Secukinumab treatment of psoriatic arthritis in the real world – Achievement of fast response results in effective and lasting treatment outcomes

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Background

Individualized treatment strategies are of high importance in the treatment of patients with chronic immune-mediated diseases, such as psoriatic arthritis (PsA). IL-17 inhibition has demonstrated efficacy on all manifestations of PsA, but in some patients, a lack of efficacy can be observed. To analyze patient characteristics leading to treatment response patterns in PsA patients, data from the German non-interventional study 'AQUILA' (Kiltz et al. 2019) was analyzed. AQUILA is an ongoing non-interventional, multi-center, 52-week study planned to enroll approximately 3,000 patients with active PsA and axial spondyloarthritis treated or scheduled to initiate treatment with SEC in daily practice.

Methods

Out of a total of 1,803 PsA patients, 1,097 patients were included in the analyses. They started treatment within a period of 4 weeks around their baseline visit (V1) and were followed-up for up to 52 weeks (V2-V6).

- Response was defined as a combination of patient- (PsAID-12) and physician-derived (PhGA) assessments.
- The type of response is defined by the maximum response observed in patients during the study period. Only complete visits where both PsAID-12 and PhGA have been assessed are considered.
- Patients who reached a defined state of remission (PsAID-12 ≤ 1.4 and PhGA ≤ 1) or adequate improvement (20% improvement in PsAID-12 and PhGA compared to V1) were considered responders.
- A "fast" response was defined as reaching at least adequate improvement within the first 8 weeks of treatment (V2).
- All other responses were considered as "late" responses (**Figure 1, Table 1**).

An overview of patient responses to treatment over time is given in **Figure 3**. It shows transitions between response states and illustrates the declining sample size throughout the study due to missing values and patient dropouts.

Figure 1 – Response Groups

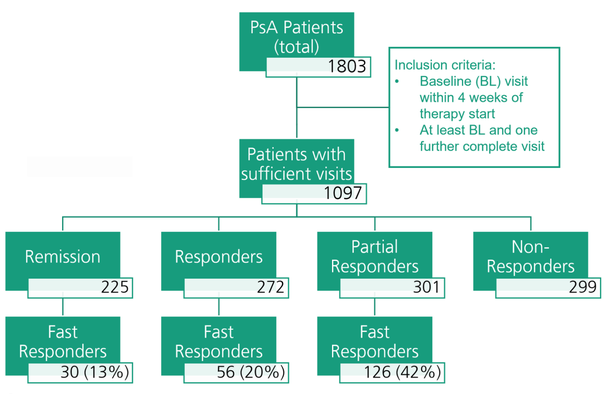

Figure 1:
Division of PsA patients into different response groups.

Results

In order to compare "fast" and "late" responders, we considered the subset of 914 PsA patients who completed V2. They were divided into 3 subgroups: 1) Non-Responders, 2) Late Responders and 3) Fast Responders (**Table 1**).

- Among "fast" responders, the number of smokers was significantly lower (p=0.009, chi-square test) with a lower median BMI (p=0.004, Mann-Whitney U test, **Figure 2**).
- "Fast" response was associated with a stronger and longer lasting therapy effect during further study course compared to late response: 50% response (p=0.003, chi-square test), remission state (p=0.019, chi-square test) and measurable response at week 52 (p=0.051, chi-square test) according to the definitions above were observed more often (**Figure 2**).

