Comparative Effectiveness of Tofacitinib, Biologic Drugs and Traditional Disease-Modifying Antirheumatic Drugs in Rheumatoid Arthritis

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Background and Objective

Most rheumatoid arthritis (RA) patients initiate therapy with methotrexate (MTX), but only 1/3 will have low disease activity with this agent alone. Several therapeutic options are available for patients with MTX-resistant RA, including new Janus kinase (JAK) inhibitors (eg.: Tofacitinib). The study compares the effectiveness of traditional disease-modifying antirheumatic drugs (DMARDs), biologic DMARDs and tofacitinib for RA patients with inadequate response to MTX.

Methods

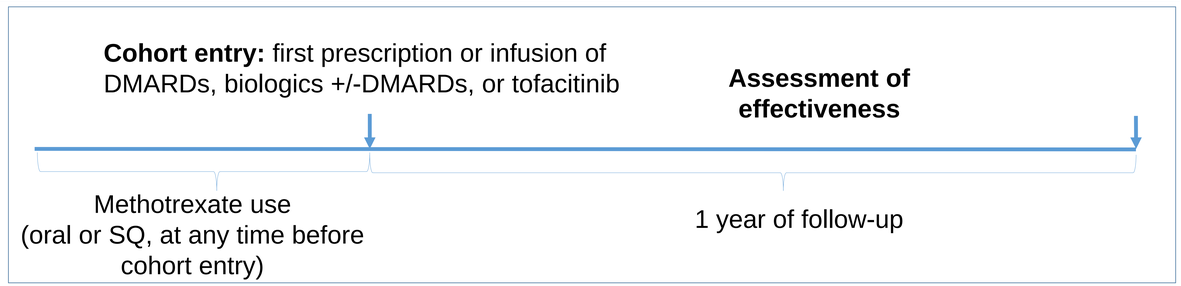
Study design : Retrospective cohort study using Truven Health MarketScan® Research Databases.

Study population:

- RA individuals previously treated with methotrexate (oral or SQ)
- Newly prescribed one of the medications under study (DMARDs, biologics+/- DMARDs, or tofacitinib) between Jan 1st 2011 and Dec 31 2014.
- No prior use of biologics or tofacitinib.

Effectiveness criteria:

1) Non-adherence, defined as medication possession ratio (MPR) lower than 80% or the number of infusions lower than the minimum expected for each biologic.
2) Switching or adding a new biologic agent or tofacitinib.
3) Switching or adding a new DMARD.
4) Increasing of the dose of the starting therapy
5) Use of glucocorticoid joint injections
6) Increasing the dose of oral glucocorticoid..



Analysis:

- Descriptive analysis of baseline characteristics
- Proportion of patients achieving therapy effectiveness and the individual criteria by exposure groups

Results

- 16,305 RA patients were included: 2,879 (17.7%) began therapy with DMARD, 13,345 with biologics +/- DMARD (81.8%), 81 (0.5%) with tofacitinib.
- 77.5% were female and the mean age was 56.2 years (standard deviation 12.6).
- Overall therapy effectiveness, as defined by our criteria, was similarly low (18% or less) across groups
- Patients taking biologics showed the lowest rate of non-adherence, but switch/adding and injections tended to be higher in this group
- Non-adherence, switch/adding and joint injections were similar for DMARDs and tofacitinib

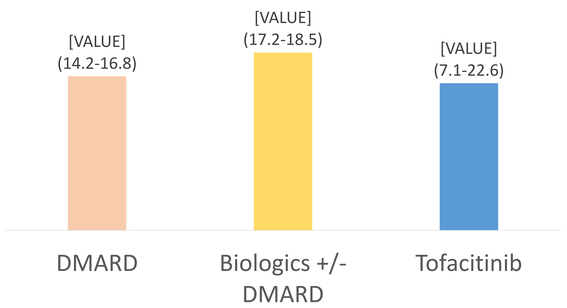


Figure 1. Proportions and 95% confidence interval (CI) of therapy effectiveness

Table 1. Proportions and 95% (CI) for non-adherence, switch/adding, or joint injections

Criteria	DMARDs		Biologics +/-DMARD		Tofacitinib	
	%	95% CI	%	95% CI	%	95% CI
Non-adherence	75.1	73.5; 76.7	54.5	53.6; 55.3	69.1	59.1; 79.2
Switch/add biologic agent or tofacitinib	16.1	14.8; 17.5	34.6	33.8; 35.4	18.5	10.1; 27.0
Switch/add DMARD	13.0	11.7; 14.2	16.6	16.0; 17.3	16.0	8.1; 24.0
Increase in dose or frequency	8.6	7.6;9.7	6.9	6.5; 7.3	0	0
Glucocorticoid joint injection	20.4	19.0; 21.9	27.5	26.7; 28.2	24.7	15.3; 34.1
Increase in dose of oral glucocorticoid	19.0	17.6;20.5	17.6	17.0;18.2	22.2	13.2;31.3

Conclusions

- In RA patients with an inadequate response to methotrexate, use of biologics was much more common than alternate DMARDs or tofacitinib.
- Overall therapy effectiveness, as defined by our criteria, was similarly low (18% or lower) across groups
- Patients taking biologics +/-DMARDs showed the lowest rate of non-adherence, but switch/adding and injections tended to be higher in this group
- Non-adherence, switch/adding and joint injections were similar for DMARDs and tofacitinib

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