Improvement of Nail Psoriasis With Brodalumab in Phase 3 Trials

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INTRODUCTION

- Psoriasis is a chronic inflammatory condition characterized by thick, scaly patches on the skin
  - Interleukin-17 (IL-17) has been identified to play a significant role in disease pathogenesis[1]
- Nail involvement occurs in approximately half of all patients with psoriasis and is often difficult to treat[2]
- Brodalumab is a monoclonal antibody that targets the receptor IL-17RA and has demonstrated efficacy and safety in the treatment of plaque psoriasis[3,4]

OBJECTIVE

- To evaluate the efficacy of brodalumab in nail psoriasis

METHODS

- Brodalumab was evaluated in three phase 3 multicenter, randomized, double-blind, placebo-controlled studies in patients with moderate-to-severe psoriasis[3,4]
- Patients were treated with brodalumab (140 or 210 mg every 2 weeks [Q2W]) or placebo during the 12-week induction phase
- Nail involvement was assessed at baseline using the nail psoriasis severity index (NAPSI)
  - Patients were evaluated by the nail with the highest psoriasis involvement score
- Improvement in NAPSI score was assessed in patients with a baseline NAPSI score ≥6
- The mean improvement in NAPSI score from baseline was evaluated at week 12
- Comparisons were made by analysis of covariance, adjusting for baseline body weight, prior biologic use, geographic region, study, and baseline NAPSI score

RESULTS

Patient demographics and characteristics

- Mean baseline NAPSI scores were similar in all groups (range, 9.5-9.6; Table 1)

Table 1. Patient Baseline Demographics and Clinical Characteristics (Integrated AMAGINE-1/-2/-3 Studies)

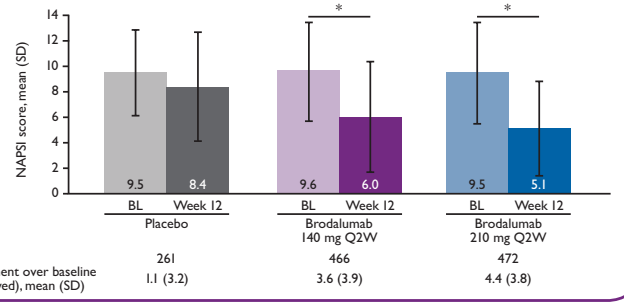
	Placebo (N=844)	Brodalumab 140 mg Q2W (N=1458)	Brodalumab 210 mg Q2W (N=1458)
Age, mean (SD), y	44.7 (12.9)	44.8 (13.0)	45.1 (12.9)
Male, n (%)	588 (69.7)	1012 (69.4)	1013 (69.5)
White, n (%)	769 (91.1)	1322 (90.7)	1319 (90.5)
Weight, mean (SD), kg	90.2 (22.1)	90.4 (21.6)	90.7 (23.1)
BMI, mean (SD), kg/m^2	30.2 (6.8)	30.4 (7.0)	30.5 (7.3)
Duration of psoriasis, mean (SD), y	18.5 (12.0)	18.1 (11.9)	18.7 (12.4)
Psoriatic arthritis (yes), n (%)	173 (20.5)	319 (21.9)	299 (20.5)
BSA, mean (SD), %	27.6 (17.1)	27.8 (17.8)	26.8 (16.8)
PASI score, mean (SD)	20.1 (8.3)	20.2 (8.2)	20.2 (8.0)
sPGA score, n (%)			
3	473 (56.0)	899 (61.7)	810 (55.6)
4	324 (38.4)	489 (33.5)	567 (38.9)
5 (very severe)	47 (5.6)	70 (4.8)	81 (5.6)
Prior biologic therapy (yes), n (%)	267 (31.6)	438 (30.0)	439 (30.1)
NAPSI score, mean (SD)	9.5 (3.4)	9.6 (3.9)	9.5 (4.0)
Patients with NAPSI ≥6, n (%)	261 (30.9)	466 (32.0)	472 (32.4)

BMI, body mass index; BSA, body surface area; NAPSI, nail psoriasis severity index; PASI, psoriasis area and severity index; Q2W, every 2 weeks; SD, standard deviation; sPGA, static physician's global assessment.

Improvement in NAPSI score at week 12

- The improvements observed with both brodalumab doses compared with placebo were significant (P<0.001; Figure 1)

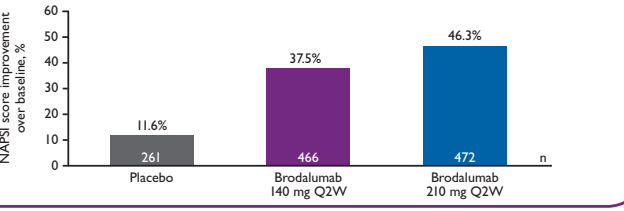
Figure 1. NAPSI score at baseline and week 12 (as observed).



BL, baseline; NAPSI, nail psoriasis severity index; Q2W, every 2 weeks; SD, standard deviation. *P<0.001 vs BL.

- After 12 weeks, improvements from baseline of 11.6%, 37.5%, and 46.3% were observed in the placebo, brodalumab 140 mg Q2W, and brodalumab 210 mg Q2W groups, respectively (Figure 2)

Figure 2. Percent improvement over baseline at week 12 (as observed).



NAPSI, nail psoriasis severity index; Q2W, every 2 weeks.

- After 12 weeks, treatment with brodalumab 210 mg Q2W led to a greater decrease in NAPSI score compared with brodalumab 140 mg Q2W relative to placebo (Table 2)

Table 2. Treatment Differences With Brodalumab vs Placebo at Week 12 (Multiple Imputation)

	Placebo (N=261)	Brodalumab 140 mg Q2W (N=466)	Brodalumab 210 mg Q2W (N=472)
NAPSI, mean (SE)	8.5 (0.3)	6.0 (0.2)	5.2 (0.2)
Treatment difference vs placebo, least squares mean (95% CI)	—	2.5 (2.0, 3.0)	3.3 (2.8, 3.8)
P value vs placebo		<0.001	<0.001

CI, confidence interval; NAPSI, nail psoriasis severity index; Q2W, every 2 weeks; SE, standard error.

CONCLUSIONS

- **Brodalumab 140 and 210 mg Q2W were associated with significant improvements in psoriatic nail symptoms after 12 weeks of treatment**
- **Because nail turnover is slower than skin turnover, longer periods of brodalumab therapy would be expected to result in continued nail improvement**

Acknowledgments: This study was sponsored by Ortho Dermatologics. Medical writing support was provided by MedThink SciCom and funded by Ortho Dermatologics.

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