HSD32

Treatment Patterns and Healthcare Resource Use Among Patients with Axial Spondyloarthritis and Comorbid Inflammatory Bowel Disease

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Objective

To describe the real-world demographics, clinical characteristics, and treatment patterns of patients newly diagnosed with axial spondyloarthritis (axSpA), stratified by comorbid inflammatory bowel disease (IBD).

Methods

- Data were extracted from the IBM® MarketScan® database (Commercial and Medicare Supplemental) from January 2015–March 2020.
- Eligible patients were ≥18 years of age with ≥1 axSpA diagnosis (based on the International Classification of Diseases [ICD]-9/10 diagnostic codes) and a 12-month baseline period with continuous eligibility (**Figure 1**).
- Index was the first recorded axSpA diagnosis during the identification period. Patients were followed to the end of study period or loss of eligibility (**Figure 1**).
- Demographics, clinical characteristics, and treatment patterns were assessed using descriptive analyses and stratified by comorbid IBD (baseline history of IBD was identified by ICD-9/10 diagnostic codes).
  - Biologic disease-modifying antirheumatic drug (bDMARD) treatment patterns for patients with axSpA and comorbid IBD (axSpA/IBD) were assessed by FDA-approved indication and biologic mechanism of action (MOA).
  - Patients with axSpA who were newly diagnosed with IBD at index were excluded from these analyses.

Results

Demographics and Treatment Patterns

- The study included 397,735 eligible patients diagnosed with axSpA; 98.3% (n=390,935) of patients did not have comorbid or index IBD while 1.7% (n=6,628) had axSpA/IBD (**Figure 2**).
  - Among patients with axSpA/IBD, 55.1% had ulcerative colitis, 54.2% had Crohn's disease, and 9.3% had both conditions.
- Demographic characteristics among patients diagnosed with axSpA were similar, regardless of comorbid IBD (**Table 1**).
- Diagnosis with comorbid conditions at baseline was higher for patients with axSpA/IBD (Charlson Comorbidity Index [CCI]: 0.9) compared with axSpA patients without IBD (CCI: 0.6; **Table 1**).
- Opioid, corticosteroid, and bDMARD use was greater among patients with comorbid IBD compared with patients without IBD during baseline and follow-up (**Figure 3A**).

bDMARD Use Among Patients with axSpA/IBD

- During follow-up, bDMARD use among axSpA patients with comorbid IBD (n=6,628) increased compared with baseline (31.9%; n=2,117 vs. 27.9%; n=1,849) and remained higher compared with axSpA patients without IBD (n=8,825; 2.3%; **Figure 3A**).
  - Among axSpA/IBD patients treated with bDMARDs during follow-up (n=2,117), 87.9% (n=1,861) of patients with axSpA/IBD received axSpA/IBD-indicated bDMARDs, 16.4% (n=347) IBD-indicated, and 3.0% (n=63) axSpA-indicated.
  - By MOA, TNFi was the most common bDMARD treatment among patients with axSpA/IBD during baseline and follow-up (**Figure 3B**).
- bDMARD treatment pattern among patients with axSpA/IBD (n=6,628) is shown in **Table 2**.
  - Most (22.8%; n=1,510) patients with axSpA/IBD maintained bDMARD treatment with the same FDA-approved indication from baseline to follow-up (maintenance rates by FDA-approved indication: 81.8% axSpA/IBD; 83.4% IBD only; 67.6% axSpA only; **Table 2A**).
  - Less than 1.0% (n=63) of patients switched to a bDMARD with a different FDA-approved indication; among patients who switched, 81.0% switched from axSpA/IBD-indicated bDMARDs to IBD-indicated bDMARDs (**Table 2A**).
  - Among those who initiated a new bDMARD (8.2%, n=544), the majority (87.1%) used axSpA/IBD-indicated bDMARDs (**Table 2A**).
  - Discontinuation rate for bDMARDs was 4.2% (n=276), 90.6% of patients discontinued axSpA/IBD-indicated bDMARDs (**Table 2A**).
  - bDMARD treatment pattern based on MOA was similar in terms of maintenance, switching, initiation, and discontinuation rates (**Table 2B**).

Limitations

Identification of medical conditions using ICD codes, which are for administrative purposes, may result in underrepresentation or misclassification of medical conditions | Small sample size for patients when separated by FDA indication status for bDMARDs may impact the interpretation of the data.

