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Assessing the real-world impact of earlier initiation of adalimumab vs. conventional synthetic DMARDs on healthcare resource utilization in patients with rheumatoid arthritis in Europe

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OBJECTIVE

To compare healthcare resource utilization (HCRU) and costs of rheumatoid arthritis (RA) patients receiving adalimumab as first line (1L) targeted-therapy (TT) with conventional synthetic DMARD (csDMARD) patients never prescribed a TT (TT-naïve).

CONCLUSIONS

Earlier initiation of biologics such as SZ-ADL for RA may provide cost savings to healthcare systems in Europe by:

- Reducing the cost of tests conducted to monitor RA
- Reducing the cost of RA patient consultations with rheumatologists and PCPs
- Reducing the cost of hospitalizations relating to RA

compared to continuing csDMARD therapy without any targeted therapy.

Increased use of biosimilars in particular may further reduce healthcare costs due to their lower price in most cases.

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INTRODUCTION

- Early use of TT, such as anti-tumor necrosis factor (anti-TNF) biologics, show improved outcomes for RA[1], but costs often limit access.
- Biosimilars, such as Sandoz adalimumab (SZ-ADL), are generally less expensive than their reference medicines and offer comparable efficacy[2].
- Early initiation of anti-TNF biosimilar therapy could yield higher cost efficiency than csDMARDs.

METHODS

Data Source and Patient Population

- Data were drawn from the Adelphi RA Disease Specific Programme (DSP™)[3], a cross-sectional survey of rheumatologists and their consulting patients with RA in a real-world clinical setting in France, Italy, Germany, Spain and the United Kingdom between July 2023 and August 2024.
- Rheumatologists, referring to their clinical notes and patients' medical records, provided details of HCRU.
- Two groups from the DSP™ dataset were included in the analysis:
  - Patients receiving SZ-ADL as 1L of TT for ≥3 months
  - TT-naïve patients receiving csDMARD therapy for ≥3 months

Statistical Analysis

- HCRU outcomes were assessed in SZ-ADL patients (1L) using inverse probability weighted regression adjustment (IPWRA) with csDMARD (TT-naïve) patients as a comparison group **(Figure 1, Figure 2)**.
- Both groups were weighted within a <10% standardized mean difference in their demographics, baseline characteristics and treatment history **(Table 2)**.
- Regression was adjusted for these weighted variables and for current therapy duration.
- Costs were sourced per country from national tariffs, government reports and diagnostic-related groups with additional country-specific pre-weights applied to cost models **(Figure 2)**.

RESULTS

Demographics

- A total of 714 patients were included (SZ-ADL 1L, n=287; csDMARD TT-naïve, n=427), with most patients being female and around the age of 40-65 years **(Table 1)**.
- A large majority of patients were white/Caucasian and had been diagnosed with RA for an average of 4-5 years **(Table 1)**.
- Patients across both groups on had received 1-2 csDMARD lines on average (including their current line if receiving a csDMARD) **(Table 1)**.

Table 1: Pre-Weighted Demographics, Time Since Diagnosis and csDMARD Lines

	SZ-ADL (1L) n=287	csDMARD (TT-naïve) n=427
Age in years (mean ± SD)	49.9 ± 12.23	53.2 ± 13.66
Sex, n (%)		
Female	201 (70%)	294 (69%)
Ethnic origin, n (%)		
White/Caucasian[a]	221 (91%)	349 (93%)
Time since diagnosis in years[b] **(mean ± SD)**	4.7 ± 5.32	4.4 ± 6.09
Number of csDMARD lines[c] **(mean ± SD)**	1.4 ± 0.7	1.6 ± 0.9

[a]n=242 (SZ-ADL), n=376 (csDMARD) due to data missing data; [b]n=256 (SZ-ADL), n=407 (csDMARD) due to missing data;
[c]Number of csDMARD lines includes their current csDMARD.

Table 2: Demographics, Clinical Characteristics and Treatment History Before and After Weighting

Weighting Covariates	Variable Measure	SMDs* Pre-Weighting (% difference between groups)	Weighted SMDs* (% difference between groups)
Age at initiation of current therapy	Continuous (numeric)	-13.23	7.18
Biological sex	Female (vs. male)	3.88	6.48
Concomitant autoimmune condition	Concomitant autoimmune condition (vs. not)**	12.67	8.82
DAS-28 at initiation of current therapy	High disease activity, >5.1 (vs. not)	56.22	-0.66
Charlson Comorbidity Index (CCI)	Continuous (numeric)	-12.46	-3.87
Duration of time receiving csDMARD therapy (excluding current line)	Continuous (numeric)	-3.19	-4.09
Number of months from diagnosis to initiation of current treatment	Categories: 0-3, >3-6-, >6-12, >12-24, >24, Unknown***	86.19	-0.87

*SMDs (Standardized Mean Differences) represent the differences in means between the groups in units of standard deviation. These have been converted to a percentage.
**Concomitant autoimmune condition was defined as: Ankylosing spondylitis, Connective tissue disease, Crohn's disease, Lupus, Multiple sclerosis, Non-radiographic axial spondyloarthritis, Psoriasis, Psoriatic arthritis, Ulcerative colitis, Uveitis, Vasculitis.
***This variable was measured in categories as model was unable to run as a continuous variable. Patients with missing data for their diagnosis date were included in the "unknown" category.

