Treatment Journey of Patients with Non-Radiographic Axial Spondyloarthritis in a US Rheumatology Office Setting: A Retrospective Chart Review

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Objective

This study aimed to assess the path to diagnosis and treatment for non-radiographic axial spondyloarthritis (nr-axSpA) patients by evaluating time to diagnosis, treatment patterns, and clinical care before and after diagnosis.

Background

- Nr-axSpA is a chronic rheumatic disease mainly affecting the axial skeleton.[1]
- Limited awareness and lack of definitive diagnostic criteria may lead to alternative diagnoses and inadequate intervention.[1]
- The journey to nr-axSpA diagnosis is frequently protracted and patients may receive inappropriate treatment.

Methods

- Medical record data were extracted from the American Rheumatology Network database by Trio Health (January 2014–May 2021; **Figure 1**).
- Eligible patients were ≥18 years old, diagnosed with nr-axSpA, with ≥1 visit ≥30 days post-index visit (associated with earliest record of nr-axSpA).
- To describe the patient journey, we report referring physician specialty, prior diagnoses (via International Classification of Diseases [ICD]/Systemized Nomenclature of Medicine [SNOMED] codes), time from first rheumatology visit to nr-axSpA diagnosis (Kaplan-Meier estimate), therapies before/after diagnosis, and Assessment of SpondyloArthritis international Society (ASAS) classification criteria.

Results

Patient Demographics and Baseline Characteristics

- A total of 56 patients met the eligibility criteria for inclusion in the study (**Table 1**).
- Patients were primarily white (62.5%) and female (78.6%) with a median age of 43 years at diagnosis.
- Most common diagnoses by a rheumatologist prior to the index date were ankylosing spondylitis (42.9%), rheumatoid arthritis (30.4%), and infectious arthritis (21.4%; **Table 1**).
- Most patients were referred to rheumatology from family medicine (39.3%) or internal medicine (16.1%; **Table 2**).

Diagnosis and Treatment History

- Median time from first rheumatology visit to nr-axSpA diagnosis was 7.1 months (95% confidence interval: 5.3, 12.5; **Figure 2**); time to diagnosis was within 6 months for 42.9% and within 12 months for 62.5% of patients.
- Treatment utilization was highest for non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, and synthetic disease-modifying antirheumatic drugs (DMARDs) both before and after nr-axSpA diagnosis.
  - Before diagnosis, 32/50 (64.0%), 24/50 (48.0%), and 5/50 (10.0%) of included patients used NSAIDs, corticosteroids, and opioids, respectively, versus 39/56 (69.6%), 24/56 (42.9%), and 6/56 (10.7%) post-diagnosis.
  - Biologic DMARDs and conventional synthetic DMARDs were used by 8/50 (16.0%) and 26/50 (52.0%) of patients, respectively, before, versus 34/56 (60.7%) and 37/56 (66.1%) post-diagnosis.
- Only 14/56 (25.0%) of patients met ASAS clinical criteria for nr-axSpA classification (**Table 3**).

Summary

Medical record data were extracted from the American Rheumatology Network database.

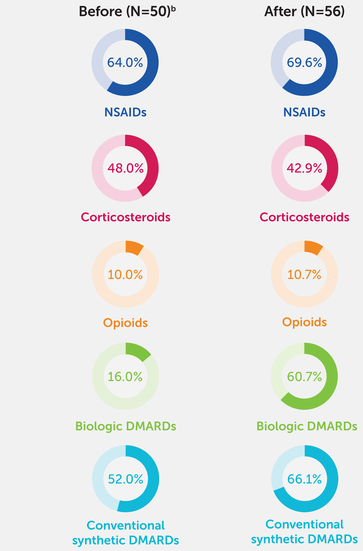
Median time to diagnosis of nr-axSpA[a]

7.1 months

1 month — 12 months

[a]Time to diagnosis since being referred to a rheumatologist.

Treatment utilization before and after nr-axSpA diagnosis



[b]Patients diagnosed at first visit excluded from this assessment.

Clinical Implications: The journey to nr-axSpA diagnosis is frequently protracted, which means that patients may receive inappropriate treatment.

Figure 1 Study Design

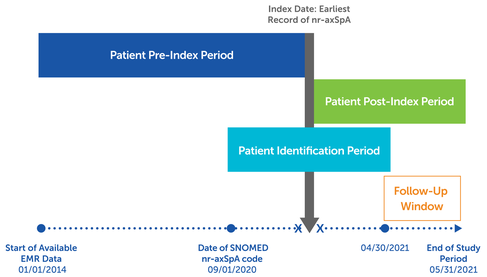
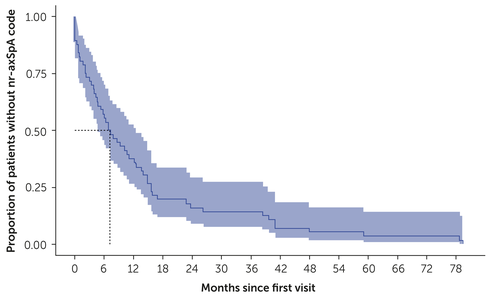


Figure 2 Kaplan-Meier Curve for Time from First Rheumatology Visit to First nr-axSpA Diagnosis Code[a]



[a]Median time to diagnosis: 7.1 months (95% confidence interval: 5.3, 12.5).