Table 1 – Demographic and Clinical Data

	Subgroups		
	„Fast" Responders	**„Late" Responders**	**Non-Responders**
Improvement Criteria	≥ 20% by V2, n=388 (42%)	≥ 20% after V2, n=227 (25%)	< 20%, n=299 (33%)
≥ 50% improvement	262 (68%)	125 (55%)	0 (0%)
Remission (PsAID-12 ≤ 1,4 and PhGA ≤ 1)	119 (31%)	49 (22%)	0 (0%)
≥ 20% improvement at week 52	173 (83%)*	105 (74%)*	0 (0%)*
Age, [years] (median)	47	47	48
BMI, [kg/m²] (median)	27,66	29,04	28,38
Smokers	47 (12%)	46 (20%)	57 (19%)
Biologic-naïve	147 (38%)	82 (36%)	108 (36%)
>1 biologic pre-therapy	112 (29%)	59 (26%)	87 (29%)
Steriods concomitant	140 (36%)	84 (37%)	111 (37%)
csDMARDs concomitant	140 (36%)	88 (39%)	102 (34%)
300mg Secukinumab	190 (49%)	116 (51%)	138 (46%)
150mg Secukinumab	198 (51%)	110 (49%)	161 (54%)
PhGA (median)	6	6	5,6
PsAID-12 (median)	5	6	6
CRP [mg/dl] (median)	4.15	3.75	3.1
PASI (median)	4	3	2
Tender joint count 68 (median)	5	6	5
Swollen joint count 66 (median)	3	2	2

Table 1:
Descriptive statistics of demographic and clinical data at baseline visit (V1) of PsA patients. Comparing "late" and "fast" responders, only responding patients with data available at V2, as well as all non-responders, could be considered (n=914).
**To evaluate improvement at week 52 participation of V6 (week 52) was required. Percentage refers to all patients with a documented BL, V2 and V6 (n=428).*

Figure 2 – Comparison of "Fast" and "Late" responders

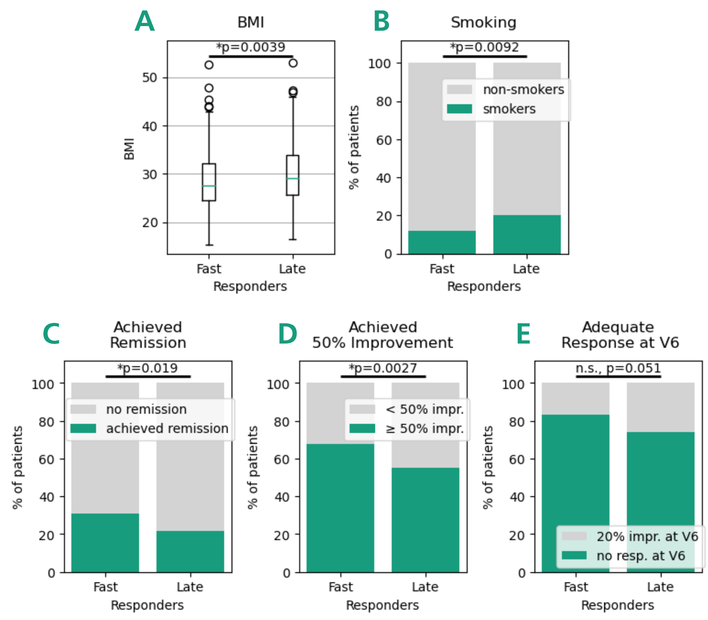

Figure 2:
Features that differ significantly between "fast" and "late" responders. p-values refer to a Mann-Whitney U test (A) or chi-square test (B-E). **A**, Boxplots showing BMIs of fast and late responders. **B**, stacked bars representing fractions of smokers and non-smokers in both groups. **C**, **D**, fractions of fast and late responders who achieved remission (C) and a 50% improvement (D) in PsAID and PhGA at some point during the study. **E**, fractions of patients who still showed an adequate response (i.e., at least 20% improvement) at V6.

