Collection of Anti-Rheumatic Medication From Both Patients and Rheumatologists Shows Strong Agreement in a Real World Clinical Cohort

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BACKGROUND

- Collection of Anti-Rheumatic Medication (ARM) information from both patients and rheumatologists is considered a strength for Rheumatoid Arthritis (RA) registries and cohorts. However, it is important to assess the agreement between these two data sources.

OBJECTIVES

- We aimed to examine the agreement of ARM reporting between patients and rheumatologists in the Ontario Best Practices Research Initiative (OBRI).

METHODS

- The OBRI includes a clinical registry of RA patients (OBRI-RA registry) followed in routine care in Ontario, Canada.

- Adult patients enrolled on or after Sep 1st 2010 and have ARM use reports from rheumatologist visits and interviews occurring within 60 days of each other.

- ARM: conventional synthetic Disease-Modifying Antirheumatic Drugs (csDMARDs) and biologic DMARDs (bDMARDs).

- Sensitivity and positive predictive value (PPV) of rheumatologist reports were calculated using the patient's report as gold standard.

- Cohens' Kappa statistics of agreement between the two data sources were calculated for ARM use and administration route.

- To examine factors associated with agreement, a multivariate backward stepwise logistic regression was also used to model the odds of agreement for ARM use.

- The absolute time gap (days) for starts and stops dates between patient and rheumatologist reports were assessed and presented by median and interquartile range (IQR).

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RESULTS

Table 1: Baseline Characteristics of Included Sample

	N=2,154
Sociodemographic characteristics	
Age , years , mean (SD)	57.8 (12.6)
Sex, female, n (%)	1,695 (78.7)
Marital status, married, n (%)	1,448 (67.2)
Post-secondary education, n (%)	1,233 (57.2)
High household income (>50,000 CD dollars), n (%)	1,000 (46.4)
Private health insurance coverage plus Ontario Health Insurance Plan (OHIP), n (%)	1,421 (66.0)
Disease characteristics	
Disease duration, yrs., mean (SD)	8.4 (9.9)
Early disease (≤ 1 year disease duration), n (%)	699 (32.5)
Disease Activity Score 28-ESR (DAS28-ESR), mean (SD)	4.2 (1.6)
Physician global score, mean (SD)	4.0 (2.5)
Health Assessment Questionnaire (HAQ) Disability Index, mean (SD)	1.1 (0.8)
HAQ-pain index, mean (SD)	1.4 (0.9)
Number of comorbidities, mean (SD)	3.7 (2.6)
Treating rheumatologists characteristics	
Patients seeing female rheumatologists, n (%)	964 (44.8)
Patients seeing academic rheumatologists , n (%)	1,175 (54.6)

Table 2: Agreement Between Patient and Rheumatologist Reported ARM Use

Patients (n=2,154)	Prevalence of patient reports (95% CI) %	Prevalence of rheumatologist reports (95% CI) %	Sensitivity of rheumatologist reports (95% CI) %	PPV[1] of rheumatologist reports (95% CI) %	Kappa[2] (95% CI)
bDMARDs	19.7 (19.1-20.3)	19.8 (19.3-20.4)	94.2 (93.4-95.0)	93.7 (92.9-94.5)	0.79 (0.78-0.81)
csDMARDs	74.2 (73.6-74.8)	76.6 (75.9-77.2)	98.0 (97.7-98.2)	94.9 (94.6-95.3)	0.80 (0.79-0.81)
Both	93.9 (93.6-94.3)	96.4 (96.1-96.7)	97.2 (96.9-97.4)	94.7 (94.3-95.0)	0.79 (0.78-0.81)

[1] Positive Predictive Value

[2] Kappa statistic Key: Poor: <0.20; Fair: 0.20-0.40; Moderate: 0.41-0.60; Good: 0.61-0.80; Very good: 0.81-1.00

95% CI: 95% confidence Interval

Table 3: Crude and Adjusted Odds Ratios Relating Selected Characteristics to Agreement Between Patient and Rheumatologist Reported ARM Use

Patients (n=2,154)	Odds Ratio (95% CI), p-value	
	Univariate analysis	Backward stepwise multivariate logistic regression analysis
Age , years	1.00 (0.99-1.01), 0.99	-
Sex, female (Ref=male)	0.96 (0.83-1.10), 0.53	-
Married status (Ref=single/widow/divorced)	**1.14 (1.02-1.28), 0.03**	-
Post-secondary education (Ref: secondary or lower education)	**1.11 (1.00-1.24), 0.05**	**1.20 (1.02-1.40), 0.03**
High household income (> 50,000 CD) (Ref: ≤ 50,000 CD)	**1.14 (1.01-1.24), 0.04**	-
Private health insurance coverage plus OHIP (Ref: OHIP)	1.10 (0.98-1.26), 0.10	
Disease duration	**0.99 (0.98-0.99), <0.0001**	0.99 (0.98-1.00), 0.05
DAS28-ESR	**0.92 (0.88-0.96), <0.0001**	-
Physician global score	**0.92 (0.90-0.95), <0.0001**	**0.95 (0.92-0.98), 0.002**
HAQ –Disability Index	**0.67 (0.62-0.72), <0.0001**	-
HAQ-pain index	**0.70 (0.66-0.75), <0.0001**	**0.66 (0.60-0.73), <0.0001**
Number of comorbidities	**0.94 (0.82-0.96), <0.0001**	-
Patients seeing female rheumatologists (Ref: male rheumatologist)	**1.25 (1.12-1.39), <0.0001**	1.15 (0.98-1.35), 0.09
Patients seeing academic rheumatologists (Ref: community rheumatologists)	**1.13 (1.01-1.26), 0.03**	**1.47 (1.25-1.73), <0.0001**

- There was good and very good agreement for reported administration route of bDMARDs and csDMARDs, respectively.

- The median absolute time gap (IQR) of start dates and stop dates for ARM use reported by two data sources was 7 days (1-27) and 19 days (5-48), respectively.

CONCLUSIONS

- The results of this analysis suggest that ARM reports from the two data sources have strong agreement in the OBRI.

- This agreement is even better for patients who have post-secondary education and are being treated by an academic rheumatologist.