KORSUVA™ Injection for Dialysis Patients

KALM-2
Phase 3 Pivotal Topline Results

April 21, 2020

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Forward-Looking Statements

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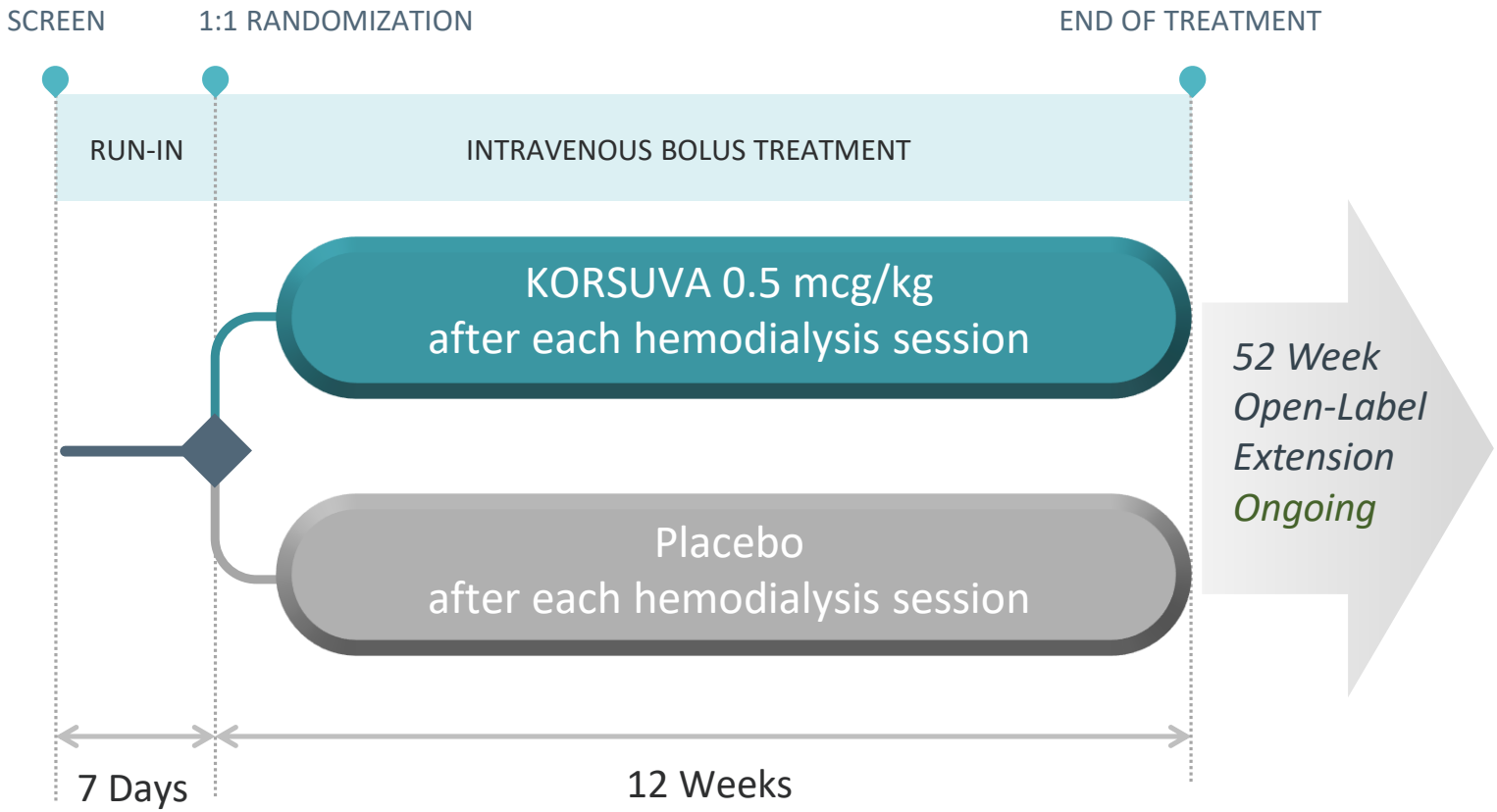
KALM-2: Multicenter Global Pivotal Study Design



Subjects Undergoing Hemodialysis With Moderate-to-Severe Pruritus (WI-NRS ≥ 5)

