Factors Associated With Biologic Disease-Modifying Antirheumatic Drugs Utilization in Rheumatoid Arthritis Patients

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Background

Biologic disease-modifying antirheumatic drugs (bDMARDs) have revolutionized the treatment of Rheumatoid arthritis (RA) which is the 2nd most common type of autoimmune arthritis, affects 1.3 million adults in the US, and it is more prevalent among older age and females.

Objectives

To evaluate the association between the bDMARDs utilization and the sociodemographic characteristics of rheumatoid arthritis (RA) patient population.

Methods

This retrospective analysis evaluated Medical Expenditure Panel Survey (MEPS) data from 2010 to 2018.

The study included the household component, including the medical conditions files, the full-year consolidated data file, the prescribed medicines files, and the appendix to the MEPS event files.

This study population included RA patients diagnosed using the International Classification of Disease, Ninth Revision (ICD-9), and Tenth Revision (ICD-10).

A logistic regression model was conducted to measure the association between the use of bDMARDs and the study population's sociodemographic characteristics.

Results

A total of 2,522 patients were diagnosed with RA in 2010-2018, of which 72% were female, 64% white, and 80% non-Hispanic, and a mean±SD age of 60.36±14 years.

Private and public health insurance covered 42% and 52% of the patients, respectively, and 6% were uninsured. Most RA patients were married (43%), not employed (70%), and had a high school diploma (41%).

	bDMARDs	p-value
Sex		0.391
Male	43 (29%)	
Female	108 (71%)	
Age (Mean ± SD)	52.61 ± 14.2	0.005
Race		0.001
White	117 (87%)	
Non-White	34 (13%)	
Ethnicity		0.413
Hispanic	30 (10%)	
Non-Hispanic	121 (90%)	
Marital Status		0.016
Married	86 (63%)	
Unmarried	65 (37%)	
Education		<0.000
Under HS Diploma	26 (10%)	
HS & Upper Grad	125 (90%)	
Employment Status		0.000
Employed	73 (54%)	
Non-Employed	78 (46%)	
Insurance Coverage		<0.000
Any Private	98 (78%)	
Public Only	53 (22%)	
Total	151	

Table 1. Sociodemographic Characteristics of RA Patient with bDMARDs Utilization (MEPS, 2010-2018)

There were significant differences in race, marital status, education, employment, and insurance coverage in RA patients using bDMARDs.

Among RA patients using bDMARDs, 54% had monotherapy and 39% dual therapy (bDMARDs and cDMARDs). Combination therapy was more frequent in females (p <0.05). There was no significant difference in the average age of RA patients' using bDMARDs monotherapy or combination therapy. White patients had higher odds of bDMARDs utilization (adjusted OR 1.86; 95%CI 1.11- 3.10).

	Adjusted Odds Ratio	95% Confidence Interval	p-value
Age	0.96	0.95, 0.98	<0.000
Sex Male=0, Female=1	1.45	0.88, 2.38	0.142
Race Non-White=0, White=1	1.86	1.11, 3.10	0.018
Hispanic Hispanic=0, Non-Hispanic=1	1.23	0.70, 2.14	0.477
Married Unmarried=0, Married=1	1.28	0.79, 2.04	0.315
Education Under HS=0, HS & Upper =1	1.51	0.80, 2.84	0.203
Employment Non-Employed=0, Employed=1	1.20	0.73, 1.98	0.469
Insurance Coverage Public=0, Private=1	2.41	1.39, 4.17	0.002

Table 2. Logistic Regression Analysis of bDMARDs Utilization in RA Patients (MEPS, 2010-2018)

Patients with private insurance had higher odds of bDMARDs utilization than patients with public insurance coverage (2.41; 95% CI, 1.39, 4.17).

The odds of bDMARDs utilization were significantly lower for RA elderly patients, with an estimated 4% reduction in bDMARDs for each year of age.

There were several factors, including sex, marital status, education level, and employment, that were not statistically significant factors explaining bDMARDs utilization.

The study has several limitations. The MEPS data are based on self-reporting; thus, the correct identification of the disease and proper recall of information greatly influence the validity of these self-reports. In some cases, there were several conditions, including RA, associated with a prescribed drug event for which the drug could be indicated. MEPS contains a relatively small number of RA patients per year.

Conclusions

Sociodemographic and characteristic factors, including race and insurance coverage, affect bDMARDs use in RA patients.

The bDMARDs play a crucial role in managing and treating rheumatoid arthritis, and it is essential for clinicians, healthcare providers, and policy-makers to understand the associations between RA characteristics and DMARDs utilization to improve RA patients' outcomes.