%	0	0.00%	0	0.00%	0	0.00%	19	1.17%
Glucocorticoids	378	38.81%	443	39.87%	532	42.09%	608	41.76%	732	45.10%
Methylprednisolone	93	9.55%	103	9.27%	113	8.94%	130	8.93%	140	8.63%
Hydrocortisone (Oral)	75	7.70%	93	8.37%	116	9.18%	144	9.89%	193	11.89%
Hydrocortisone (Topical/Rectal)	4	0.41%	3	0.27%	3	0.24%	5	0.34%	1	0.06%
Prednisolone	353	36.24%	406	36.54%	488	38.61%	543	37.29%	635	39.13%
Budesonide (oral)	0	0.00%	0	0.00%	0	0.00%	1	0.07%	10	0.62%

Table 3. Targeted Therapy Utilization Annually for CD and UC .

	Year 2016		2017		2018		2019		2020	
	N	%	N	%	N	%	N	%	N	%
All people with CD (Prevalent cohort)	974		1111		1264		1456		1623	
Targeted Therapy Agents (% of Total)	266	27.31%	349	31.41%	478	37.82%	573	39.35%	630	38.82%
Infliximab	0	0.00%	12	3.44%	37	7.74%	58	10.12%	99	15.71%
Adalimumab	266	100.00 %	341	97.71%	401	83.89%	389	67.89%	354	56.19%
Golimumab	0	0.00%	0	0.00%	1	0.21%	4	0.70%	4	0.63%
Vedolizumab	0	0.00%	11	3.15%	82	17.15%	161	28.10%	210	33.33%
Certolizumab	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%
Ustekinumab	0	0.00%	0	0.00%	0	0.00%	0	0.00%	19	3.02%
All UC Patients (Prevalent cohort)	3031		3349		3665		4029		4342	
Targeted Therapy Agents (% of Total)	92	3.04%	281	8.39%	420	11.46%	555	13.78%	672	15.48%
Infliximab	0	0.00%	1	0.36%	10	2.38%	40	7.21%	57	8.48%
Adalimumab	72	78.26%	197	70.11%	254	60.48%	276	49.73%	276	41.07%
Golimumab	20	21.74%	97	34.52%	114	27.14%	97	17.48%	77	11.46%
Vedolizumab	0	0.00%	2	0.71%	72	17.14%	185	33.33%	313	46.58%
Certolizumab	0	0.00%	0	0.00%	0	0.00%	1	0.18%	1	0.15%
Ustekinumab	0	0.00%	0	0.00%	0	0.00%	0	0.00%	0	0.00%

Limitations

- This is an analysis of Taiwan's NHIRD, which only includes medical services reimbursed by the NHI and does not include any out-of-pocket expenses or services not covered by the NHI or services received outside of Taiwan. Analysis based solely on claims would result in an underreporting of healthcare resource utilization and costs from a patient's perspective.
- Due to the nature of coding in the NHIRD there is a limited risk of miscoding the severity of disease, and therefore potential for misdiagnosis.
- Without clinical information, the reliance on ICD codes can also lead to misdiagnosis, which would result in patients mistakenly included or excluded in the study.

Disclosures: DS and BW are employees of Elysia who was sponsored to conduct the study by Eli Lilly and Company, United Kingdom. CYW, RSN, and KJN are employees of, and minor shareholders in, Eli Lilly and Company.