



Adherence and Clinical Outcomes among Rheumatoid Arthritis Patients: A Retrospective Case-Comparison Study

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Patients with rheumatoid arthritis who are adherent to their medication regimen have significantly lower hospital rates and significantly lower Emergency Room visit rates than non-adherent patients.

BACKGROUND

- There has been considerable progress in the treatment of rheumatoid arthritis (RA) over the last few years.
- New regimens of medications, primarily biologics, have been developed and marketed, yet even with proven efficacy and safety, the effectiveness of biologics is often limited by patient non-adherence.

OBJECTIVE

- The objective of this analysis was to examine the relationship between adherence levels and clinical outcomes among patients with RA.

METHODS

- Patients taking biologics used to treat RA between 2006 and 2009 were identified from the database of a large national retail pharmacy chain and then merged to a national benchmark medical and pharmacy claims database.
- The study used the case comparison design to examine hospital admissions per 1000 patients per year and emergency room (ER) visits per 1000 patients per year.
- The cohort of cases consisted of patients who were adherent to their medication regimen (medication possession ratio; MPR \geq 80%) and received medication management from the Specialty division of this retail pharmacy chain.
- The comparison cohort was extracted from the benchmark data base and consisted of patients who were not adherent to their medication regimen (MPR $<$ 80%).
- Using the one-to-one propensity score matching methodology, 512 matched pairs resulted.
- The matching covariates were age, gender, risk score, socioeconomic status, standard industrial classification code, comorbid conditions, and pre-medication gap.

RESULTS

- Patients who were adherent to their RA medication regimen had 139 hospital admissions per 1000 patients per year compared to 273 for the non-adherent cohort ($P < 0.0001$).
- Similarly, patients who were adherent had 258 ER visits per 1000 patients compared to 324 ER visits for the nonadherent comparison cohort ($P=0.0197$).
- In addition, hospital admission rates per 1000 patients decreased monotonically (362 per 1000, 265 per 1000, and 139 per 1000) as adherence rates increased (<39%, 40-79%, and $\geq 80\%$, respectively; $P < 0.0001$).

Table 1. Characteristics of Unadjusted and Propensity Matched Samples

Variable	Biologics (Unadjusted)			Biologics (Propensity Matched)		
	< 80%	80%+	P-Value	< 80%	80%+	P-Value
Members	513	2,062	--	512	512	--
Average age	48.7	50.9	0.0007	48.7	48.8	0.8905
Female %	75.8%	66.1%	<0.0001	75.8%	76.6%	0.804
Risk Score, Concurrent	6.1	5.5	0.1265	6.1	5.9	0.6431
Social Economic Status, Under 30k	13.8%	14.6%	0.6426	13.9%	12.5%	0.5657
Social Economic Status, 30k-50k	64.7%	66.0%	0.5827	64.6%	66.4%	0.5854
Social Economic Status, Over 50k	21.4%	19.4%	0.2869	21.5%	21.1%	0.9385
SIC, Finance	15.4%	15.1%	0.8577	15.4%	16.8%	0.5825
SIC, Service	36.5%	37.3%	0.724	36.5%	35.5%	0.7723
SIC, Trade	11.9%	10.0%	0.2064	11.9%	11.1%	0.7465
SIC, Transportation	20.1%	20.7%	0.6246	6.3%	6.6%	0.8957
SIC, Manufacturing	20.1%	20.7%	0.7705	19.9%	19.9%	1
SIC, Construction	2.3%	3.9%	0.0843	2.3%	2.3%	1
SIC, Public Administration	3.3%	4.6%	0.2141	3.3%	2.7%	0.69
SIC, Mineral	3.9%	2.2%	0.0266	3.9%	4.5%	0.7428
SIC, Agriculture	0.4%	0.5%	0.6813	0.4%	0.4%	1
Comorbid Conditions	2.1	2.0	0.5588	2.1	2.0	0.4204
Average Pre-Medication Gap	11.3	12.0	0.199	11.2	11.3	0.8169

Figure 1. Hospital Admissions and ER Visits by Adherence (MPR) Levels

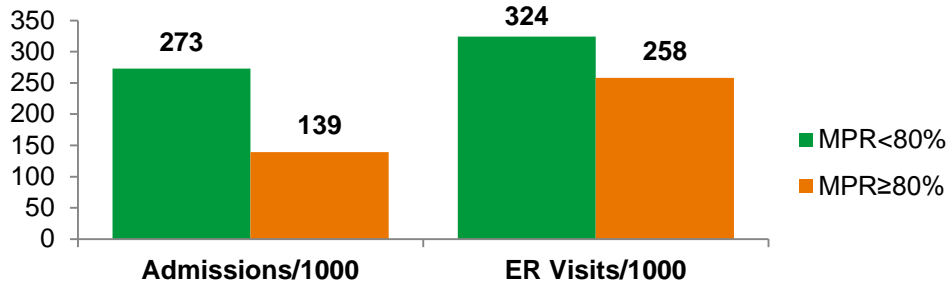


Figure 2. The Relationship between Adherence (MPR) Levels and Hospital Admissions

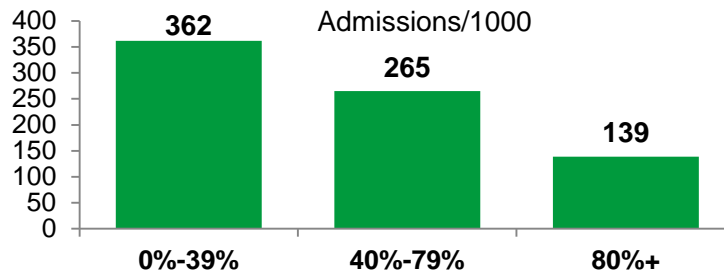
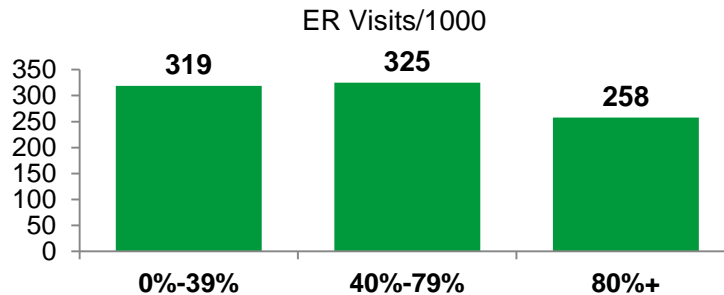


Figure 3. The Relationship between Adherence (MPR) Levels and ER Visits



CONCLUSIONS

- Patients with RA who are adherent to their medication regimen have significantly lower hospital admission rates and significantly lower ER visit rates than nonadherent patients.
- This analysis supports the contention that medication adherence has a meaningful and measurable impact on health outcomes.

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