Certolizumab Pegol for Treatment of Plaque Psoriasis: Pooled Three-Year Efficacy Outcomes from Two Phase 3 Trials (CIMPASI-1 and CIMPASI-2)

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OBJECTIVE

- To present pooled, three-year efficacy data from two phase 3 trials of certolizumab pegol in moderate to severe plaque psoriasis.

BACKGROUND

- Plaque psoriasis (PSO) is an inflammatory disease that affects around 3% of adults in the United States.[1,2]
- Treatment options for PSO include phototherapy/photochemotherapy, topical treatments, systemic agents and biologics.[3–6]
- Given the chronic nature of PSO, sustained treatment efficacy over the long-term is highly important. However, loss of response over time has previously been associated with biologics in PSO.[7]
- Certolizumab pegol (CZP) is an Fc-free, PEGylated, anti-tumor necrosis factor (TNF) which has led to durable clinical improvements in patients with PSO over two years of treatment.[8,9]
- Here, we report the clinical responses of PSO patients over three years of CZP treatment, using data from the CIMPASI-1 and CIMPASI-2 phase 3 trials.

METHODS

Study Design

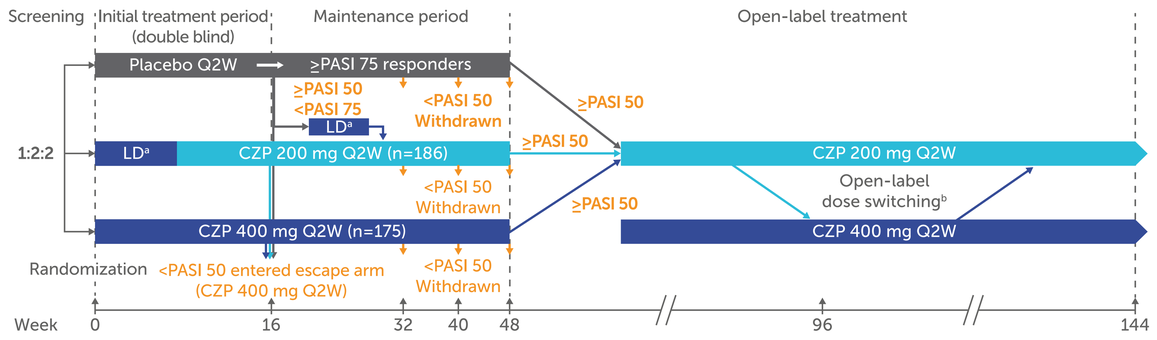
- Data were pooled for patients enrolled in two phase 3 trials, CIMPASI-1 (NCT02326298) and CIMPASI-2 (NCT02326272) **(Figure 1)**.
- This analysis includes all patients who were randomized to CZP 400 mg every two weeks (Q2W) or CZP 200 mg Q2W at Week 0 (intent-to-treat population).
- On entry to the open-label phase, all patients were initially treated with CZP 200 mg Q2W; subsequent dosing adjustment based on Psoriasis Area Severity Index (PASI) response was either mandatory or at the discretion of the Investigator **(Figure 1)**.

Table 1. Demographics and baseline characteristics for all patients randomized to CZP 400 mg Q2W and CZP 200 mg Q2W

	CZP 400 mg Q2W (n=175)	CZP 200 mg Q2W (n=186)	All CZP (N=361)
Age, years, mean (SD)	45.0 (12.9)	45.6 (13.2)	45.3 (13.0)
Male, n (%)	103 (58.9)	125 (67.2)	228 (63.2)
BMI, kg/m^2, mean (SD)	31.2 (7.9)	32.0 (7.8)	31.6 (7.8)
PSO disease duration, years, mean (SD)	18.5 (12.6)	17.7 (12.9)	18.1 (12.7)
Prior anti-TNF therapy,[a] n (%)	40 (22.9)	44 (23.7)	84 (23.3)
BSA affected, %, mean (SD)	23.6 (14.3)	23.5 (14.9)	23.5 (14.6)
PASI, mean (SD)	19.6 (7.3)	19.2 (7.2)	19.4 (7.3)
PGA Score, n (%)			
3 (moderate)	126 (72.0)	128 (68.8)	254 (70.4)
4 (severe)	49 (28.0)	58 (31.2)	107 (29.6)
DLQI total score, mean (SD)	13.7 (6.9)	14.3 (7.4)	14.0 (7.1)

