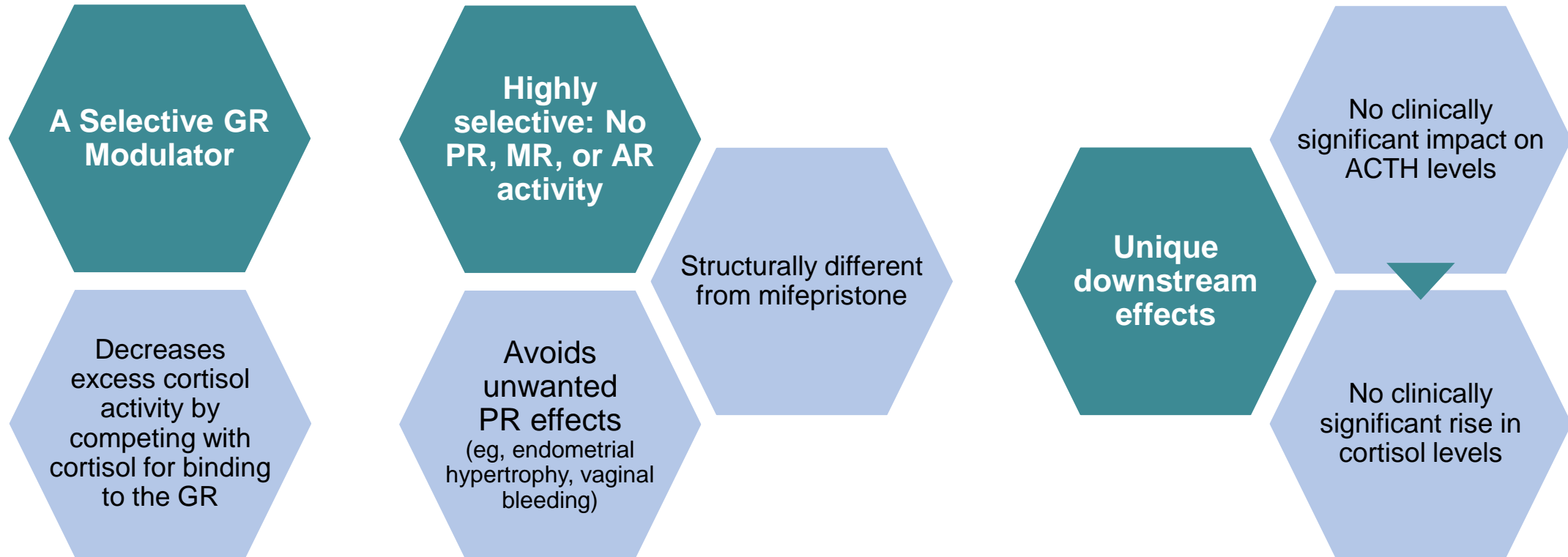




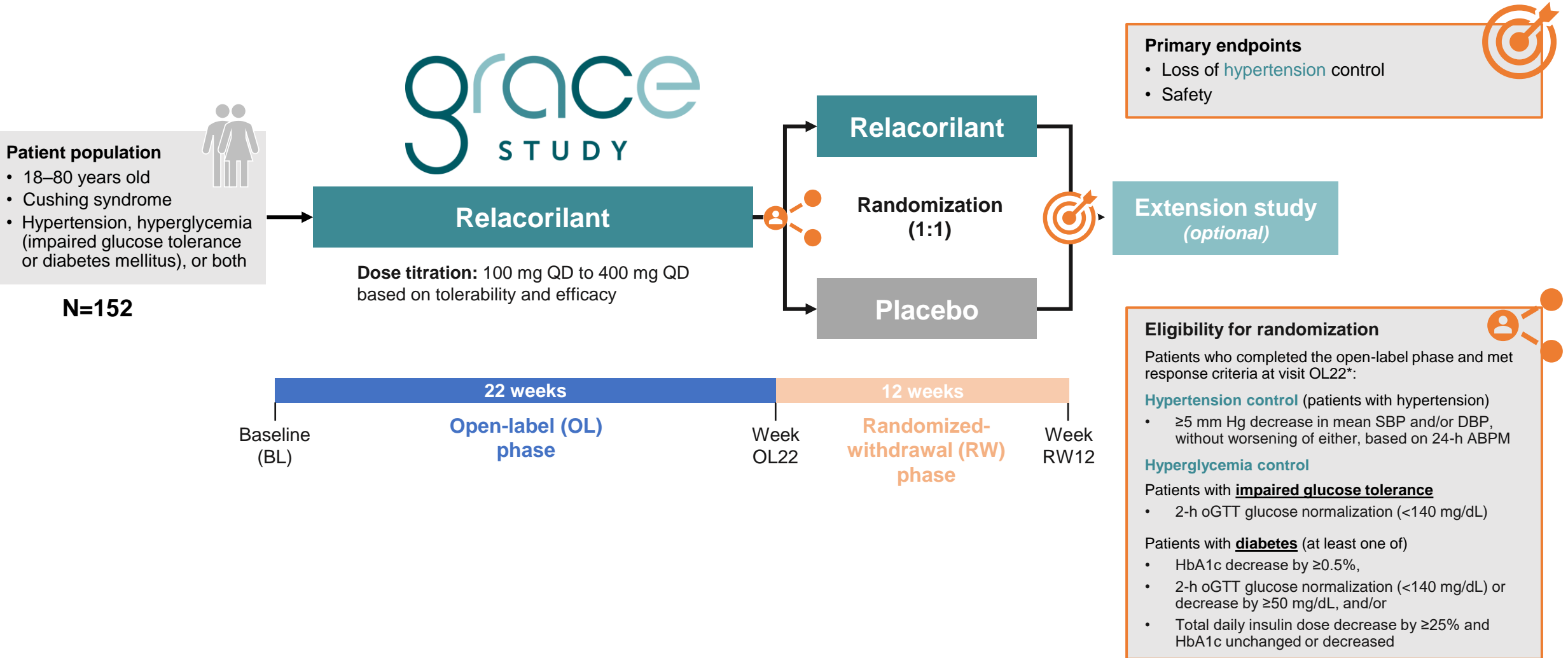
Medical Treatment of Hypercortisolism with Relacorilant: Final Results of the Phase 3 GRACE Study

Pivonello, Rosario; Arnaldi, Giorgio; Auchus, Richard J.; Badiu, Corin; Busch, Robert; Cannavo, Salvatore; Dischinger, Ulrich; Dobri, Georgiana A.; Donegan, Diane M.; Elenkova, Atanaska; Fazeli, Pouneh K.; Feelders, Richard A.; Garcia-Centeno, Rogelio; Gilis-Januszewska, Aleksandra; Hamidi, Oksana; Hannoush, Zeina C.; Miller, Harold J.; Ranetti, Aurelian-Emil; Recasens, Monica; Reincke, Martin; Rovner, Sergio; Salvatori, Roberto; Silverstein, Julie; Stigliano, Antonio; Terzolo, Massimo; Wang, Christina; Yuen, Kevin C.J.; Hand, Austin L.; Tudor, Iulia Cristina; Araque, Katherine A.; Moraitis, Andreas G. **on behalf of the GRACE investigators**

Relacorilant: In Development for the Treatment of Cushing Syndrome



The GRACE Phase 3 Study



NCT03697109. ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; HbA1c, hemoglobin A1c; oGTT, oral glucose tolerance test; OL, open label; QD, every day; RW, randomized withdrawal; SBP, systolic blood pressure. *Patients with hypertension and hyperglycemia who do not meet the response criteria for both must meet the respective response criteria without worsening of the other comorbidity.