Endpoints: Week 12

Primary

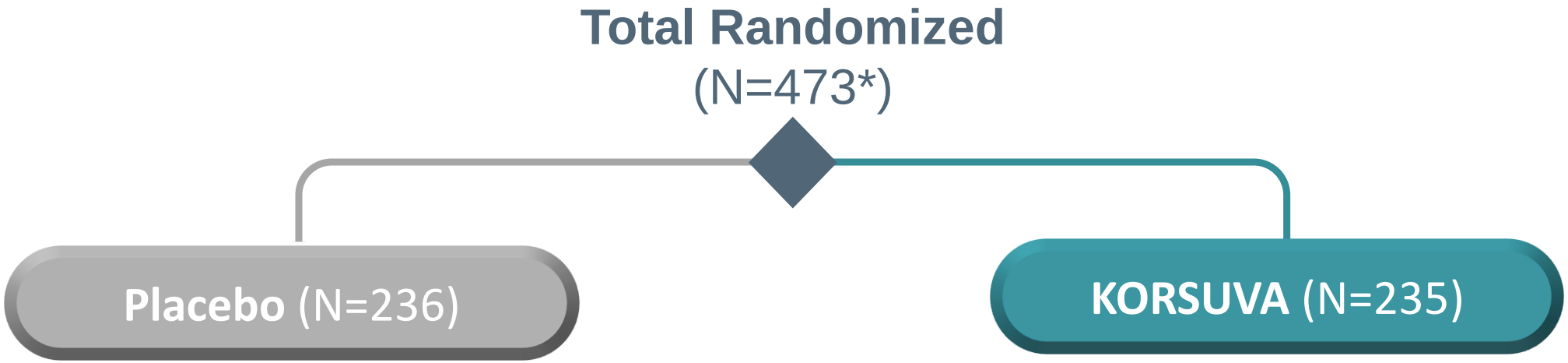
- Proportion of subjects achieving ≥3 point improvement from baseline in weekly mean of daily worst itching intensity NRS (WI-NRS)

Secondary

- Proportion of subjects achieving ≥4 point improvement in WI-NRS
- Proportion of subjects achieving ≥3 point or ≥4 point improvement in WI-NRS at Weeks 4 & 8
- Change from baseline in itch-related Quality of Life as measured by Skindex-10 and 5-D Itch questionnaires

Safety assessments

Subject Disposition in Double-blind Treatment Period



	Placebo (N=236)	KORSUVA (N=235)
Completed	223 (94.5%)	206 (87.7%)
Discontinued	13 (5.5%)	29 (12.3%)
Adverse event	7	13
Subject withdrew consent	1	5
Subject non-compliance	2	1
Eligibility	0	2
Lost to follow-up	0	1
Lack of therapeutic efficacy	0	1
Other	3	6