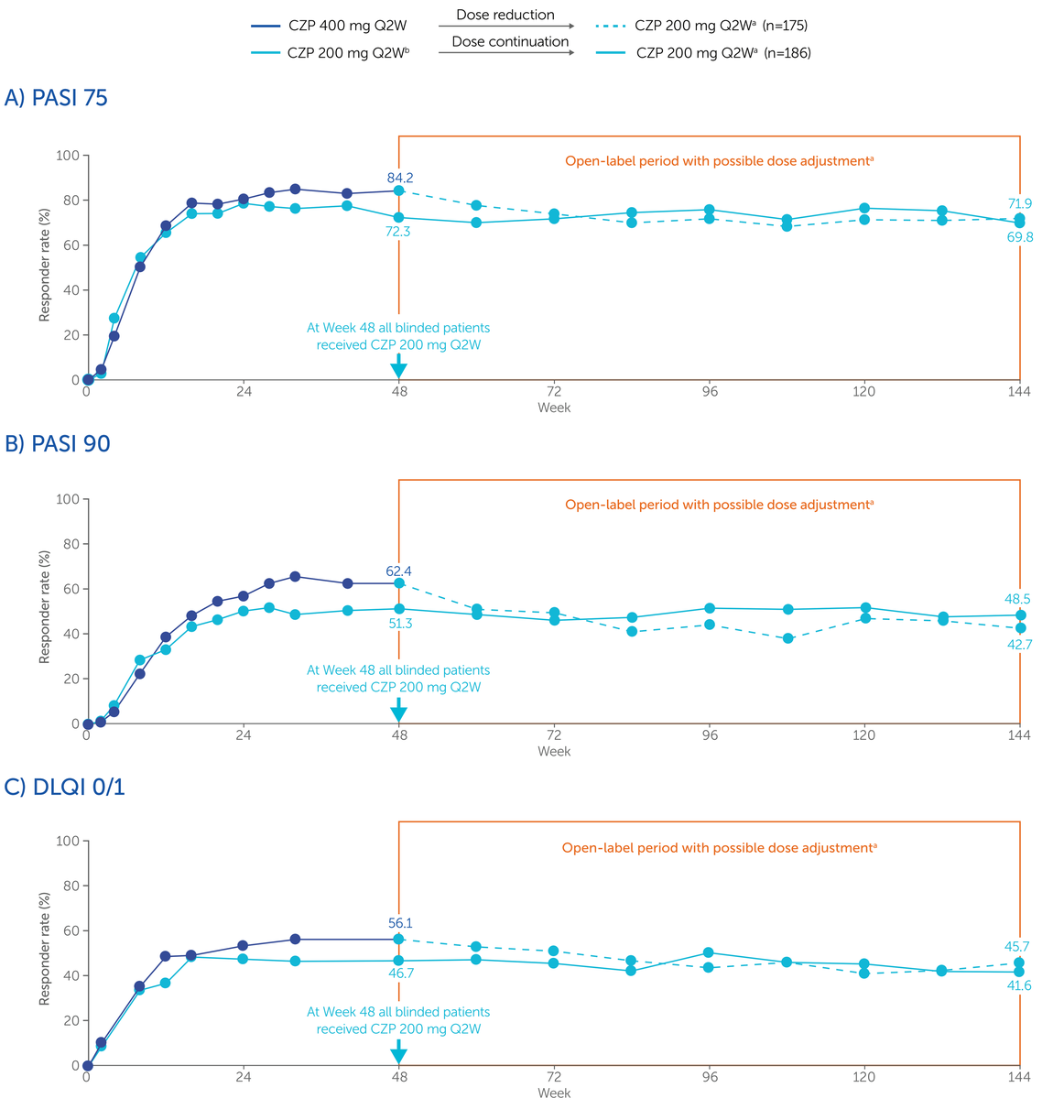
[a]Patients with exposure to ≥2 biologics (including anti-TNFs) for PSO or PsA prior to baseline, or primary failure to ≥1 (or secondary failure to ≥2) biologic therapies, were excluded from the study. BSA: body surface area; BMI: body mass index; CZP: certolizumab pegol; DLQI: Dermatology Life Quality Index; PASI: Psoriasis Area Severity Index; PGA: Physician's Global Assessment; PSO: psoriasis; Q2W: every 2 weeks; SD: standard deviation; TNF: tumor necrosis factor.

