

Comparative Effectiveness of Abatacept vs. Tofacitinib in Rheumatoid Arthritis Patients who are CCP+

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Supplementary Table 1. Patient Demographic and Clinical Characteristics of CCP+ Abatacept initiators compared with CCP+ Tofacitinib initiators (After 1:1 frequency matching based on # of previous biologics, N=369 in each group).

At time of initiation	CCP+ ABA Initiators N=369	CCP+ TOFA Initiators N=369	Standardized Differences ^a
Female: n (%)	303 (82.3)	286 (77.5)	0.121
Age: Mean $\pm$ SD	60.37 $\pm$ 12.41	60.77 $\pm$ 11.55	0.034
Duration of RA: Mean $\pm$ SD	11.73 $\pm$ 10.54	12.78 $\pm$ 9.95	0.102
Race: n (%)			
	n=368	n=363	0.160
White	304 (82.6)	310 (85.4)	0.076
Education (College or above): n (%)	206 (56.7)	174 (47.8)	0.180
BMI: n (%)			
	n=369	n=368	0.112
Underweight	5 (1.4)	10 (2.7)	0.097
Normal	95 (25.7)	91 (24.7)	0.023
Overweight	110 (29.8)	101 (27.4)	0.052
Obese	159 (43.1)	166 (45.1)	0.041
Comorbid Conditions: n (%)			
History of Hypertension	137 (37.1)	134 (36.3)	0.017
History of Diabetes	42 (11.4)	46 (12.5)	0.033
History of Malignancy	39 (10.6)	24 (6.5)	0.146

At time of initiation	CCP+ ABA Initiators N=369	CCP+ TOFA Initiators N=369	Standardized Differences ^a
History of Cardiovascular Disease	50 (13.6)	66 (17.9)	0.119
Work Status: n (%)			
	n=361	n=360	0.243
Full-Time	121 (33.5)	109 (30.3)	0.070
Part-Time	22 (6.1)	30 (8.3)	0.087
At-home	23 (6.4)	28 (7.8)	0.055
Student	8 (2.2)	0 (0.0)	0.213
Disabled	80 (22.2)	84 (23.3)	0.028
Retired	107 (29.6)	109 (30.3)	0.014
Insurance: n (%)			
None	3 (0.8)	3 (0.8)	0.000
Private	250 (67.8)	252 (68.3)	0.012
Medicaid	28 (7.6)	27 (7.3)	0.010
Medicare	163 (44.2)	149 (40.4)	0.077
Medication History: n (%)			
Prior number of cDMARD (including current cDMARD)Mean ± SD	2.00 ± 1.12	2.19 ± 1.19	0.164
Prior TNFi use			
	n=369	n=369	0.007
0	74 (20.1)	75 (20.3)	0.007
1	120 (32.5)	120 (32.5)	0.000
2+	175 (47.4)	174 (47.2)	0.005
Prior non-TNFi use*			

At time of initiation	CCP+ ABA Initiators N=369	CCP+ TOFA Initiators N=369	Standardized Differences ^a
0	n=369 281 (76.2)	n=369 212 (57.5)	0.448 0.405
1	68 (18.4)	96 (26.0)	0.183
2+	20 (5.4)	61 (16.5)	0.361
Prior Biologic/tsDMARD Use			
0	n=369 64 (17.3)	n=369 64 (17.3)	0.000 0.000
1	94 (25.5)	94 (25.5)	0.000
2+	211 (57.2)	211 (57.2)	0.000
Disease Activity: Mean ± SD			
Tender Joint Count (28)	6.61 ± 6.55	6.49 ± 6.58	0.019
Swollen Joint Count (28)	5.56 ± 5.50	5.24 ± 5.11	0.061
Physician Global Assessment (0-100)	35.75 ± 21.18	32.26 ± 20.80	0.166
Patient Global Assessment (0-100)	49.37 ± 25.82	48.92 ± 27.17	0.017
CDAI	20.69 ± 12.69	19.85 ± 12.56	0.067
Patient Pain (0-100)	52.65 ± 27.54	51.95 ± 28.52	0.025
Patient reported fatigue (0-100)	53.53 ± 29.18	51.51 ± 29.87	0.069
mHAQ	0.63 ± 0.54	0.58 ± 0.52	0.097
Mono or combo therapy			

At time of initiation	CCP+ ABA Initiators N=369	CCP+ TOFA Initiators N=369	Standardized Differences ^a
Current therapy: n (%)	n=369	n=369	0.128
Mono	117 (31.7)	137 (37.1)	0.114
Combo with MTX	132 (35.8)	121 (32.8)	0.063
Combo with non MTX nbDMARD	82 (22.2)	81 (22.0)	0.007
Combo with both MTX and non MTX nbDMARD	38 (10.3)	30 (8.1)	0.075
Prednisone current use: n (%)			
	n=369	n=369	0.144
no use	241 (65.3)	258 (69.9)	0.099
<=7.5	74 (20.1)	74 (20.1)	0.000
>7.5	46 (12.5)	31 (8.4)	0.133
Missing	8 (2.2)	6 (1.6)	0.040

SD, standard deviation; BMI, body mass index; cDMARD, conventional Disease-Modifying Antirheumatic Drug; TNFi, tumor necrosis factor alpha inhibitor; tsDMARD, targeted synthetic DMARD, CDAI, Clinical Disease Activity Index; mHAQ, modified Health Assessment Questionnaire; MTX, methotrexate; nbDMARD, non-biologic DMARD

^a Austin (1) points out that Normand (2) in a study used 0.1 as a cutoff representing a negligible difference, based upon Cohen's interpretation of effect size (3); this implies that values exceeding |0.1| would indicate differences between the groups. Cohen suggested thresholds of 0.2, 0.5, and 0.8 for small, medium, and large effect sizes, but effect sizes between 0.1 and 0.2 suggest imbalance between groups and 0.1 is a standard threshold used in propensity score analyses.

References

1. Austin PC. An Introduction to Propensity Score Methods for Reducing the Effects of Confounding in Observational Studies. *Multivariate Behav Res.* 2011;46(3):399-424
2. Normand ST, Landrum MB, Guadagnoli E, Ayanian JZ, Ryan TJ, Cleary PD, et al. Validating recommendations for coronary angiography following acute myocardial infarction in the elderly: a matched analysis using propensity scores. *J Clin Epidemiol.* 2001;54(4):387-98
3. Cohen J. *Statistical Power Analysis for the Behavioral Sciences.* New York, NY: Routledge Academic; 1988.