Poster # 66

RAPID-3 Metrics for Rheumatoid Arthritis Patients in Specialty Therapy Management

Alicia Zagel, PhD, MPH; Ann Harty, PharmD, AAHIVP; Eric Betzold, MS; Dana Simonson, PharmD, BCPS; Susan Chhen, PharmD; Tori Grier, PharmD; Ann McNamara, PharmD

Fairview Pharmacy Services, Minneapolis, MN

BACKGROUND

Quality of life assessments are important tools for therapy management (TM) pharmacists to support Rheumatoid Arthritis (RA) patients taking specialty disease modifying antirheumatic drugs (sDMARDs) in determining therapy effectiveness. One such tool is the Routine Assessment of Patient Index Data (RAPID-3), which consists of function, pain, and global domains.[1] Consistent and frequent tracking of RAPID-3 scores may be clinically beneficial.[2] Understanding trajectories of total and domain-specific RAPID-3 scores may be important to determine patient populations that can benefit from more frequent TM care.

OBJECTIVE

This study examined total RAPID-3 and domain-specific changes among RA patients by baseline disease severity class to understand the trajectory of RA quality of life once started on sDMARDs. Further, factors associated with decreases in RAPID-3 scores between baseline and 3- to 6-months of follow-up were investigated to determine characteristics of patients who may need differing levels of clinical intervention to control disease.

METHODS

This was a retrospective cohort of RA patients presenting to a specialty pharmacy for sDMARD therapy from 8/2018 to 7/2021

Population of interest. Included patients were:

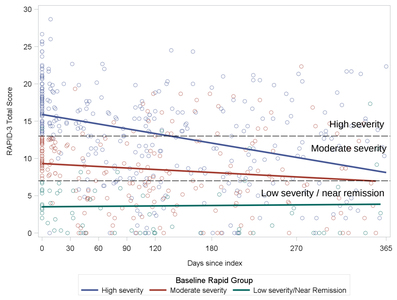
- New to sDMARD therapy or new to pharmacy,
- Had ≥1 RAPID-3 measured within the first 30-days of TM initiation (Baseline), and
- Had ≥1 RAPID-3 recorded within 3- to 12-months following TM initiation.

A secondary analysis of patients with ≥1 follow-up RAPID-3 measured 3- to 6-months following TM initiation was undertaken to assess characteristics related to early sDMARD success.

Analysis. Mixed effects regression determined the trajectory of RAPID-3 scores throughout 12 months of TM enrollment while controlling for intra-patient correlation. Differences between baseline and 3- to 6-month follow-up RAPID-3 and domain-specific scores were assessed; logistic regression models estimated odds ratios (ORs) and 95% confidence intervals (CIs) of factors related to decreases in RAPID-3 total and domain-specific scores.

RESULTS

Trajectory of RAPID-3 scores by baseline RAPID-3 severity group over 12-months since starting sDMARD therapy



Change in domain scores for each Baseline RAPID-3 severity group over 12-months

RAPID-3 Domain	Baseline RAPID-3 Group	Change over 12-months	p-value
Function	High severity	-1.86	<.0001
	Moderate severity	-0.39	0.14
	Low severity/Near remission	0.42	0.19
Pain	High severity	-3.03	<.0001
	Moderate severity	-1.34	0.003
	Low severity/Near remission	-0.21	0.67
Global	High severity	-2.73	<.0001
	Moderate severity	-0.89	0.06
	Low severity/Near remission	0.048	0.94

		Change over 3-months	Change over 6-months	Change over 9-months	Change over 12-months	p-value
	Overall population	-1.35	-2.69	-4.03	-5.37	<.0001
RAPID-3 group at baseline	High severity	-2.00	-3.99	-5.98	-7.96	<.0001
	Moderate severity	-0.69	-1.38	-2.06	-2.74	0.006
	Low severity/Near remission	0.007	0.013	0.02	0.027	0.98

Characteristics of patients with baseline and 3- to 6-month follow-up RAPID-3 scores