Figure 1. Pooled data from CIMPASI-1 and CIMPASI-2



[a]Loading dose of CZP 400 mg Q2W at Weeks 0, 2 and 4 or Weeks 16, 18 and 20; [b]Depending on PASI response, any dose adjustments during the open-label period were either mandatory or at the discretion of the Investigator. CZP: certolizumab pegol; LD: loading dose; PASI: Psoriasis Area Severity Index; Q2W: every two weeks.

Figure 2. Clinical response over three years of treatment (144 weeks)



Estimates of responder rate reflect the simple average response across the multiply imputed data sets, with missing data imputed using MCMC methodology. [a]All patients received CZP 200 mg Q2W at Week 48; dose adjustments were permitted during the open-label phase based on PASI response and were either mandatory or at the discretion of the Investigator; [b]Patients received loading dose of CZP 400 mg at Weeks 0, 2 and 4. CZP: certolizumab pegol; DLQI 0/1: Dermatology Life Quality Index 0/1; MCMC: Markov Chain Monte Carlo; PASI 75/90: ≥75/90% improvement from baseline in Psoriasis Area and Severity Index; Q2W: every 2 weeks.

Patients

- ≥18 years with moderate to severe PSO ≥6 months, PASI ≥12, ≥10% body surface area (BSA) affected, and Physician's Global Assessment (PGA) ≥3 on a 5-point scale.
- Candidates for systemic PSO therapy, phototherapy and/or photochemotherapy.
- Exclusion criteria: previous treatment with CZP or >2 biologics; history of primary failure to any biologic or secondary failure to >1 biologic; erythrodermic, guttate or generalized PSO types; current or history of chronic or recurrent viral, bacterial or fungal infections.

Study Assessments and Statistical Analyses

- Patients were assessed through Weeks 0–144 for:
  - PASI 75 (≥75% improvement from baseline)
  - PASI 90 (≥90% improvement from baseline)
  - DLQI 0/1 (Dermatology Life Quality Index score of 0/1 [remission])
- Estimates of responder rate reflect the simple average response across the multiply imputed data sets, with missing data imputed using Markov Chain Monte Carlo (MCMC) methodology.

RESULTS

Patient Population

- At Week 0, 175 patients were randomized to CZP 400 mg Q2W and 186 patients to CZP 200 mg Q2W.
- Baseline characteristics were balanced across treatment groups **(Table 1)**.

Clinical Response to Week 144

- Initial Week 16 responder rates were durable through to Week 48 for both CZP 400 mg Q2W and CZP 200 mg Q2W **(Figure 2)**.
- In patients initially randomized to CZP 200 mg Q2W, PASI 75, PASI 90 and DLQI 0/1 responder rates were sustained for a further two years to Week 144 **(Figure 2)**.
- In patients initially randomized to CZP 400 mg Q2W, clinical response gradually declined following dose reduction to CZP 200 mg Q2W at Week 48 **(Figure 2)**.

CONCLUSIONS

- In patients randomized to CZP 400 mg Q2W, responder rates increased to Week 48 and were higher than in the CZP 200 mg Q2W group. These rates then gradually decreased following dose reduction, indicating that continued treatment at 400 mg Q2W may be needed to maintain optimal response.
- Long-term efficacy over three years was durable in patients who received CZP 200 mg Q2W.

References

1. Kurd SK. *et al.* J Am Acad Dermatol 2009;60:218–24; **2.** Rachakonda TD. *et al.* J Am Acad Dermatol 2014;70:512–6; **3.** Elmets CA. *et al.* J Am Acad Dermatol 2019; **4.** Menter A. *et al.* J Am Acad Dermatol 2009;60:643–59; **5.** Menter A. *et al.* J Am Acad Dermatol 2009; 61:451–85; **6.** Menter A. *et al.* J Am Acad Dermatol 2019;80:1029–72; **7.** Levin EC. *et al.* J Dermatol Treat 2014;25:78–82; **8.** Gottlieb AB. *et al.* J Am Acad Dermatol 2018;79:302–14; **9.** Gordon K. *et al.* AAD 2019.

Author Contributions

Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: KG, RBW, ABG, AB, DT, CL, YP, MB, SK, CA, KR; Drafting of the publication, or revising it critically for important intellectual content: KG, RBW, ABG, AB, DT, CL, YP, MB, SK, CA, KR; Final approval of the publication: KG, RBW, ABG, AB, DT, CL, YP, MB, SK, CA, KR.

Author Disclosures

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