IHS4 Outcomes with Bimekizumab in Patients with Moderate to Severe Hidradenitis Suppurativa: Pooled Results from the BE HEARD I & II Phase 3 Trials

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Objective

To report disease severity data, measured using the International Hidradenitis Suppurativa Severity Score System (IHS4), from the post-hoc analysis of the phase 3 BE HEARD I & II trials of bimekizumab (BKZ) in patients with hidradenitis suppurativa (HS).[1,2]

Background

- HS severity can be dynamically assessed using the IHS4, a validated clinician-rated tool that includes the number of inflammatory nodules, abscesses and draining tunnels.[3]
- Treatment with BKZ, a humanised IgG1 monoclonal antibody that selectively inhibits interleukin (IL)-17F in addition to IL-17A, resulted in clinical improvements in IHS4 in phase 2.[4]

Methods

- Pooled data from the randomised, double-blind, placebo (PBO)-controlled, multicentre BE HEARD I and II trials included an initial (Weeks 0–16) and maintenance (Weeks 16–48) treatment period (**Figure 1**).
  - Adult patients were randomised 2:2:2:1 (initial/maintenance) to receive BKZ 320 mg every 2 weeks (Q2W)/Q2W, BKZ Q2W/Q4W, BKZ Q4W/Q4W or PBO/BKZ Q2W.
- IHS4 scores are reported by category through Week 48, in addition to change from baseline (CfB) in IHS4; mild HS was defined as a score of ≤3, moderate HS as 4–10 and severe HS ≥11.3.
- Missing data were imputed using multiple imputation (MI).

Results

- At baseline, 1,014 patients were randomised to PBO/BKZ Q2W (N=146), BKZ Q4W/Q4W (N=288), BKZ Q2W/Q4W (N=292) or BKZ Q2W/Q2W (N=288; **Figure 1**).
- Demographics and disease characteristics at baseline were generally balanced across treatment groups.
  - Mean baseline IHS4 scores ranged from 30.6 (PBO/BKZ Q2W) to 36.0 (BKZ Q2W/Q4W) (**Table 1**).
- According to IHS4, one patient (0.3%, BKZ Q4W/Q4W) had mild HS and 11.6–16.3% had moderate HS across BKZ dose regimens at baseline, versus 83.7–88.4% with severe HS (**Figure 2**).
- Over time, the proportion of patients with mild or moderate HS, as defined by IHS4, increased when treated with BKZ to Week 48, with a corresponding decrease in the proportion of patients with severe HS (**Figure 2**).
- Patients saw improvements in IHS4 scores with BKZ treatment over time; at Week 48, IHS4 scores reduced across BKZ groups, with the greatest CfB seen in the group that received BKZ Q2W/Q4W (**Figure 3**).
- PBO to BKZ switchers saw improvements in HS severity after switch at Week 16 (**Figure 2**, **Figure 3**).

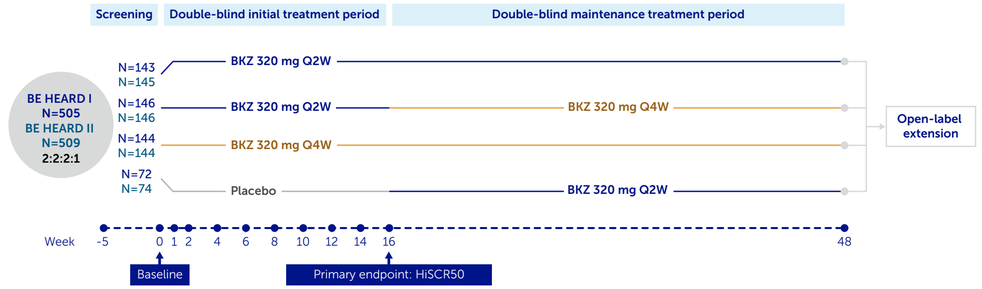
Conclusions

BKZ demonstrated large improvements in clinician-rated IHS4 at Week 16 versus PBO, shifting many patients from severe to less severe scores that were maintained through 48 weeks.