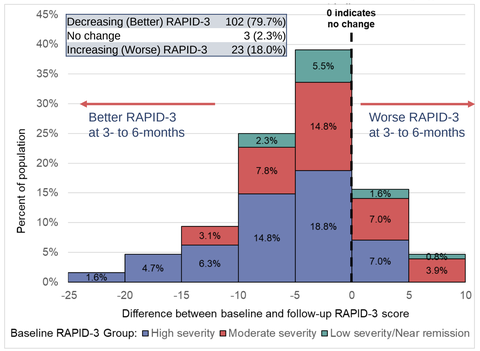
Total Population		N=128
Age, median (IQR)		53.5 (46.0, 59.0)
Gender	Female	91 (70.5%)
Insurance	Commercial	79 (61.2%)
	Medicaid	29 (22.5%)
	Medicare	7 (5.4%)
	Other/Unknown	13 (10.1%)
Social vulnerability quintile	Highest vulnerability	25 (19.4%)
	Quintile 2	37 (28.7%)
	Quintile 3	24 (18.6%)
	Quintile 4	27 (20.9%)
	Lowest vulnerability	15 (11.6%)
Medication switch during 0-6 months of TM		16 (12.5%)
Proportion of days covered > 80%		114 (88.4%)
Any drug therapy problem		8 (6.2%)
Medication at sDMARD start	Humira (Adalimumab)	78 (60.9%)
	Enbrel (Etanercept)	16 (12.5%)
	Xeljanz (Tofacitinib)	15 (11.7%)
	Other	19 (14.9%)

RAPID-3 Scores		Change from Baseline to Follow-up	Baseline, 0-30 days	Follow-up, 3- to 6-months
Function domain score; median (IQR)		-0.8 (-2.0, 0.0)	3.0 (1.7, 4.3)	1.7 (0.3, 3.3)
Pain domain score; median (IQR)		-1.5 (-3, 0)	5.5 (4.0, 7.0)	3.5 (1.5, 6)
Global domain score; median (IQR)		-1.5 (-3.0, 0.0)	5.0 (3.5, 6.5)	3.0 (1.0, 5.0)
Total RAPID-3 score; median (IQR)		-3.6 (-7.1, -0.9)	13.5 (10.2, 18.0)	8.5 (3.9, 14.6)
RAPID-3 severity	Near remission	7 (5.4%)	22 (19.1%)	
	Low	6 (4.7%)	19 (16.5%)	
	Moderate	47 (36.4%)	31 (27.0%)	
	High	68 (52.7%)	43 (37.4%)	

Logistic regression estimating associations between improvement of RAPID-3 scores over time and select patient characteristics

		Outcome: Improved RAPID-3 OR (95% CI)	Improved Function OR (95% CI)	Improved Pain OR (95% CI)	Improved Global OR (95% CI)
Age Category	<45 years	*ref.*	*ref.*	*ref.*	*ref.*
	45-59 years	1.34 (0.48, 3.76)	0.80 (0.32, 2.00)	1.50 (0.62, 3.66)	1.41 (0.58, 3.43)
	60+ years	1.34 (0.37, 4.88)	0.80 (0.26, 2.49)	2.24 (0.69, 7.26)	1.06 (0.36, 3.15)
Gender	Male	*ref.*	*ref.*	*ref.*	*ref.*
	Female	0.48 (0.13, 1.76)	0.92 (0.35, 2.40)	0.88 (0.33, 2.36)	0.63 (0.24, 1.67)
PDC > 80%	No	*ref.*	*ref.*	*ref.*	*ref.*
	Yes	1.08 (0.28, 4.19)	2.81 (0.91, 8.71)	0.81 (0.24, 2.76)	1.35 (0.44, 4.17)
Medication switch	No	*ref.*	*ref.*	*ref.*	*ref.*
	Yes	0.73 (0.22, 2.49)	1.21 (0.39, 3.73)	0.78 (0.26, 2.31)	0.71 (0.24, 2.04)
Drug therapy problem	No	*ref.*	*ref.*	*ref.*	*ref.*
	Yes	0.22 (0.05, 0.97)	0.16 (0.03, 0.82)	0.26 (0.06, 1.16)	0.32 (0.07, 1.41)
Baseline function domain score	High severity	*ref.*	*ref.*	*ref.*	*ref.*
	Moderate severity	0.36 (0.11, 1.21)	0.57 (0.20, 1.57)	1.09 (0.44, 2.72)	0.56 (0.21, 1.50)
	Low severity/N.R.	0.55 (0.15, 2.01)	0.25 (0.09, 0.69)	1.32 (0.50, 3.49)	0.32 (0.12, 0.88)
Baseline pain domain score	High severity	*ref.*	*ref.*	*ref.*	*ref.*
	Moderate severity	1.21 (0.41, 3.63)	0.74 (0.30, 1.81)	0.75 (0.30, 1.90)	1.03 (0.41, 2.58)
	Low severity/N.R.	1.38 (0.28, 6.82)	2.72 (0.56, 13.20)	0.28 (0.08, 0.98)	0.54 (0.16, 1.83)
Baseline global domain score	High severity	*ref.*	*ref.*	*ref.*	*ref.*
	Moderate severity	0.25 (0.09, 0.71)	0.51 (0.20, 1.30)	0.87 (0.33, 2.31)	0.26 (0.10, 0.69)
	Low severity/N.R.	0.42 (0.13, 1.40)	0.93 (0.32, 2.75)	0.93 (0.32, 2.75)	0.06 (0.02, 0.22)
Baseline total RAPID-3 score	High severity	*ref.*	*ref.*	*ref.*	*ref.*
	Moderate severity	0.36 (0.14, 0.92)	0.47 (0.22, 1.04)	0.53 (0.24, 1.19)	0.44 (0.20, 0.99)
	Low severity/N.R	0.51 (0.12, 2.21)	0.89 (0.25, 3.24)	0.40 (0.12, 1.35)	0.15 (0.04, 0.55)