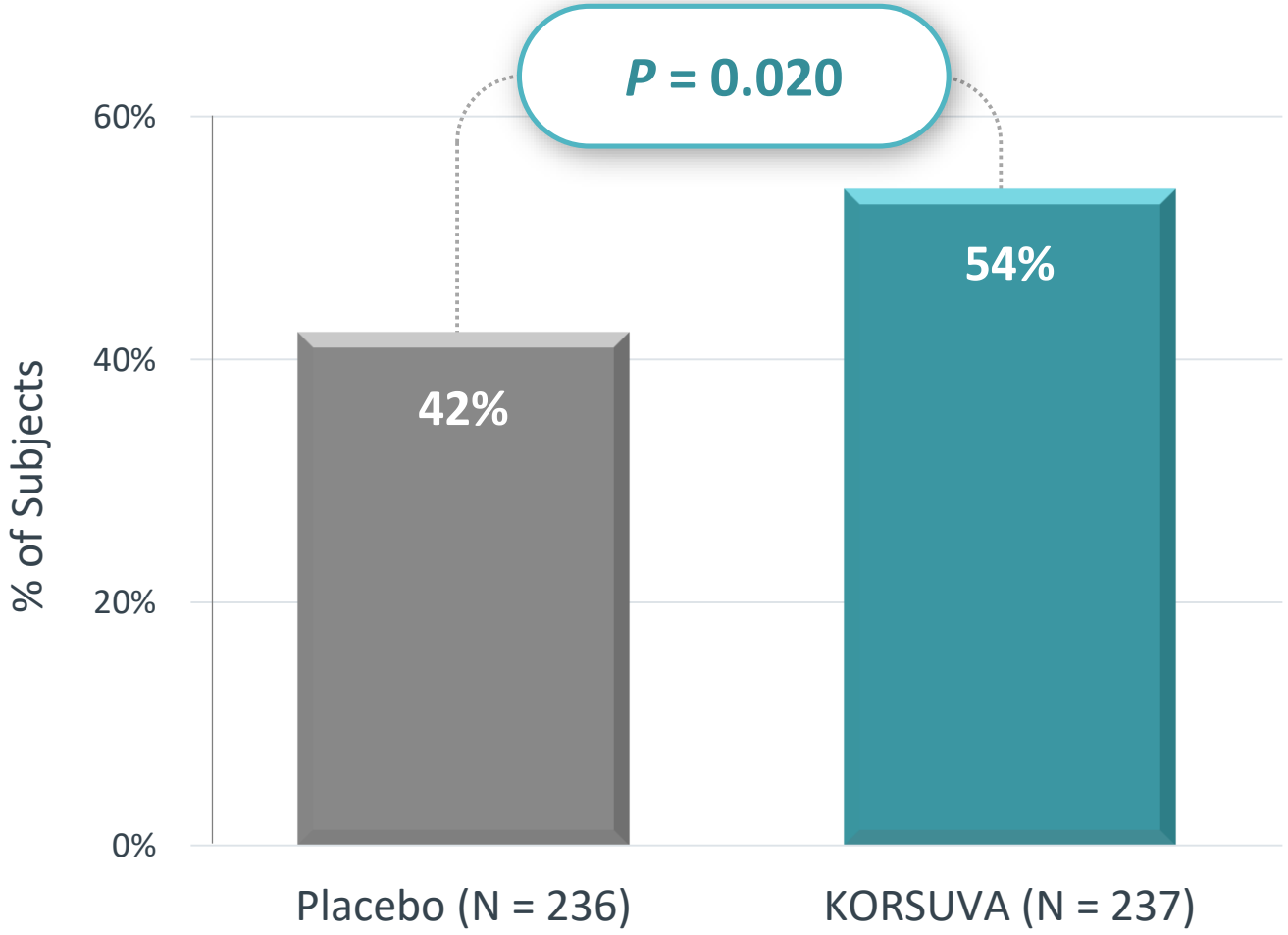
*2 subjects were randomized to KORSUVA but did not receive study drug

Baseline Characteristics

Baseline Characteristics Mean (SD) or %	Placebo N = 236	KORSUVA N = 235
Years Undergoing Hemodialysis	5.1 (4.33)	4.8 (4.59)
Years of Pruritus	3.2 (3.18)	3.2 (4.57)
Use of Anti-Itch Medication	36%	37 %
Worst Itching Intensity NRS	7.1 (1.4)	7.3 (1.4)
5-D Itch Total Score	16.2 (3.3)	16.7 (3.5)
Skindex-10 Total Score	34.2 (14.7)	35.5 (15.0)

NRS: Numeric Rating Scale (0 to 10) where 0 = no itch and 10 = worst itching imaginable
5-D Itch score ranges from 0 to 25
Skindex-10 scale ranges from 0 to 60

Primary Endpoint: ≥3 point improvement WI-NRS (Week 12)



- KORSUVA subjects > 1.6 times more likely to experience a clinically meaningful reduction in itch (≥3 point improvement)
- Significant improvement started at Week 2 (P = 0.003)

Estimated percentage & P-value based on a logistic regression model with terms for treatment group, baseline WI-NRS score, region and strata
Missing data imputed using multiple imputation (MI) under missing at random (MAR) assumption
Odd Ratio: 1.61