Patients who initially received PBO saw improvements in HS severity after switching to BKZ at Week 16.

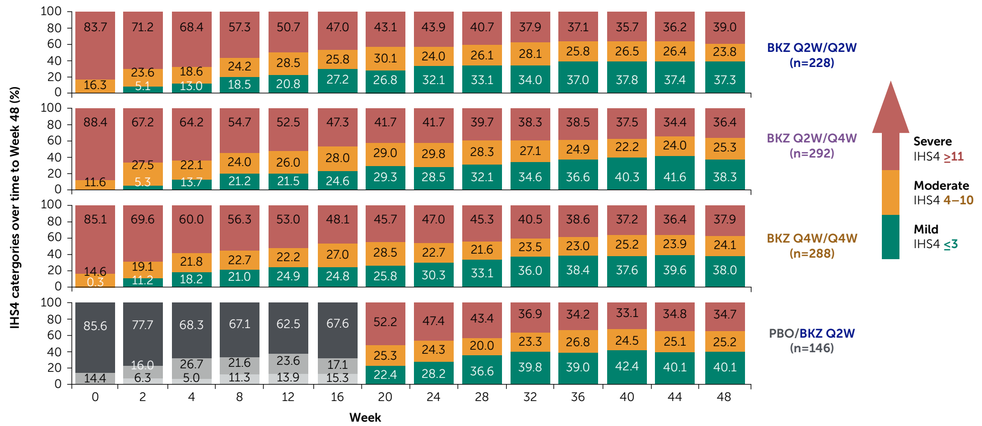
These findings demonstrate the utility of the IHS4 to assess HS severity in clinical trials.

Figure 1 BE HEARD I & II study design



At baseline, patients with moderate to severe HS were randomised 2:2:2:1 to bimekizumab 320 mg Q2W to Week 48, bimekizumab 320 mg Q4W to Week 48, bimekizumab 320 mg Q2W to Week 16 then bimekizumab 320 mg Q2W to Week 48, or placebo to Week 16 then bimekizumab 320 mg Q2W to Week 48.

Figure 2 BE HEARD I & II IHS4 Categories Over Time to Week 48 (MI)[a]



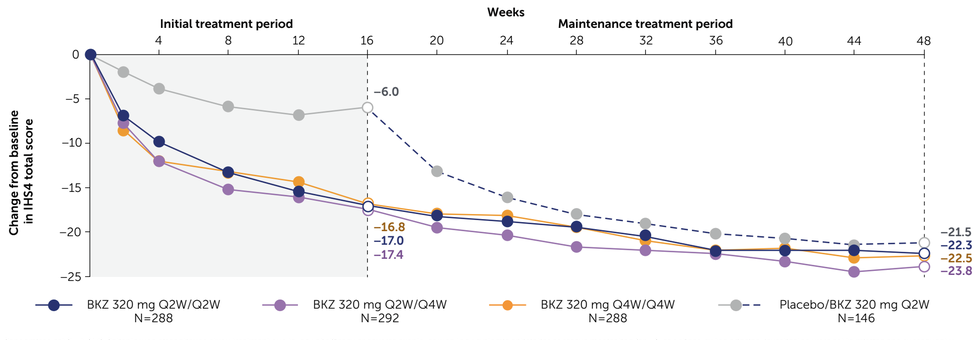
Randomised set (N=1,014). [a] Values have been rounded and so may not add to 100%. Intermittent missing data were imputed using MI. Participants who experienced an intercurrent event were treated as missing following the intercurrent event. Patients who took systemic antibiotics as rescue medication for HS as defined by the principal investigator or who discontinued due to adverse event or lack of efficacy were treated as missing at all subsequent visits. Treatment switch after the initial treatment period for the PBO/BKZ 320 mg Q2W and BKZ 320 mg Q2W/Q4W groups started at Week 16.

