Health-Related Quality of Life (HRQoL) in Patients With Mayo Stage IV Light Chain (AL) Amyloidosis Treated With Birtamimab Plus Standard of Care (SoC): Results From the VITAL Trial

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Introduction: Patients with AL amyloidosis have reduced HRQoL, particularly those with advanced cardiac involvement who have a high symptom burden and poor physical function. Here, we assessed longitudinal HRQoL changes in the VITAL trial among patients with Mayo Stage IV (MSIV) AL amyloidosis.

Methods: In VITAL, newly diagnosed treatment-naïve patients received birtamimab + SoC or placebo + SoC. Short Form-36 questionnaire, version 2 (SF-36v2) was completed at baseline, months 3, 6, and 9; lower scores

indicate worse HRQoL. A mixed model for repeated measures was used to estimate least squares mean (LSM), standard error (SE), and 95% CI for each treatment group and LSM difference between groups.

Results: In MSIV patients, baseline values were similar between birtamimab (n=38) and placebo (n=39) arms for all eight SF-36v2 domains and component summary scores. Change from baseline to month 9 was significantly different between treatment arms for role physical (RP), bodily pain (BP), social functioning (SF), and physical component summary (PCS) score (PCS reported in Gertz et al. *Blood* 2023). LSM (SE) change from baseline to month 9 in birtamimab and placebo arms, respectively, was −2.07 (3.824) vs −13.52 (3.433) for RP; −3.03 (5.496) vs −19.37 (5.038) for BP; −5.73 (5.460) vs −28.52 (5.099) for SF; −0.75 (1.749) vs −5.40 (1.597) for PCS. LSM differences, 95% CI, and *P*-values for all domains are shown in **Figure**.

Conclusions: Treatment with birtamimab + SoC in MSIV AL amyloidosis patients was associated with significantly less decline in HRQoL versus placebo + SoC in several SF-36v2 domains.

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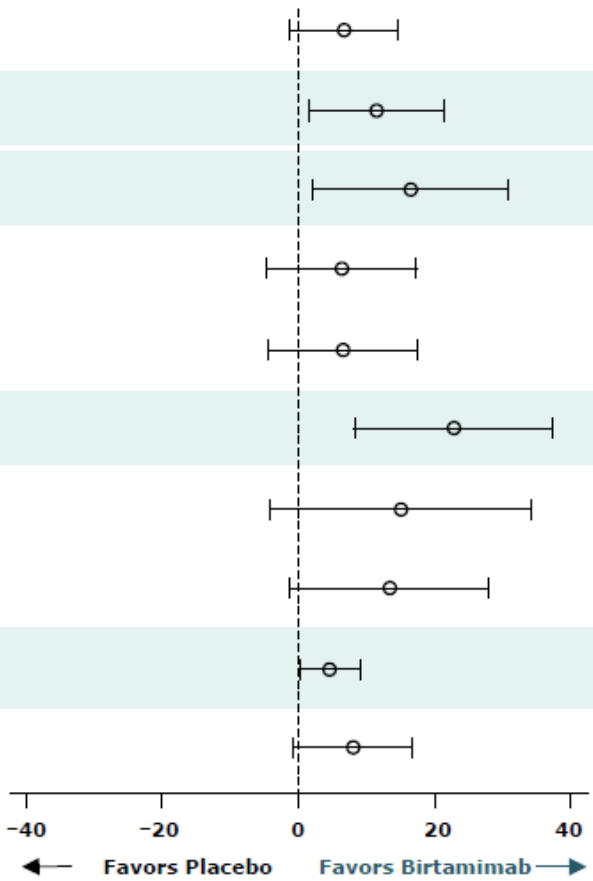
Figure. Forest Plot of Change From Baseline to Month 9 in SF-36v2 Domains in Patients With Mayo Stage IV AL Amyloidosis in VITAL

SF-36 Domain	LSM Difference (95% CI)	*P*-Value
Physical Functioning	6.60 (−1.40, 14.59)	0.1057
Role Physical	11.45 (1.56, 21.34)	0.0233
Bodily Pain	16.34 (2.02, 30.66)	0.0254
General Health Perceptions	6.40 (−4.48, 17.29)	0.2483
Vitality	6.43 (−4.58, 17.45)	0.2520
Social Functioning	22.79 (8.26, 37.32)	0.0021
Role Emotional	15.04 (−4.14, 34.22)	0.1241
Mental Health	13.35 (−1.12, 27.82)	0.0704
Physical Component Score (PCS)	4.65 (0.08, 9.22)	0.0460
Mental Component Score (MCS)	8.01 (−0.79, 16.81)	0.0741



Birtamimab-treated patients at month 9, n=24; placebo patients at month 9, n=18. MMRM was used to estimate LSM and 95% CI for each treatment group and the LSM difference between treatment groups. The MMRM included fixed effects for treatment group, categorical time point (all postbaseline visits), treatment group by visit interaction, IWRS stratification factors (Renal Stage: I, II/III and baseline 6MWT distance: <300 meters, ≥300 meters), the associated baseline value as a covariate, and an unstructured covariance structure to model the within-subject errors.

6MWT, 6-minute walk test; AL, light chain; IWRS, interactive web response system; LSM, least squares mean; MMRM, mixed model for repeated measures; SE, standard error; SF-36v2, Short Form-36 questionnaire, version 2.