Public health, health services research, and health economics

POS1411 EARLY IDENTIFICATION OF AXIAL SPONDYLOARTHRITIS IN A MULTI-ETHNIC ASIAN POPULATION

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Background: To facilitate earlier diagnosis of spondyloarthritis (SpA), we have previously cross-culturally adapted a self-administered screening questionnaire.
Objectives: We aimed to improve the sensitivity of this questionnaire as a screening tool by comparing various scoring methods.
Methods: Subjects newly referred to a rheumatology clinic self-administered the questionnaire before seeing a rheumatologist. Identification of axial SpA by the questionnaire using original scoring (Method A) and scoring based on Assessment of SpondyloArthritis International Society (ASAS) inflammatory back pain (IBP) criteria (Method B), ASAS referral criteria (Method C), ASAS classification criteria (Method D) and a combination of ASAS referral and classification criteria (Method E) were compared to classification by the ASAS classification criteria and diagnosis by rheumatologist. Since Methods B-E were based on SpA features, we compared self-reported vs rheumatologist-documented features in subjects with axial SpA.
Results: Of 1418 subjects (age: 54 ± 14 years, female: 73%), 39 were classified as axial SpA cases by classification criteria. Methods A-E yielded sensitivities of 39%, 72%, 67%, 49% and 85%, respectively, among patients newly referred to the rheumatology clinic (Table 1). Rheumatologist-documented clinical SpA features exceeded self-report for IBP (62 vs 44%) and uveitis (15 vs 5%). The reverse was true for arthritis (21 vs 80%), enthesitis (28 vs 33%), dactylitis (3 vs 18%), good response to NSAIDs (33 vs 41%) and family history for SpA (5 vs 10%).

Table 1. Performance of the five scoring methods for the cross-culturally adapted Hamilton axial SpA questionnaire.

Scoring method	Sensitivity (95% confidence interval)	Specificity (95% confidence interval)	Positive predictive value (95% confidence interval)	Negative predictive value (95% confidence interval)
Method A	38.5	93.7	14.7	98.2
	(23.4 – 55.4)	(92.3 – 94.9)	(8.5 – 23.1)	(97.3 – 98.8)
Method B	71.8	73.1	7.0	98.9
	(55.1 – 85.0)	(70.7 – 75.4)	(4.7 – 10.0)	(98.1 – 99.5)
Method C	66.7	77.8	7.8	98.8
	(49.8 – 80.9)	(75.5 – 80.0)	(5.2 – 11.3)	(98.0 – 99.4)
Method D	48.7	74.9	5.2	98.1
	(32.4 – 65.2)	(72.5 – 77.2)	(3.2 – 8.0)	(97.1 – 98.8)
Method E	84.6	37.2	3.7	98.8
	(69.5 – 94.1)	(34.6 – 39.8)	(2.5 – 5.1)	(97.5 – 99.6)

Method A: the original scoring defined by the questionnaire developers; Method B: a scoring based on the ASAS IBP criteria; Method C: a scoring based on the ASAS referral criteria; Method D: a scoring based on the ASAS classification criteria for axial and peripheral SpA; Method E: a scoring based on a combination of the ASAS referral and classification criteria.

Conclusion: A self-administered questionnaire scored based on a combination of ASAS referral and classification criteria achieved high sensitivity in identifying axial SpA in subjects referred to a rheumatology clinic. This supports its evaluation as a screening tool for axial SpA in the general population.

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POS1412 IDENTIFYING HIGH-COST DRUGS FOR RARE RHEUMATIC DISEASES IN ROUTINELY COLLECTED NHS DATA. RESULTS FROM A PILOT STUDY OF RITUXIMAB USE IN VASCULITIS USING DATA FROM THE NATIONAL DISEASE REGISTRATION SERVICE AND THE REGISTRATION OF COMPLEX RARE DISEASES-EXEMPLARS IN RHEUMATOLOGY (RECORDER) PROJECT