Figure 3 - Transitions over time

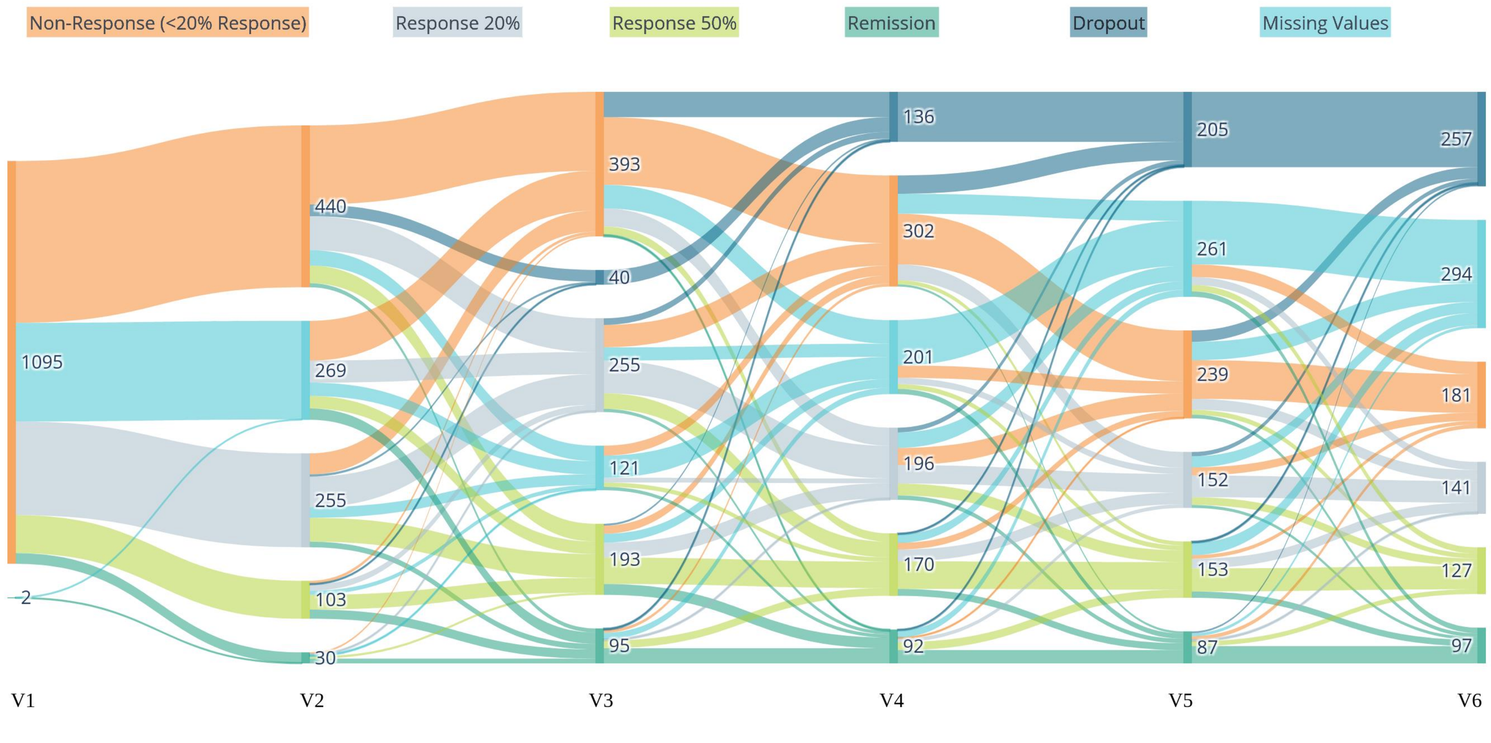

Figure 3:
This Sankey plot illustrates the patient transitions across different treatment response states over a one-year period of treatment. Patients are categorized into four different response groups defined by PsAID-12 and PhGA (Non-Response (<20% Response), Response 20%, Response 50% and Remission) as well as dropouts and missing visits. The figure visualizes the flow of patients from one state to another during their six visits (V1-V6), highlighting treatment response dynamics.

Conclusion

Our results show that secukinumab is an effective biologic treatment in PsA patients. Treatment response is dependent on demographics and disease characteristics indicating guidance for individualized treatment for clinical routine care. The results underline the dependency of fast response on clinical phenotype, especially on smoking status at treatment initiation. Moreover, those patients with early response have a high probability to achieve remission state over 52 weeks. Fast responders seem to benefit from both fast alleviation of symptoms and longer lasting treatment effects.

Contact Information

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1 Kiltz, U., et al. Baseline Characteristics of Patients with Ankylosing Spondylitis and Psoriatic Arthritis Treated with Secukinumab in the Real-World Setting: AQUILA, a Non-Interventional Study. TORJ 13, 53–60 (2019) - https://doi.org/10.2174/1874312901913010053

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