Conclusions

Understanding the treatment journey for patients with axSpA and comorbid IBD may inform treatment decisions.

axSpA/IBD patients had greater baseline disease burden compared with axSpA patients without IBD. Most axSpA/IBD patients used bDMARDs indicated for both axSpA and IBD during baseline and maintained through follow-up; few patients used bDMARDs indicated for axSpA only.

Graphical Summary

This study describes the demographics, clinical characteristics, and treatment patterns of patients diagnosed with axSpA, stratified by comorbid IBD

Data extracted from the IBM® MarketScan® database

January 2015 to March 2020

Compared with axSpA patients without IBD, **patients with axSpA and IBD** had a **higher baseline**:

mean Charlson Comorbidity Index | **bDMARD use** | **corticosteroid use**

Among **patients with axSpA and IBD**

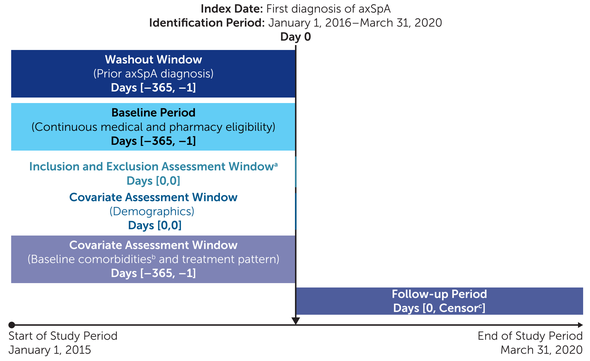
64% never used bDMARDs during baseline or follow-up

23% used bDMARDs of the same FDA-indication during baseline and follow-up

13% switched, initiated, or discontinued bDMARDs during follow-up

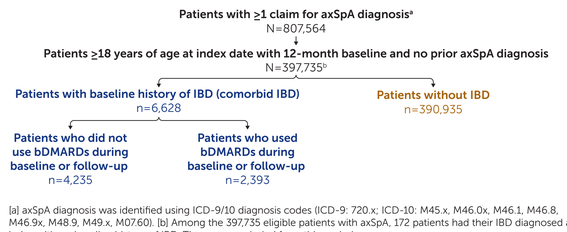
Following axSpA diagnosis, **most patients with axSpA and IBD** treated with bDMARDs **used axSpA/IBD-indicated** bDMARDs; **few patients** used bDMARDs **indicated for axSpA only**

Figure 1 Study design



[a] Eligible patients were ≥18 years of age at index, had ≥1 diagnostic code for axSpA (ICD-9: 720.x; ICD-10: M45.x, M46.0x, M46.1, M46.8, M46.9x, M48.9, M49.x, M07.60), and continuous enrollment during the 12-month baseline period. [b] Comorbidities were identified by ICD-9/10 diagnostic codes. Comorbid IBD was identified using the ICD-9 codes: 555.x, 556.x and ICD-10 codes: K50.x, K51.x. [c] Patients were censored at end of continuous medical or pharmacy eligibility or end of study period.

Figure 2 Study attrition



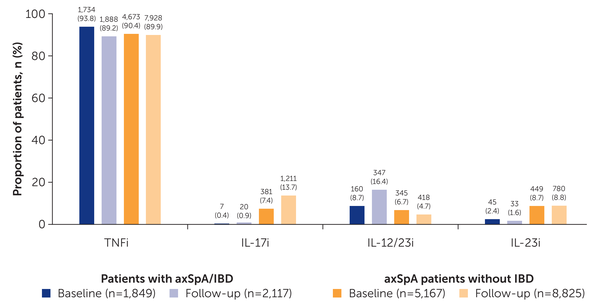
[a] axSpA diagnosis was identified using ICD-9/10 diagnosis codes (ICD-9: 720.x; ICD-10: M45.x, M46.0x, M46.1, M46.8, M46.9x, M48.9, M49.x, M07.60). [b] Among the 397,735 eligible patients with axSpA, 172 patients had their IBD diagnosed at index with no baseline history of IBD. They were excluded from this analysis.