Patient Demographics & Baseline Characteristics

Mean (SD)	Hypertension only (n=31)	Hyperglycemia only (n=50)	Hypertension & hyperglycemia (n=71)	Overall (N=152)
Age, yrs	43.5 (11.6)	54.1 (13.7)	50.9 (12.6)	50.4 (13.2)
Female, n (%)	24 (77.4)	42 (84.0)	61 (85.9)	127 (83.6)
Weight, kg	95.2 (25.5)	91.1 (21.4)	95.0 (26.6)	93.8 (24.7)
BMI, kg/m ²	33.4 (7.5)	34.8 (7.9)	35.3 (9.6)	34.7 (8.6)
Waist circumference, cm	112.8 (17.4)	114.4 (14.7)	116.1 (20.4)	114.9 (18.0)
ACTH-dependent, n (%)	23 (74.2)	39 (78.0)	56 (78.9)	118 (77.6)
Plasma ACTH, pg/mL [n]	67.7 (34.0) [23]	74.9 (85.0) [39]	78.1 (69.9) [56]	74.9 (69.8) [118]
24-h UFC, µg/d [n]	191.2 (221.8) [18]	148.0 (136.3) [26]	257.9 (407.1) [39]	209.0 (308.3) [83]
ACTH-independent, n (%)	8 (25.8)	11 (22.0)	15 (21.1)	34 (22.4)
Plasma ACTH ^a , pg/mL [n]	7.3 (4.8) [8]	20.0 (26.6) [11]	10.0 (6.2) [15]	12.7 (16.2) [34]
24-h UFC, µg/d [n]	108.3 (88.9) [6]	68.7 (67.9) [7]	61.3 (30.5) [8]	77.2 (64.0) [21]
Mean 24-h SBP (mm Hg) [n]	138.1 (9.4) [30]	124.6 (9.0) [47]	141.6 (11.0) [71]	135.5 (12.6) [148]
Mean 24-h DBP (mm Hg) [n]	90.8 (5.7) [30]	76.0 (7.3) [47]	88.1 (7.6) [71]	84.8 (9.4) [148]
HbA1c (%)	5.4 (0.5)	7.1 (1.6)	7.2 (1.6)	6.8 (1.6)

