Efficacy of Certolizumab Pegol in Preventing Anterior Uveitis Flares Compared with Standard Non-Biologic Treatment: A Matched Control Study in High-Risk Patients with Axial Spondyloarthritis

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Objective

To evaluate anterior uveitis flare rate in patients with axial spondyloarthritis (axSpA) and high risk of recurrent uveitis who were treated with the PEGylated crystallizable fragment (Fc)-free TNF inhibitor certolizumab pegol (CZP) compared with standard non-biologic care.

Background

- Acute anterior uveitis (AAU) is the most common extra-musculoskeletal manifestation in axSpA (**Figure 1**).[1–3]
- An effective treatment for patients with axSpA that reduces the risk of AAU flares while also targeting axSpA symptoms is, therefore, highly desirable.
- However, long-term interventional randomized controlled trials to evaluate AAU flares in axSpA patients receiving treatment are lacking due to ethical challenges.

Methods

- In the open-label, multicenter C-VIEW study (NCT03020992), patients with axSpA who had a high risk of uveitis flares (i.e., those with active axSpA, human leukocyte antigen-B27 [HLA-B27] positivity, and a history of recurrent AAU [≥2 AAU flares in total; ≥1 in the year prior to baseline]) received CZP for 96 weeks; here, data up to Week 48 are reported (**Figure 2**).
  - The number of AAU flares experienced by patients was recorded continually in C-VIEW and compared to matched high-risk axSpA patients who were receiving non-biologic standard care from the University of California, San Francisco (UCSF) and University Health Network Toronto Western Hospital (UHN).
- Inverse probability weighting (IPW) was performed to adjust for potential confounders, followed by Poisson regression (adjusted for follow-up time) to assess the effect of treatment with CZP on AAU flare rate.

Results

- 89 patients received CZP in the C-VIEW study. 1,648 patients from UHN and 526 patients from UCSF were reviewed for eligibility as comparators; in total, 66 bio-naïve patients (40 from UCSF and 26 from UHN) were included.
- Baseline demographics and disease characteristics, before IPW, are reported in **Figure 3**.
  - Conventional synthetic disease-modifying antirheumatic drug (csDMARD) use was similar between groups at baseline and during follow-up.
- Following IPW, there were no statistically significant differences in mean Bath Ankylosing Spondylitis Disease Activity Index (BASDAI) and distribution of Ankylosing Spondylitis Disease Activity Score (ASDAS) disease activity states at baseline between the CZP-treated and comparator groups (**Figure 4**).
- The AAU flare rate was significantly lower with CZP than in the matched comparator population (**Figure 5**).
  - In the final model after IPW, there was an 87% reduction in AAU flare rate ($p \leq 0.001$) associated with CZP treatment.

Conclusions

This matched control study supports the benefit of CZP over standard non-biologic treatment in reducing AAU flares among high-risk patients with axSpA.

CZP is a promising therapeutic option in managing this debilitating ocular manifestation in axSpA.

Summary

AAU is the most common extra-musculoskeletal manifestation of axSpA

87%

After IPW, there was an 87% reduction in AAU flare rate ($p \leq 0.001$) associated with CZP treatment

CZP is therefore a promising therapeutic option in patients with axSpA-associated AAU

Figure 1 axSpA-associated AAU

AAU affects up to 50% of axSpA patients in some age groups and can have a significant impact on quality of life.[1–3]

The importance of treating AAU associated with axSpA has been emphasized by both the ACR and EULAR.[4,5]

Ocular symptoms include:

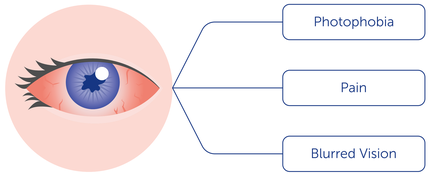
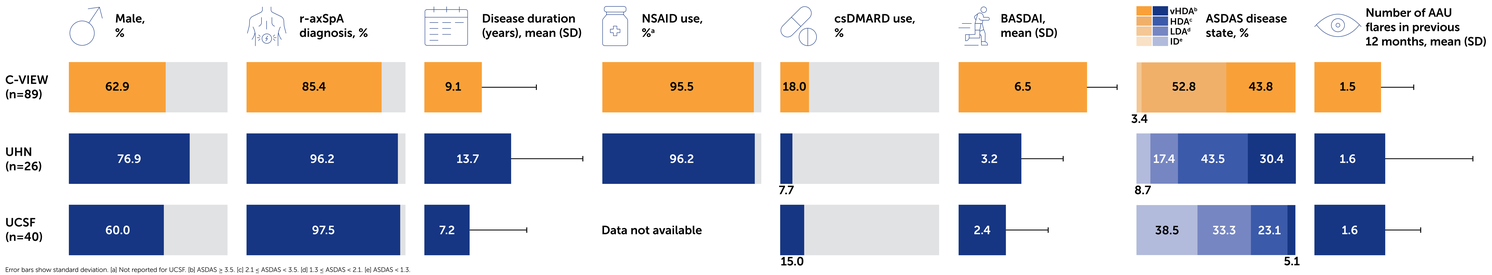
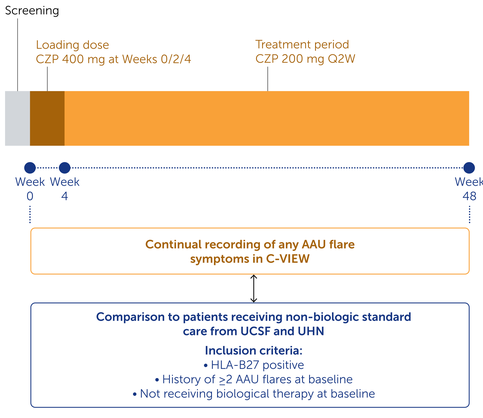