Table 1 Patient Demographics and Clinical Characteristics at Index Date

Characteristic	Included Patients (N=56)
Gender, n (%)	
Female	44 (78.6%)
Male	12 (21.4%)
Race/Ethnicity, n (%)	
White	35 (62.5%)
Black or African American	1 (1.8%)
Hispanic/Latino	3 (5.4%)
Not Reported	17 (30.4%)
Age (years), n (%)	
median (IQR)	43 (35, 51)
18–34	14 (25.0%)
35–49	26 (46.4%)
50–64	12 (21.4%)
65–79	4 (7.1%)
≥80	0 (0.0%)
Comorbidities Prior to Index Date, n (%)	
Hypertension	2 (3.6%)
Asthma/COPD	6 (10.7%)
Osteoporosis	2 (3.6%)
PAH	0 (0.0%)
Depression	8 (14.3%)
Diabetes	0 (0.0%)
Prior Cancer/Malignancy	3 (5.4%)
TB Positive	0 (0.0%)
Rheumatic/Autoimmune Diagnosed within ARN[a], n (%)	
Infectious Arthritis	12 (21.4%)
AS	24 (42.9%)
RA	17 (30.4%)
Sjogren's	4 (7.1%)
CTD	6 (10.7%)
Fibromyalgia	8 (14.3%)
PsA	2 (3.6%)
IBD	0 (0.0%)
Ulcerative Colitis	0 (0.0%)
Lupus	1 (1.8%)
Polymyalgia Rheumatica	1 (1.8%)

[a]Required two diagnoses recorded in EMR.

Table 2 Referring Physician Specialties

Referring Physician Specialty, n (%)	Included Patients (N=56)
Family Medicine	22 (39.3)
Internal Medicine	9 (16.1)
Nurse Practitioner Family	3 (5.4)
Self-referral	3 (5.4)
Internal Medicine Pulmonary Disease	1 (1.8)
Internal Medicine/Rheumatology	1 (1.8)
Ophthalmology	1 (1.8)
Pain Medicine/Interventional Pain Medicine	1 (1.8)
Pediatrics	1 (1.8)
Unknown	14 (25.0)

Table 3 Prevalence of ASAS Classification Criteria at First Visit and Through Index Date

Sign/Symptom	Documented at First Visit (N=56)	Documented at or Prior to Index Date (N=56)
ASAS Classification Criteria, n (%)		
Good Response to NSAID	8 (14.3)	14 (25.0)
HLA-B27	10 (17.9)	30 (53.6)
Inflammatory Back Pain[a]	16 (28.6)	30 (53.6)
Peripheral Arthritis	27 (48.2)	32 (57.1)
Dactylitis	5 (8.9)	7 (12.5)
Enthesitis	3 (5.4)	8 (14.3)
Family History of SpA	7 (12.5)	8 (14.3)
Uveitis	4 (7.1)	4 (7.1)
Iritis	4 (7.1)	4 (7.1)
Psoriasis	3 (5.4)	5 (8.9)
IBD	1 (1.8)	1 (1.8)
Elevated CRP	5 (8.9)	11 (19.6)
Imaging Evidence of Sacroiliitis[b]	0 (0.0)	4 (7.1)
Meets ASAS Clinical Arm Criteria: HLA-B27+ with ≥2 SpA Features, n (%)	3 (5.4)	14 (25.0)
Meets ASAS Imaging Criteria: Sacroiliitis[b] with ≥1 Features, n (%)	0 (0.0)	2 (3.6)

[a]Defined as 'inflammatory back pain' or back pain with any of the following: improvement with movement, response to NSAID, waking up at night/worsening with rest; [b]Sacroiliitis may be definite radiographically according to modified New York criteria, or by active inflammation on SI joint MRI (clear presence of bone marrow edema or osteitis).

Conclusions

- The journey to diagnosis for patients with nr-axSpA is often protracted, delaying adequate intervention.
- Clinical manifestations often failed to meet nr-axSpA classification criteria, and documented opioid use suggests patients may receive inappropriate treatments even after nr-axSpA diagnosis.
- There is a need for an improved pathway to nr-axSpA diagnosis and greater awareness of the condition among clinicians.

ARN: American Rheumatology Network; **AS:** ankylosing spondylitis; **ASAS:** Assessment of SpondyloArthritis international Society; **axSpA:** non-radiographic axial spondyloarthritis; **COPD:** chronic obstructive pulmonary disease; **CTD:** connective tissue disease; **CRP:** C-reactive protein; **DMARD:** disease-modifying antirheumatic drug; **EMR:** electronic medical record; **HLA-B27:** human leukocyte antigen B27; **IBD:** inflammatory bowel disease; **ICD:** International Classification of Diseases; **IQR:** interquartile range; **MRI:** magnetic resonance imaging; **NSAID:** non-steroidal anti-inflammatory drug; **PAH:** pulmonary arterial hypertension; **PsA:** psoriatic arthritis; **RA:** rheumatoid arthritis; **SNOMED:** Systemized Nomenclature of Medicine; **SpA:** spondyloarthritis; **SI:** sacroiliac; **TB:** tuberculosis.

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References: 1. Mease P. BMC Musculoskelet Disord. 2022; 23: 240. **Author Contributions:** Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: **RL, SH, SB, AF;** drafting of the publication, or revising it critically for important intellectual content: **RL, SH, SB, AF;** final approval of the publication: **RL, SH, SB, AF. Author Disclosures: RL:** Employee and stockholder of UCB Pharma; **SH:** Employee of Bristol Myers Squibb, former employee of UCB Pharma; **SB:** Employee and stockholder of UCB Pharma; **AF:** Employee of Trio Health Inc.; research funding from AbbVie, Horizon, and GSK. **Acknowledgements:** This study was funded by UCB Pharma. We would like to thank the patients and their caregivers in addition to the investigators and their teams who contributed to this study. The authors acknowledge Quinn Ho, PhD, Costello Medical, Boston, MA, for medical writing, and Joanna Honc of the Design team at Costello Medical for graphic design assistance. All costs associated with development of this poster were funded by UCB Pharma.