Table 1 Baseline Characteristics

	BKZ 320 mg Q2W/Q2W N=288	BKZ 320 mg Q2W/Q4W N=292	BKZ 320 mg Q4W/Q4W N=288	PBO/BKZ 320 mg Q2W N=146
Age, **years**, mean ± SD	36.8 (12.4)	37.0 (12.4)	35.8 (11.6)	37.3 (12.8)
Sex, **female**, n (%)	152 (52.8)	174 (59.6)	175 (60.8)	75 (51.4)
Racial group, **white**	232 (80.6)	233 (79.8)	224 (77.8)	119 (81.5)
BMI, **kg/m²**, mean ± SD	32.7 (8.6)	32.7 (7.9)	33.8 (7.9)	33.1 (8.3)
Smoking status, **current**	127 (44.1)	134 (45.9)	126 (43.8)	75 (51.4)
Duration of HS, **years**, mean ± SD	7.6 (7.4)	8.3 (7.7)	7.3 (7.3)	9.8 (9.4)
AN count, mean ± SD	14.7 (11.6)	17.2 (16.8)	17.7 (20.9)	14.4 (10.0)
AB count	3.4 (4.6)	3.6 (7.1)	4.0 (6.9)	2.7 (5.0)
IN count	11.4 (10.0)	13.6 (13.4)	13.7 (18.4)	11.8 (8.4)
DT count, mean ± SD	3.8 (4.4)	3.8 (4.4)	3.3 (4.1)	3.4 (3.8)
IHS4 score, mean ± SD	33.4 (25.4)	36.0 (34.0)	35.0 (34.0)	30.6 (21.8)
IHS4 category, n (%)				
Severe	241 (83.7)	258 (88.4)	245 (85.1)	125 (85.6)
Moderate	47 (16.3)	34 (11.6)	42 (14.6)	21 (14.4)
Mild	0 (0.0)	0 (0.0)	1 (0.3)	0 (0.0)
Prior biologic use,[a] n (%)	59 (20.5)	56 (19.2)	47 (16.3)	29 (19.9)
Baseline antibiotic use, n (%)	29 (10.1)	28 (9.6)	18 (6.3)	11 (7.5)

[a] Patients received prior biologic therapy for any indication

Figure 3 BE HEARD I & II: CfB in IHS4 Total Score Over Time to Week 48 (MI)



Randomised set (N=1,014). Patients who discontinued study treatment due to lack of efficacy or adverse events, or who took systemic antibiotics as rescue medication for HS, as defined by the principal investigator, were set to missing and subsequently imputed using MI. All other missing data were also imputed using MI. Treatment switch after the initial treatment period for the placebo/BKZ 320mg Q2W and BKZ 320mg Q2W/Q4W groups started at Week 16.

AB: abscess; **AN:** abscess and inflammatory nodule; **BKZ:** bimekizumab; **BMI:** body mass index; **CfB:** change from baseline; **DT:** draining tunnel; **HiSCR:** Hidradenitis Suppurativa Clinical Response; **HiSCR50:** ≥50% reduction in the total abscess and inflammatory nodule count with no increase from baseline in abscess or draining tunnel count; **HS:** hidradenitis suppurativa; **IHS4:** International Hidradenitis Suppurativa Severity Score System; **IL:** interleukin; **IN:** inflammatory nodule; **MI:** multiple imputation; **PBO:** placebo; **Q2W:** every 2 weeks; **Q4W:** every 4 weeks; **SD:** standard deviation.