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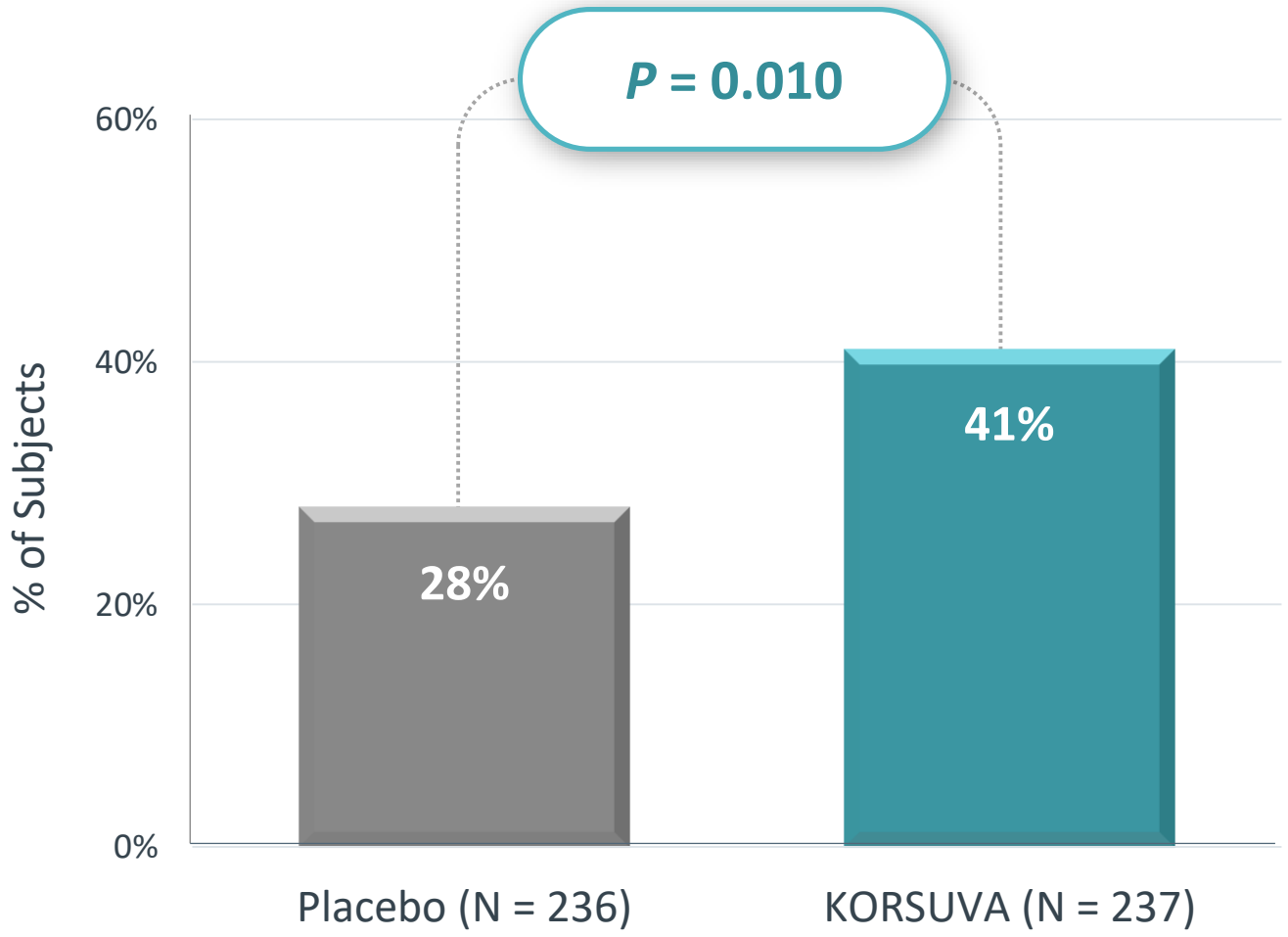
Key Secondary Endpoint: ≥4 point improvement WI-NRS (Week 12)



- KORSUVA subjects > 1.8 times more likely to experience ≥4 point improvement
- Significant improvement started at Week 3 (P = 0.018)

Estimated percentage & P-value based on a logistic regression model with terms for treatment group, baseline WI-NRS score, region and strata
Missing data imputed using multiple imputation (MI) under missing at random (MAR) assumption
Odd Ratio: 1.77

