A Comparison Between Time to Disease Activity Remission and Improvement in Patient Reported Outcomes in Rheumatoid Arthritis Patients: Results From The Ontario Best Practices Research Initiative (OBRI)

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BACKGROUND

- It is unclear if patient reported outcomes (PROs) such as fatigue and pain lag behind clinical remission in patients with RA.

OBJECTIVES

- We aimed to contrast the timing of low disease state and remission with improvement in PROs in the Ontario Best Practices Research Initiative (OBRI); a clinical registry for RA (OBRI-RA registry) followed in routine care in Ontario-Canada (www.obri.ca).

METHODS

- RA patients enrolled in the OBRI were included if they had their first physician visit and first interview within 60 days' gap, and at least two visits including baseline visit, and 6 months' follow-up.
- We excluded those patients with missing data on clinical disease activity index (CDAI), swollen joint count (SJC-28), patient global assessment (PtGA), pain, or fatigue score at baseline. Patients were also excluded if they were in low/remission state based on these outcomes at baseline.
- *Outcome Definition:*
  - Remission: CDAI ≤ 2.8; SJC-28 ≤1.0; PtGA ≤ 1.0; pain ≤ 1.0; fatigue ≤ 1.0
  - Low disease state: CDAI ≤ 10; SJC-28 ≤2.0; PtGA ≤ 2.0; pain ≤ 2.0; fatigue ≤ 2.0
- Kaplan-Meier survival analysis was used to assess
  - The time to first remission based on CDAI, SJC-28, PtGA, pain, and fatigue score.
  - The time to first LDA based on CDAI, SJC-28, PtGA, pain, and fatigue score.

RESULTS

- A total of 986 patients were included. Mean (SD) age and disease duration were 57.4 (12.9) years and 8.3 (9.9) years, respectively, and the majority were females (80.0%) and established RA (65.0%)(Table 1).
- Mean (SD) of CDAI, SJC-28, PtGA, pain, and fatigue at enrolment was 29.8 (11.7), 8.3 (4.6), 6.4 (1.9), 6.6 (1.9), and 6.7 (2.0), respectively.
- During the study period CDAI remission was reported for 392 (39.8%) patients and CDAI LDA for 815 (87.2%).
- The median time to first remission and LDA was the lowest for SJC-28 (12.5 months and 9.0, respectively) among all disease measures assessed by physician and PROs outcomes (Figure 1 and Table 2).
- Median time to first pain remission was higher than time to CDAI remission (54.7 vs. 46.5 months)(Figure 1A).
- Median time to first LDA for all PROs was higher than time to first LDA based on CDAI and SJC-28 (Table 2 and Figure 1B).