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Background: Understanding real-world usage of high-cost drugs is crucial to support planning, adoption of innovation and reduce unwarranted variation in treatment. Hospital Episode Statistics (HES) contain diagnoses (coded by ICD-10) and procedures/treatments (coded by OPCS) for all daycase or inpatient care in England. However, OPCS codes are not specific for individual drugs, for example X921 (cytokine inhibitors band 1) includes rituximab (RTX) and 15 other drugs.
Objectives: We aimed to validate the accurate identification of patients treated with RTX for ANCA-associated vasculitis (AAV) using HES data.
Methods: We used data from the National Congenital Anomaly and Rare Disease Registration Service (NCARDRS) at Public Health England and their legal permissions (CAG 10-02(d)/2015). We extracted records from HES of all patients treated at two hospitals during financial year 2018/19 who ever had a coded diagnosis of granulomatosis with polyangiitis (GPA, M313), eosinophilic granulomatosis with polyangiitis (EGPA, M301), microscopic polyangiitis (MPA, M317), polyarteritis nodosa (PAN, M300) or arteritis unspecified (I776). Where people had multiple diagnoses of vasculitis, the most specific was considered their diagnosis. Enabled by data sharing agreements, we reviewed hospital records of those patients to validate diagnoses and whether X921 reliably identified RTX. We report the positive predictive value and sensitivity of the coding for X921 and GPA/EGPA/MPA for identifying people with AAV who are treated with RTX.
Results: At Trust 1 records ever coded with GPA/EGPA/MPA identified 74 people, 69 of whom had AAV confirmed in their medical notes. Among these 74 patients there were 59 episodes coded with X921 procedure codes, of which 56 correctly identified a RTX infusion given for AAV. A total of 64 RTX infusions were given to people with AAV – 3 missed infusions were X921 procedures in patients who had coded diagnoses of PAN or I776 but never GPA/EGPA/MPA and 5 infusions were not coded as X921.
The same analysis at Trust 2 identified 46 people, 44 of whom had AAV confirmed in their medical notes. Among patients identified with AAV there were 17 episodes coded as X921, of which 15 correctly identified a RTX infusion. A total of 23 infusions were given to people with AAV: 4 infusions were X921 procedures in patients who had coded diagnoses of PAN or I776 but never GPA/EGPA/MPA, and 4 infusions were not coded as X921.

Table 1. Summary of Positive Predictive Values (PPV) applying our algorithm to identify AAV diagnoses and RTX use

	Trust 1	Trust 2	Combined
Diagnosis of AAV and coded as AAV	69	44	113
AAV coded	74	46	120
Diagnosis of AAV under any code	73	55	128
PPV AAV ascertainment (95% CI)	93.2% (84.9-97.8)	95.7% (85.2-99.5)	94.2% (88.4-97.6)
Sensitivity of AAV ascertainment (95% CI)	94.5% (86.8-98.5)	80.0% (67.0-89.6)	88.3% (81.4-93.3)
RTX given in people coded as AAV	56	15	71
RTX coded in people coded as AAV	59	17	76
RTX given for AAV under any diagnostic or procedure code	64	23	87
PPV RTX ascertainment (95% CI)	94.9% (85.9-98.9)	88.2% (63.6-98.5)	93.4% (85.3-97.8)
Sensitivity of RTX ascertainment (95% CI)	87.5% (76.8-94.4)	65.2% (42.7-83.6)	81.6% (71.9-89.1)

Conclusion: HES data identified patients treated with RTX for AAV with a PPV of 93.4% (85.3-97.8) and sensitivity of 81.6% (71.9-89.1). This demonstrates the utility of national data to identify people receiving RTX for AAV. The RECORDER project, within the National Disease Registration Service plans to conduct real-world studies of the high-cost drug RTX, given for AAV, across the whole of England, and assess whether geography, demographics or socioeconomic factors influence frequency of prescription of this, and potentially other, high-cost drugs in line with the NHS long term plan.

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POS1413 INTERVAL BETWEEN SYMPTOM ONSET AND DIAGNOSIS AMONG PATIENTS WITH AUTOIMMUNE RHEUMATIC DISEASES IN A MULTI-ETHNIC ASIAN POPULATION

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Background: The interval between symptom onset and diagnosis can often be longer than is ideal in autoimmune rheumatic diseases (ARDs).

Objectives: We aimed to characterise this interval among patients newly diagnosed with ARDs in a multi-ethnic Asian population and to identify factors associated with a longer interval.

Methods: We used Scott's model of pathways to treatment to characterise the interval between symptom onset and diagnosis into 4 intervals: #1 between symptom onset and first seeking medical attention, #2 between first medical attention and rheumatology referral, #3 between rheumatology referral and first rheumatology assessment, and #4 between first rheumatology assessment and diagnosis. Linear regression models were used to identify factors associated with a longer the overall interval between symptom onset and diagnosis and Interval #1.

Results: Among 259 patients (age: 51±15 years, female: 71%, most common three ARDs: rheumatoid arthritis (n = 75), axial spondyloarthritis (n = 40) and psoriatic arthritis (n = 35)), the median overall interval was 11.5 months. Interval #1 (median = 4.9 months) was significantly longer than the other intervals (Table 1). Patients with axial spondyloarthritis had a significantly longer overall interval (median = 38.7 months) and Interval #1 (median = 26.6 months) compared to patients with RA (median = 7.6 and 3.5 months, respectively), PsA (median = 7.0 and 2.6 months, respectively) and the other ARDs. Gender was the only patient-related factor significantly associated with the overall interval (reference = male, coefficient = -15.3, p = 0.033) in regression models.