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References: [1]BE HEARD I: clinicaltrials.gov/study/NCT04242446; [2]BE HEARD II: clinicaltrials.gov/study/NCT04242498; [3]Zouboulis CC et al. Br J Dermatol 2017;177:1401–9; [4]Glatt S et al. JAMA Dermatol 2021;157:1279–88. **Author Contributions:** Substantial contributions to study conception/design, or acquisition/analysis/interpretation of data: **CCZ**, **JSK**, **TT**, **SK**, **AA**, **MP**, **VdM**, **LS**, **RR**, **PJ**, **LD**, **IP**, **JWF**; Drafting of the publication, or reviewing it critically for important intellectual content: **CCZ**, **JSK**, **TT**, **SK**, **AA**, **MP**, **VdM**, **LS**, **RR**, **PJ**, **LD**, **IP**, **JWF**; Final approval of the publication: **CCZ**, **JSK**, **TT**, **SK**, **AA**, **MP**, **VdM**, **LS**, **RR**, **PJ**, **LD**, **IP**, **JWF**. **Author Disclosures: CCZ:** Honoraria as an advisor and speaker for studies or lectures associated with HS from AbbVie, Almirall, Boehringer Ingelheim, Idorsia, Incyte, InflaRx, Janssen, Novartis, Regeneron, UCB Pharma and Viatris. His department has received grants from AbbVie, Boehringer Ingelheim, InflaRx, Novartis, and UCB Pharma for his participation as an investigator. President of the European Hidradenitis Suppurativa Foundation (EHSF) e.V. **JSK:** Reports personal fees from AbbVie, ChemoCentryx, CSL Behring, DermTech, Incyte, Insmed, Janssen, Moonlake, Novartis and UCB Pharma; personal fees and grants from Incyte. Co-copyright holder of HiSQOL. **TT:** Consultancy/advisory boards/speaker fees from AbbVie, Boehringer-Ingelheim, Novartis and UCB Pharma; treasurer of the European Hidradenitis Suppurativa Foundation (EHSF) e.V. **SK:** Received research grants from AbbVie, Acelyrin, BMS and Incyte; consulting/advisory boards and speakers bureau for AbbVie, Eli Lilly, Janssen, LEO Pharma, Regeneron and UCB Pharma. **AA:** On the Board of Directors for the Hidradenitis Suppurativa Foundation; served as consultant for AbbVie, Boehringer Ingelheim, InflaRx, Janssen, Novartis, and UCB Pharma; principal investigator for Boehringer Ingelheim, and Processa. **MP:** Received honoraria from AbbVie, Beiersdorf, BMS, CSL, Galderma, Janssen-Cilag, Leo Pharma, Novartis, MSD and UCB Pharma. Advisory board/speaker services and department received grants from AbbVie, Boehringer Ingelheim, Eli Lilly, Galderma, Janssen-Cilag, InflaRX, Ipsen, Leo Pharma, Novartis, MSD and UCB Pharma for investigator services. **VdM:** declares no conflict of interest. **LS:** Consultant, and/or scientific adviser, and/or investigator, and/or scientific officer, and/or speaker for AbbVie, Akesobio, Alphyn Biologics, Amgen, Anacor, Ascend, Aslan, Astellas, AstraZeneca, Blaze Bioscience, BMS, Boehringer Ingelheim, Botanix, Celgene, Connect Biopharmaceuticals Australia, Dermira, Eli Lilly and Company, Evelo Biosciences, Galderma, Genentech, GSK, Hexima, Immunic Therapeutics, Invion, Janssen, Kiniksa Pharmaceuticals, Kobiolab, Leo Pharma, Lipidio, Mayne, Medimmune, Merck (MSD), Merck-Serono, Novartis, Otsuka, Pfizer, Phosphagenics, Photon MD, Regeneron, Reistone, Roche, Samumed, Sanofi/Genzyme, SHR, Sun Pharma ANZ, Trius, UCB Pharma, Vyne Therapeutics and Zai lab. **RR, PJ, LD, IP:** Employees and shareholders of UCB Pharma. **JWF:** Conducted advisory work for AbbVie, Boehringer Ingelheim, Chemocentryx, Janssen, Kyowa Kirin, LEO Pharma, Pfizer, Regeneron and UCB Pharma, participated in trials for Boehringer Ingelheim, CSL, Eli Lilly, Pfizer and UCB Pharma, and received research support from Ortho Dermatologics and Sun Pharma. **Acknowledgements:** These studies were funded by UCB Pharma. The authors acknowledge Susanne Wiegratz, MSc, UCB Pharma, Monheim am Rhein, Germany for publication coordination, Matthew Walker, MRes, for medical writing and editorial assistance, and the Creative team at Costello Medical for graphic design assistance. All costs associated with development of this poster were funded by UCB Pharma.

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