RATES AND REASONS FOR MEDICATION SWITCHING AND CYCLING IN PATIENTS WITH RHEUMATOID ARTHRITIS AT AN INTEGRATED HEALTH SYSTEM SPECIALTY PHARMACY

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BACKGROUND

- Biologic disease modifying anti-rheumatic drugs (bDMARDs) and targeted synthetic disease modifying anti-rheumatic drugs (tsDMARDs) are standard of care therapy for treating rheumatoid arthritis (RA).
- Many patients change bDMARDs/tsDMARDs (either "switching" or "cycling") within the first two years of therapy often due to poor efficacy or intolerable adverse effects.[1,2,3]

Switch — Change to a medication with ***different*** mechanism of action

Cycle — Change to a medication with ***same*** mechanism of action

- Integrated health-system specialty pharmacists embedded in clinics help patients access and adhere to therapy and assist with therapy changes.

OBJECTIVE

To assess rates and reasons for switching and cycling in patients with RA at clinics with integrated specialty pharmacists

METHODS

Inclusion Criteria
- Adult patient diagnosed with RA
- Filled 2+ eligible prescriptions (Table 1)
- Prescribed by practitioner at one of two Vanderbilt University Medical Center Rheumatology clinics
- Index date between 7/1/13-6/30/17 (at Clinic 1) or 1/2/15-6/30/17 (at Clinic 2)

Exclusion Criteria
- Patients who received only samples

Primary Outcome
- Rates and reasons for switching or cycling bDMARDs or tsDMARDs

Statistical Analysis
- Cox proportional hazards (PH) model to assess patient characteristics associated with time to first switch or cycle
- The Kaplan-Meier estimation method was used to estimate the probability of continuing the first prescribed medication (i.e., not requiring a switch or cycle)

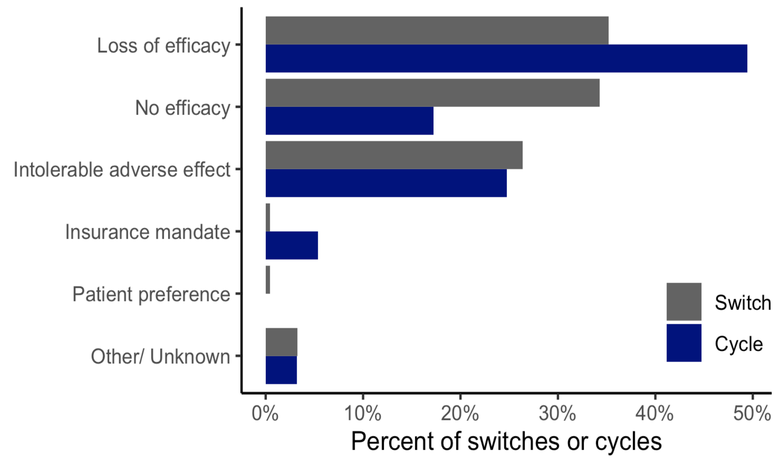
RESULTS

TABLE 1. SAMPLE CHARACTERISTICS (N=772)

Characteristic	% (n) or Median [IQR]
Age at first fill, years	56 [48-63]
Gender, female	79% (607)
Race	
White	89% (686)
Black or African American	8% (63)
Other	3% (23)

- We included 772 patients in the study, most who were White women (Table 1).
- Most common initial medications dispensed were etanercept and adalimumab (Table 2).
- 204 (26%) patients incurred a total of 216 switches and 93 cycles.

FIGURE 1. REASONS AND FREQUENCIES OF SWITCHES (N=216) AND CYCLES (N=93)



Common adverse effects included:
- Injection site reactions
- Recurrent infections
- Hives/rash
- Fatigue

TABLE 2. INITIAL MEDICATION DISPENSED

Mechanism of action	Medication name	N (%) of dispenses
IL-6 Inhibitor	tocalizumab	20 (2.6)
	sarilumab	–
TNF Inhibitor	certolizumab	22 (2.8)
	etanercept	262 (33.9)
	adalimumab	295 (38.2)
	golimumab	18 (2.3)
T Cell Inhibitor	abatacept	77 (10.0)
JAK Inhibitor	tofacitinib	76 (9.8)
	baricitinib	–
IL-1 Inhibitor	anakinra	2 (0.3)

TABLE 3. PREDICTORS OF SWITCHING OR CYCLING (N=770)

Characteristic	Hazard Ratio	95% Confidence Interval	p-value
Age (per 10 years)	0.9	0.81, 1.00	0.057
Race, Black/other (ref=White)	1.14	0.72, 1.78	0.6
Gender, Female (ref=Male)	1.22	0.84, 1.76	0.3
Starting MOA (ref= TNFi)			
T Cell Inhibitor	1.41	0.94, 2.13	0.1
JAK Inhibitor	0.87	0.51, 1.48	0.6
IL-6 Inhibitor	2.45	1.28, 4.69	**0.007**

In the Cox proportional hazards model, patients initially prescribed an IL-6 inhibitor were significantly more likely to change medication than patients prescribed TNF inhibitors. IL-1 inhibitors were excluded from the model.

FIGURE 2. TIME TO FIRST SWITCH OR CYCLE

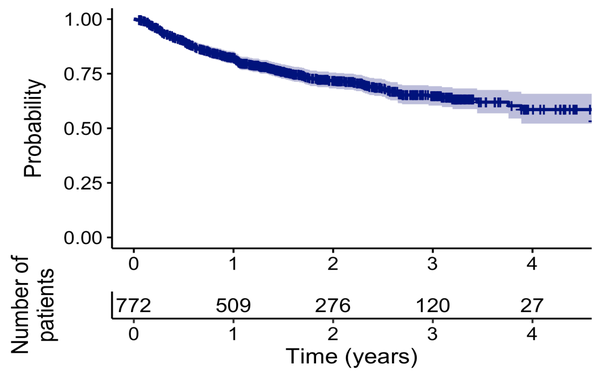


Figure 2 shows the probability that a patient will remain on the originally prescribed medication over time. The number of patients at risk for first switch or cycle decreases as more patients switch or cycle for the first time or become lost to follow up or censored (indicated by vertical tick marks).

CONCLUSIONS

RATES AND PREDICTORS
- Many patients with RA changed bDMARDs or tsDMARDs during the study period, often due to low efficacy or intolerable adverse effects.
- Patients starting on an IL-6 inhibitor were more than two times as likely to switch or cycle than those who started on TNF inhibitors.

FUTURE DIRECTIONS
- As integrated members of the healthcare team, clinical pharmacists help patients access prescribed therapy, educate patients on how to mitigate adverse effects, and guide patients and providers when a switch or cycle is needed.

REFERENCES

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