Figure 3 Baseline demographics and disease characteristics



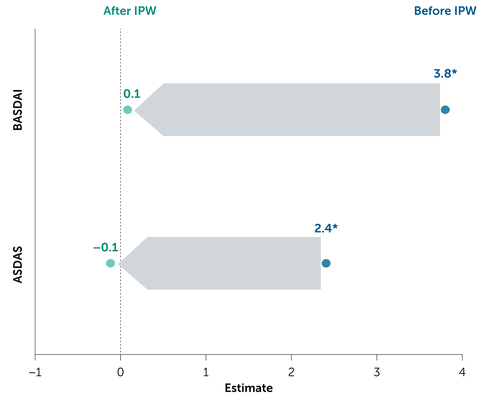
Error bars show standard deviation. [a] Not reported for UCSF. [b] ASDAS ≥ 3.5. [c] 2.1 ≤ ASDAS < 3.5. [d] 1.3 ≤ ASDAS < 2.1. [e] ASDAS < 1.3.

Figure 2 C-VIEW study design and comparison to UCSF and UHN



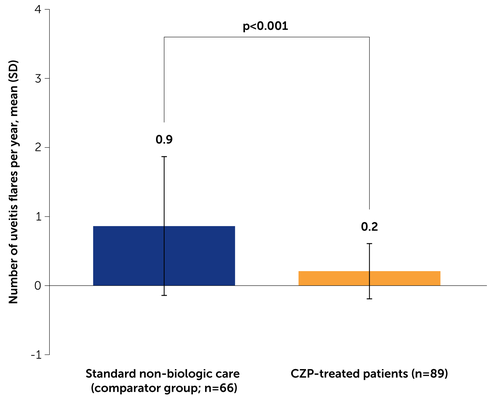
In C-VIEW, axSpA patients with a high risk of uveitis received CZP for 96 weeks; here, data up to Week 48 are reported.

Figure 4 Balance analysis on BASDAI and ASDAS before and after implementing IPW



The estimates for BASDAI indicate the difference in the mean value of BASDAI between CZP and comparator groups; the estimates for ASDAS indicate the log(odds) of being in a higher ASDAS category between CZP and comparator groups. *Indicates that p<0.001 for the difference between the CZP and comparator groups. IPW was performed to adjust for potential confounders, followed by Poisson regression, adjusted for follow-up time; there was no significant difference after IPW.

Figure 5 Comparison of the number of uveitis flares per year before IPW



IPW was performed to adjust for potential confounders, followed by Poisson regression, adjusted for follow-up time. After IPW, there was an 87% reduction in AAU flare rate ($p \leq 0.001$) associated with CZP treatment.

AAU: acute anterior uveitis; **ASDAS:** Ankylosing Spondylitis Disease Activity Score; **axSpA:** axial spondyloarthritis; **BASDAI:** Bath Ankylosing Spondylitis Disease Activity Index; **csDMARD:** conventional synthetic disease-modifying antirheumatic drug; **CZP:** certolizumab pegol; **Fc:** crystallizable fragment; **HDA:** high disease activity; **HLA-B27:** human leukocyte antigen-B27; **ID:** inactive disease; **IPW:** inverse probability weighting; **LDA:** low disease activity; **NSAID:** non-steroidal anti-inflammatory drugs; **Q2W:** every 2 weeks; **r-axSpA:** radiological axSpa; **SD:** standard deviation; **UCSF:** University of California, San Francisco; **UHN:** University Health Network Toronto Western Hospital; **vHDA:** very high disease activity.

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