Figure 1: Weighted Mean Number of Tests, Consultations and Hospitalizations During Current Therapy

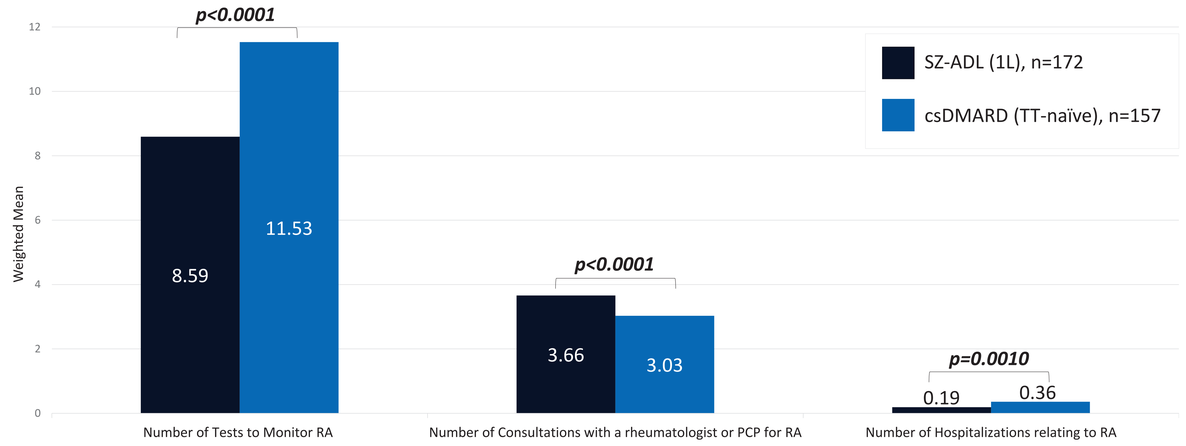
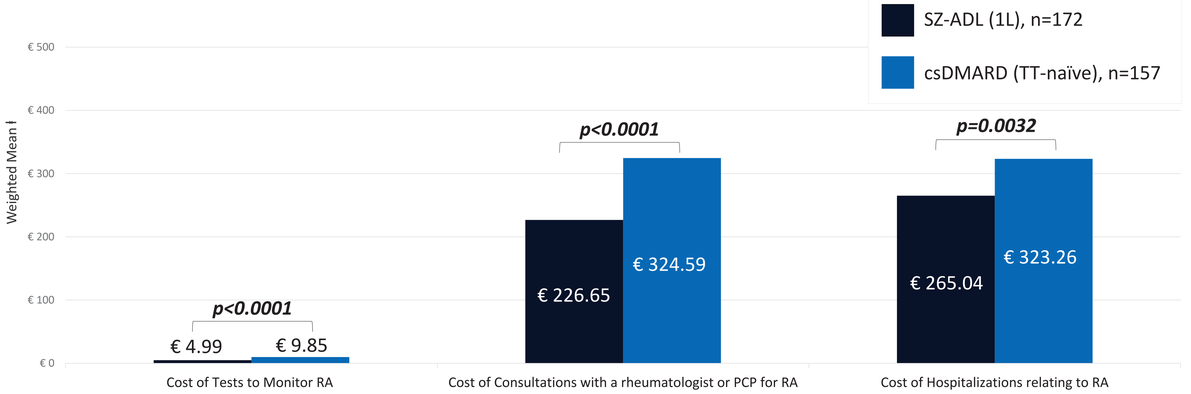


Figure 2: Weighted Mean Cost of Tests, Consultations and Hospitalizations During Current Therapy



† Pre-weighting was applied to the cost model to account for cost and population differences between countries.

Healthcare Resource Utilization

Post-weighting, a total of 329 patients were included in the regression analysis (SZ-ADL 1L, n=172; csDMARD TT-naïve, n=157).

- SZ-ADL patients had significantly fewer tests to monitor their RA and fewer hospitalizations relating to RA during their current therapy than the csDMARD group, but a higher average number of RA consultations with a rheumatologist or primary care physician (PCP) during their current therapy **(Figure 1)**.
- When accounting for country-specific cost and population differences with pre-weighting, SZ-ADL had significantly lower per-patient cost of tests to monitor RA and of hospitalizations relating to RA during their current therapy than the csDMARD group and a lower cost of consultations **(Figure 2)**.

LIMITATIONS

- Patients from the Adelphi RA DSP™ do not constitute a true random sample, as patients who consult more frequently are more likely to be included in the sample.
  - However, physicians were asked to provide data for their next several consecutively consulting patients who met the DSP inclusion criteria to reduce selection bias.
- Residual confounding factors may exist meaning that the two groups were not balanced in some variables that were not observed as part of the study.

Data collection was undertaken by Adelphi Real World as part of an independent survey, entitled the Adelphi RA DSP™. The DSP is a wholly owned Adelphi product and is the intellectual property of Adelphi Real World. The analysis described here used data from the Adelphi RA DSP. Sandoz was one of multiple subscribers to the DSP and did not influence the original survey neither through contribution to the design of questionnaires nor data collection. All authors had access to the data results and participated in the development, review, and approval of this publication. No honoraria or payments were made for authorship.

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