Table 1 Baseline demographics and clinical characteristics

	axSpA patients with comorbid IBD n=6,628	axSpA patients without IBD n=390,935
Age, years, mean ± SD	51.1 ± 14.5	52.5 ± 14.8
Female, n (%)	4,184 (63.1)	243,063 (62.2)
Region, n (%)		
Northeast	1,230 (18.6)	56,725 (14.5)
North Central	1,685 (25.4)	93,750 (24.0)
South	2,779 (41.9)	179,604 (45.9)
West	920 (13.9)	60,204 (15.4)
Unknown	14 (0.2)	652 (0.2)
Payer insurance, n (%)		
Commercial and Medicare	58 (0.9)	2,839 (0.7)
Commercial	5,683 (85.7)	331,376 (84.8)
Medicare	887 (13.4)	56,720 (14.5)
Capitated health plan type, n (%)	800 (12.1)	43,735 (11.2)
Charlson comorbidity Index, mean ± SD	0.9 ± 1.4	0.6 ± 1.2
Comorbidities, n (%)		
Chronic pulmonary disease	1,221 (18.4)	56,970 (14.8)
Mild liver disease	679 (10.2)	16,936 (4.4)
Anxiety	1,578 (23.8)	71,945 (18.4)
Depression	1,260 (19.0)	56,603 (14.5)
Hypertension	2,578 (38.9)	155,855 (39.9)
Hyperlipidemia	2,283 (34.4)	147,775 (37.8)
Diabetes	893 (13.5)	58,235 (14.9)
Rheumatoid arthritis	716 (10.8)	13,966 (3.6)

Figure 3 Treatment pattern during baseline and follow-up, stratified by comorbid IBD

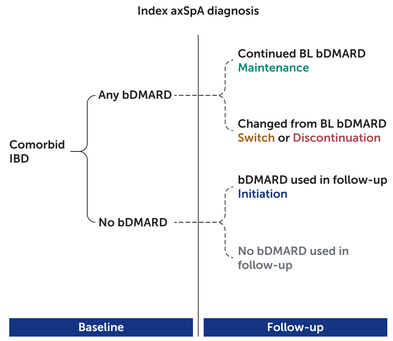
B) bDMARDs



A) Medications of interest

Table 2 bDMARD treatment pattern among patients with axSpA/IBD during baseline and follow-up by (A) FDA-approved indication and (B) MOA

Treatment pattern key[a]



A) bDMARD use by FDA-approved indication (N=6,628)

Baseline bDMARD (n)	bDMARD used during follow-up, n (%)			
	None	axSpA/IBD-indicated	IBD-indicated	axSpA-indicated
None (4,779)	4,235 (88.6)	474 (9.9)	54 (1.1)	16 (0.3)
axSpA/IBD-indicated (1,661)	250 (15.1)	1,359 (81.8)	51 (3.1)	1 (0.1)
IBD-indicated (151)	17 (11.3)	7 (4.6)	126 (83.4)	1 (0.1)
axSpA-indicated (37)	9 (24.3)	3 (8.1)	0 (0.0)	25 (67.6)

No bDMARD (63.9%) | Maintained (22.8%) | Switched (1.0%) | New initiation (8.2%) | Discontinued (4.2%)

B) bDMARD use by MOA (N=6,628)

Baseline bDMARD (n)	bDMARD used during follow-up, n (%)			
	None	TNFi	IL-17i	IL-12/23i
None (4,779)	4,235 (88.6)	487 (10.2)	3 (0.1)	54 (1.1)
TNFi (1,693)	259 (15.3)	1,382 (81.6)	1 (0.1)	51 (3.0)
IL-17i (5)	0 (0.0)	0 (0.0)	5 (100.0)	0 (0.0)
IL-12/23i (151)	17 (11.3)	7 (4.6)	1 (0.7)	126 (83.4)

No bDMARD (63.9%) | Maintained (22.8%) | Switched (1.0%) | New initiation (8.2%) | Discontinued (4.2%)

[a] Patients may have used >1 class of bDMARDs during baseline or follow-up. However, for this analysis, the baseline bDMARD was the last biologic used immediately prior to index while the follow-up bDMARD was the first biologic used immediately on or after index.

axSpA: axial spondyloarthritis; **bDMARDs:** biologic disease-modifying antirheumatic drugs; **BL:** baseline; **CCI:** Charlson Comorbidity Index; **FDA:** US Food and Drug Administration; **i:** inhibitor; **IBD:** inflammatory bowel disease; **ICD-9/10:** International Classification of Diseases, Ninth/Tenth Revision; **IL:** interleukin; **MOA:** mechanism of action; **SD:** standard deviation; **TNF:** tumor necrosis factor; **US:** United States; **vs:** versus.

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