Change in RAPID-3 scores between baseline and 3- to 6-months follow-up by baseline RAPID-3 severity group



DISCUSSION

- Quality of life improved across the total population over 12-months
  - Baseline high severity patients indicated the largest improvement in RAPID-3 scores over 12-months with an 8-point decrease
    - Pain domain scores contributed to the largest decrease of 3-points within this group
  - RAPID-3 scores of patients who were baseline low severity or near remission did not change significantly over time
- Among 128 patients who had follow-up RAPID-3 scores between 3- and 6-months after TM initiation, 80% indicated a decrease in their scores corresponding to an increase in quality of life
  - Changes in RAPID-3 scores from baseline to 3- to 6-month follow-up varied by baseline severity group

Baseline severity group	Maximum decrease	Median Change	Maximum increase	% with improved RAPID-3 scores at follow-up
High	-23.7	-5.4	3.5	86.8%
Moderate	-11.5	-3.0	9.3	70.2%
Low/Near remission	-5.7	-1.8	7.0	76.9%

- Patients with drug therapy problems were 4.5 times less likely to improve total RAPID-3 and 6.3 times less likely to improve Function Domain scores at 3- to 6-months
- Baseline high severity patients were more likely to show improvements in RAPID-3 scores than lower severity patients

CONCLUSION

RA patients in TM taking sDMARDs with high and moderate baseline RAPID-3 scores achieved significantly reduced scores over 1-year. Previous research notes a decrease of 3.8 points in RAPID-3 scores to be clinically meaningful,[3] indicating overall success among this study population. Intervening to improve drug therapy problems may aid to increase quality of life among RA patients, indicating the importance of TM pharmacists within the care team. Future research will explore the relationship between clinical characteristics and longer-term quality of life outcomes among RA patients, and work to further decouple domain scores to understand their interplay in patient outcomes.

REFERENCES

1. England BR, Tiong BK, Bergman MJ, et al. 2019 Update of the American College of Rheumatology Recommended Rheumatoid Arthritis Disease Activity Measures. *Arthritis Care Res (Hoboken)*. Dec 2019;71(12):1540-1555. doi:10.1002/acr.24042
2. Blanchais A, Berthelot J-M, Fontenoy A-M, le Goff B, Maugars Y. Weekly home self-assessment of RAPID-4/3 scores in rheumatoid arthritis: a 6-month study in 26 patients. *Joint Bone Spine*. 2010;77(6):582-587.
3. Ward MM, Castrejon I, Bergman MJ, Alba MI, Guthrie LC, Pincus T. Minimal clinically important improvement of routine assessment of patient index data 3 in rheumatoid arthritis. *The Journal of rheumatology*. 2019;46(1):27-30.

Fairview