Conclusion: A longer than ideal interval between symptom onset and diagnosis was observed among patients with ARDs. This was primarily due to a relatively long interval between symptom onset and first seeking medical attention, and highlights the importance of interventions targeting patients prior to first medical attention in reducing the duration between symptom onset and diagnosis.

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Table 1. Interval between symptom onset and diagnosis

	Overall interval, months, median (lower and upper quartiles)†	Interval #1, months, median (lower and upper quartiles)	Interval #2, months, median (lower and upper quartiles)	Interval #3, months, median (lower and upper quartiles)	Interval #4, months, median (lower and upper quartiles)
Overall	11.5	4.9	0.3	1.5	0.0
(n = 259) RA	(4.7 – 36.0) 7.6	(1.0 – 24.0) 3.5	(0.0 – 3.9) 0.2	(0.8 – 1.8) 1.3	(0.0 – 1.2) 0.0
(n = 75) AxSpA	(3.1 – 14.8) 38.7	(1.3 – 11.6) 26.6	(0.0 – 2.5) 1.6	(0.6 – 1.6) 1.6	(0.0 – 0.2) 0.0
(n = 40) PsA	(9.6 – 66.7) 7.0	(4.2 – 56.1) 2.6	(0.0 – 7.6) 0.5	(1.2 – 2.3) 1.6	(0.0 – 2.0) 0.0
(n = 35) Seronegative IA	(3.0 – 28.4) 12.0	(0.2 – 11.3) 6.4	(0.2 – 3.9) 0.1	(0.6 – 1.7) 1.4	(0.0 – 0.0) 0.0
(n = 21) SjS	(4.7 – 22.8) 14.2	(1.9 – 34.4) 4.6	(0.0 – 4.6) 0.3	(1.3 – 1.5) 1.6	(0.0 – 0.8) 0.8
(n = 27) UCTD	(6.0 – 48.0) 15.7	(0.6 – 19.0) 2.2	(0.0 – 3.9) 0.8	(0.9 – 1.9) 1.6	(0.0 – 2.3) 1.2
(n = 27) Other ARDs	(5.1 – 39.8) 8.1	(0.7 – 24.0) 6.3	(0.1 – 8.1) 0.2	(0.5 – 1.8) 1.5	(0.0 – 2.1) 0.3
(n = 34)	(5.3 – 36.0)	(0.9 – 31.7)	(0.0 – 1.1)	(1.2 – 1.8)	(0.0 – 1.1)

Overall interval and Intervals #1-4: refer to abstract for definitions; RA: rheumatoid arthritis; axSpA: axial spondyloarthritis; PsA: psoriatic arthritis; IA: inflammatory arthritis; SjS: Sjögren's syndrome; UCTD: undifferentiated connective tissue disease; other ARDs: systemic lupus erythematosus, systemic sclerosis, idiopathic inflammatory myopathies, palindromic rheumatism and overlap syndromes.†Intervals #1-4 did not sum to the overall interval mainly due to the fact that Intervals #1-4 might not available for all patients.

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POS1414 RHEUMATOID ARTHRITIS AND INTERSTITIAL LUNG DISEASE: PREVALENCE AND DRUG PRESCRIPTIONS IN GERMAN CLAIMS DATA

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Background: Persons with rheumatoid arthritis (RA) have an increased risk of interstitial lung disease (ILD). ILD is a serious extraarticular manifestation in RA with a significantly increased mortality but without evidence-based drug therapy (1).

Objectives: The aim of this analysis was to investigate the frequency of ILD diagnosis in RA using claims data and to identify the medications prescribed.

Methods: Data from a large German statutory health insurance fund were used to identify persons with one inpatient or two outpatient diagnoses of RA (ICD-10: M05, M06) and ILD (J84.1, J84.8, J84.9 and M05.1+J99.0) in 2019. Specialist care by rheumatologists and/or pulmonologists was identified using physician specialty numbers. Drug prescriptions of glucocorticoids, conventional synthetic disease modifying antirheumatic drugs (csDMARDs: methotrexate, leflunomide, sulfasalazine, hydroxychloroquine, mycophenolate), biologic (b) DMARDs (abatacept, rituximab, TNF inhibitors, tocilizumab) or targeted synthetic (ts) DMARDs (tofacitinib) were identified by ATC codes. Prescriptions were included if a person received at least one prescription of the respective drug in 2019.

Results: Among 7,479,000 persons over 18 years of age and insured in 2019 a total of 2.0% (n=148,000) had a diagnosis of RA and 1.1% (n=1,600) of those had an additional diagnosis of ILD. The majority of persons with RA+ILD