Table 1: Patients Profile at enrolment

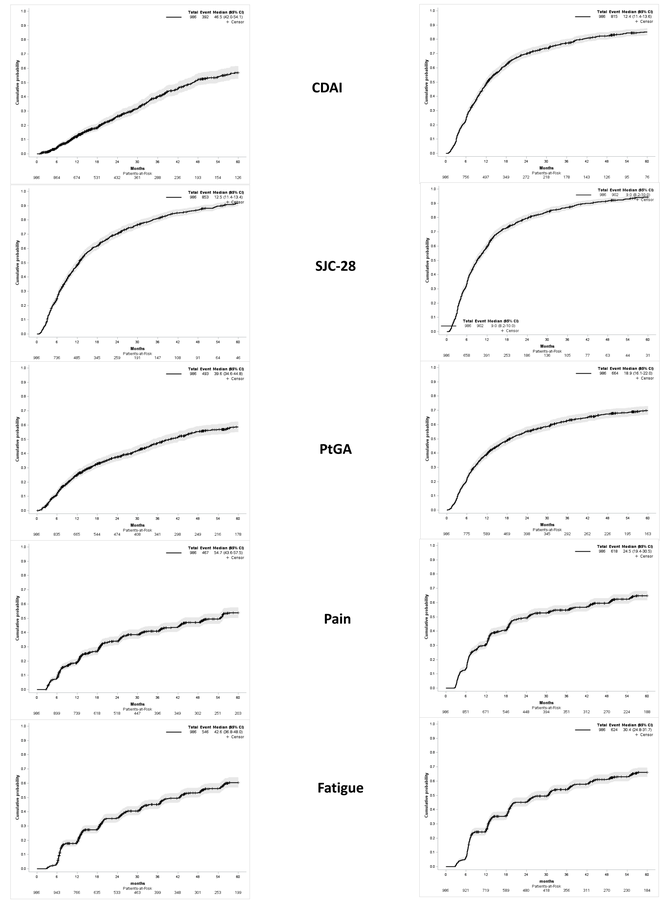
	TOTAL (N=986)
Demographic Factors	
- Age, years, mean (SD)	57.4 (12.9)
- Sex, Female, n (%)	789 (80.0)
- Marital status, married , n (%)	674 (68.4)
- Education status, post-secondary, n (%)	537 (54.5)
- Household annual income, >50,000CAD, n (%) (available = 781)	428 (43.4)
- Health insurance coverage, (OHIP +private or ODB), n (%)	831 (84.3)
- Residential area, Urban, n (%)	796 (80.7)
- Smoking history, n (%)	
✓ Never smoked	437 (44.3)
✓ Former smoker	357 (36.2)
✓ Current smoker	192 (19.5)
Disease Factors	
- Disease duration since diagnosis, years, mean (SD)	8.3 (9.9)
- Early RA (≤ 1 year), n (%)	347 (35.0)
- RF positive, n (%) (available = 926)	658 (66.7)
- Presence of erosion, n (%)	400 (40.6)
- SJC-28 (0-28), mean (SD)	8.3 (4.6)
- TJC-28 (0-28), mean (SD)	9.3 (6.6)
- PhGA (0-10), mean (SD) (available =919)	5.7 (2.0)
- PtGA (0-10), mean (SD)	6.4 (1.9)
- ESR, mean (SD) (n=867)	26.9 (22.9)
- CRP, mean (SD) (n=798)	15.4 (22.8)
- CDAI (0-76), mean (SD)	29.8 (11.7)
- HAQ-DI (0-3), mean (SD)	1.6 (0.62)
- Pain (0-10), mean (SD)	6.6 (1.9)
- Fatigue (0-10), mean (SD)	6.7 (2.0)
Comorbidities	
- Number of comorbidities, mean (SD)	3.8 (2.6)
- CVD, n (%)	142 (11.5)
- Hypertension, n (%)	376 (38.1)
- Diabetes Mellitus, n (%)	113 (15.6)
- Lung diseases, n (%)	154 (15.6)
Medication Factors	
- Prior use of bDMARDs, n (%)	285 (28.9)
- Prior use of csDMARDs, n (%)	789 (80.0)
- Current bDMARDs use, n (%)	196 (19.9)
- Current csDMARDs use, n (%)	877 (89.0)
- Number of csDMARDs, mean (SD)	1.45 (0.85)
- Current steroid use, n (%)	216 (21.9)

OHIP: Ontario health insurance plan; ODB: Ontario drug benefit; RF: Rheumatoid factor; SJC: Swollen Joint count; TJC: Tender joint count; PhGA: Physician global assessment; PtGA: Patient global assessment; ESR: Erythrocyte sedimentation rate; CRP: C-reactive Protein; CDAI: Clinical disease activity index; HAQ-DI: Health assessment questionnaire disability index; CVD: Cardiovascular disease; bDMARDs: biologic disease modifying antirheumatic drugs; csDMARDs: conventional synthetic disease modifying antirheumatic drugs.

Table 2: Median Time to First Remission and LDA Based on CDAI, SJC-28, and PROs

	N=986	
	n (%)	Median survival time, months (95% CI)
First Remission		
- CDAI remission (CDAI ≤ 2.8)	392 (39.8)	46.5 (42.0-54.1)
- SJC-28 remission (SJC28 ≤ 1.0)	853 (86.5)	12.5 (11.4-13.4)
- PtGA remission (PtGA ≤ 1.0)	493 (50.0)	39.6 (34.6-44.8)
- Pain remission (Pains ≤1.0)	467 (47.4)	54.7 (43.6-57.5)
- Fatigue remission (Fatigue ≤ 1.0)	546 (55.4)	42.6 (36.8-48.0)
First Low disease state		
- CDAI LDA (CDAI ≤ 10)	815 (82.7)	12.4 (11.4-13.6)
- SJC-28 LDA (SJC28 ≤ 2.0)	902 (91.5)	9.0 (8.2-10.0)
- PtGA LDA (PtGA ≤ 2.0)	664 (67.3)	18.9 (16.1-22.0)
- Pain LDA (Pains≤ 2.0)	618 (62.7)	24.5 (19.4-30.5)
- Fatigue LDA (Fatigue ≤ 2.0)	624 (63.3)	30.4 (24.8-31.7)

Figure 1: Time to First Remission and LDA Based on CDAI, SJC-28, and PROs



CONCLUSIONS

- Our study shows that PRO improvement, particularly pain, lag behind CDAI and SJC-28 remission/LDA in patients with RA.
- Future work will include a subset analysis to determine time to remission/LDA in those achieving CDAI/SJC-28 remission/LDA before PRO remission/LDA.

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