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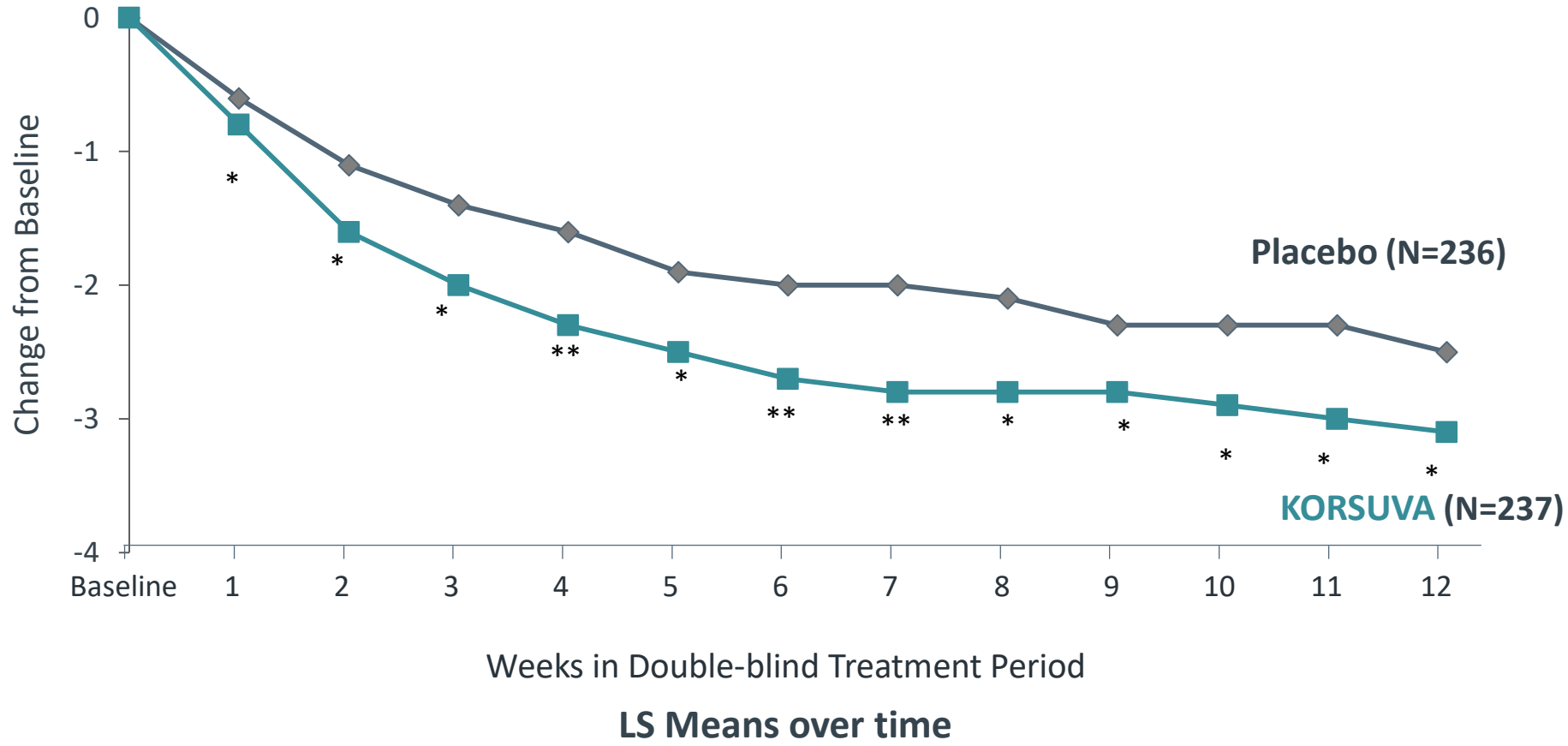
Change from Baseline in WI-NRS Over Time

Significant differences observed in WI-NRS starting at Week 1 and sustained through treatment period



LS Means over time

*** *P* < 0.05, ** *P* < 0.001**

LS Means from MMRM with terms for treatment group, week, week by treatment interaction, baseline score, region and strata
Missing data imputed using multiple imputation (MI) under missing at random (MAR) assumption

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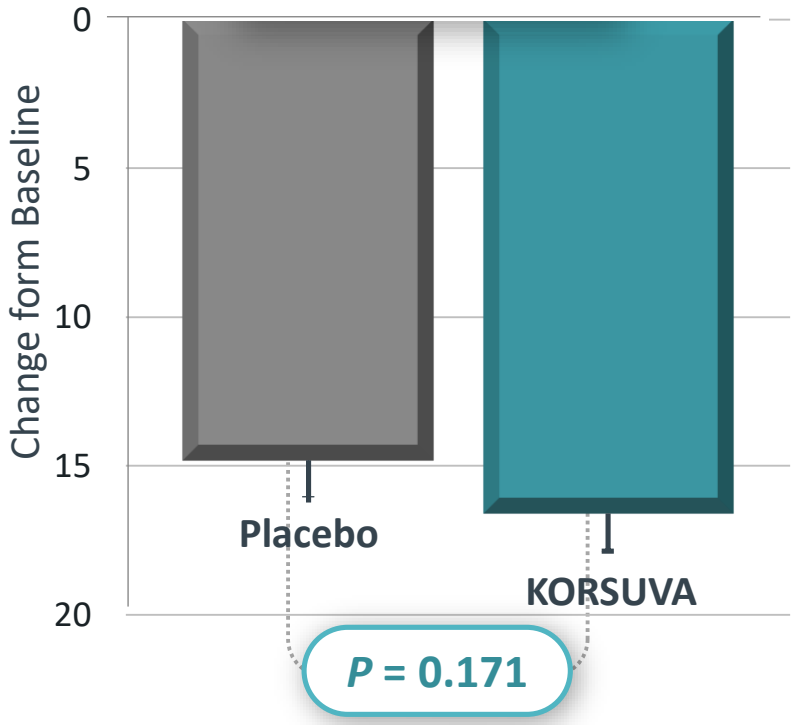
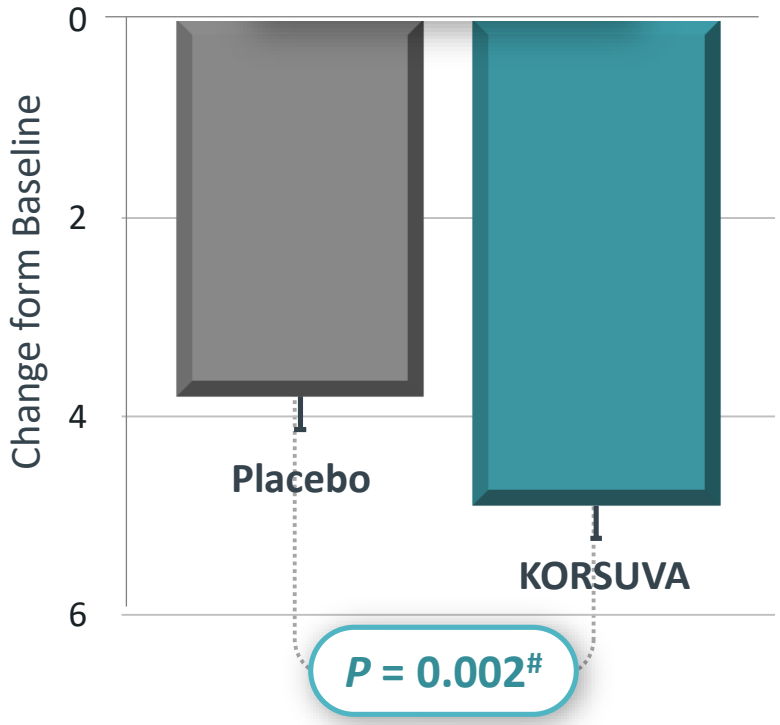
Other Secondary Endpoints:
Skindex-10 and 5-D Itch Total Score at Week 12

Skindex-10
12% improvement over placebo



5-D
29% improvement over placebo



Itch severity related domains in both scales were significant (P = 0.003 to 0.047) and consistent with WI-NRS improvement

LS Mean, standard error & P-value based on ANCOVA with terms for treatment group, baseline score, region and strata
Missing values imputed using multiple imputation (MI) under MAR assumption
Nominal p value based on sequential statistical analysis

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Summary of Adverse Events

Treatment-emergent Adverse Events (TEAE)	Placebo N = 236 n (%)	KORSUVA N = 235 n (%)
Subjects with at least one TEAE	145 (61)	160 (68)
Subjects with at least one serious TEAE	51 (22)	58 (25)
Number of deaths	2 (1)	2 (1)

Safety analyses performed in the safety population, defined as all randomized patients who received ≥1 dose of study drug based on actual treatment received.

Most Commonly Reported TEAEs

Treatment-emergent Adverse Events at ≥5% frequency	Placebo N = 236 n (%)	KORSUVA N = 235 n (%)
Diarrhea	13 (5.5)	19 (8.1)
Fall	12 (5.1)	16 (6.8)
Dizziness	12 (5.1)	13 (5.5)
Vomiting	14 (5.9)	15 (6.4)
Nausea	10 (4.2)	15 (6.4)

Safety analyses performed in the safety population, defined as all randomized patients who received ≥1 dose of study drug based on actual treatment received.

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Executive Summary & Next Steps

- KALM-2 Phase 3 trial of KORSUVA™ injection met primary & key secondary endpoints:
  - Both 3-point and 4-point improvement in WI-NRS endpoints achieved
  - KORSUVA™ Injection provided a rapid and sustained reduction of pruritus
- Numerical improvement in itch-related quality of life measures
- Safety profile consistent with KALM-1 and CKD-aP clinical program
- Key efficacy results replicated KALM-1 US Phase 3 pivotal trial (Fishbane et al., N Engl J Med 2020; 382:222-232)

➢ **Successful outcome of KALM-2 trial supports NDA submission of KORSUVA™ injection for the treatment of moderate-to-severe CKD-aP in hemodialysis patients planned for 2H, 2020**

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Acknowledgement

We thank all the investigators and patients who participated in this study and provided support for this program.