^aMedian ACTH was <5 pg/mL (hypertension only); 9 pg/mL (hyperglycemia only, hypertension and hyperglycemia, and overall). ACTH, adrenocorticotrophic hormone; BMI, body mass index; DBP, diastolic blood pressure; OL, open-label phase; SBP, systolic blood pressure; SD, standard deviation; UFC, urinary free cortisol.

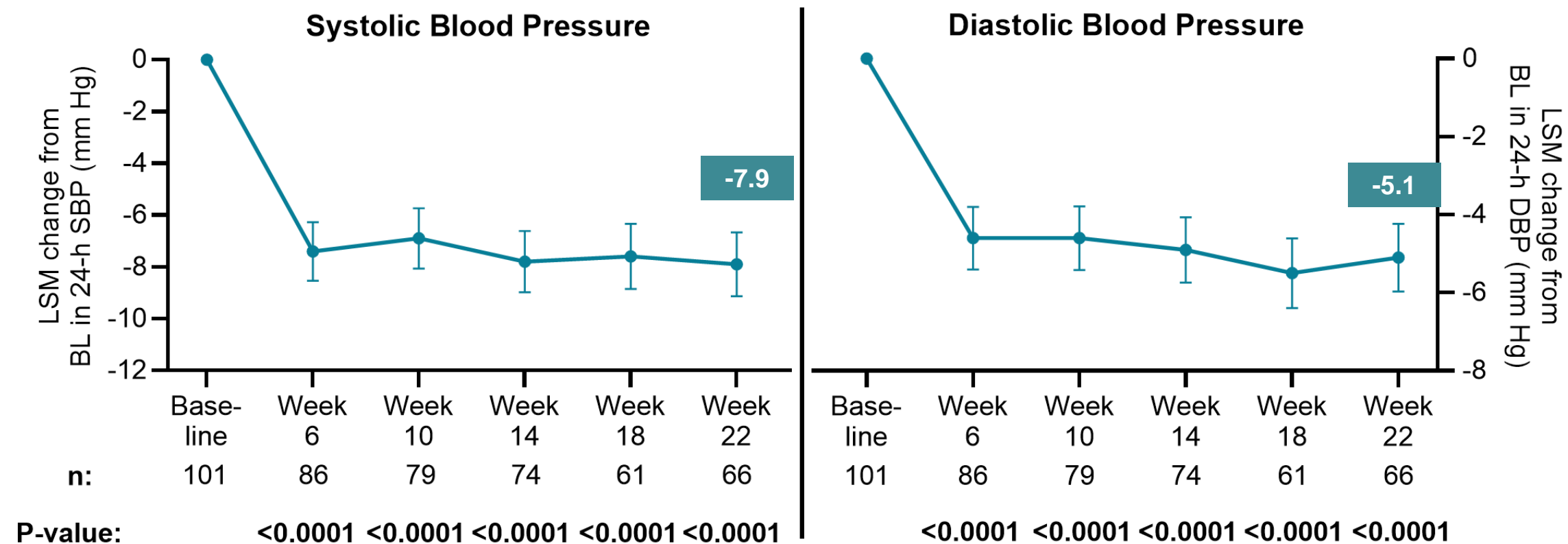
Open-label Results

HYPERTENSION

grace
STUDY

Rapid and Sustained Improvements in Blood Pressure by ABPM With Relacorilant

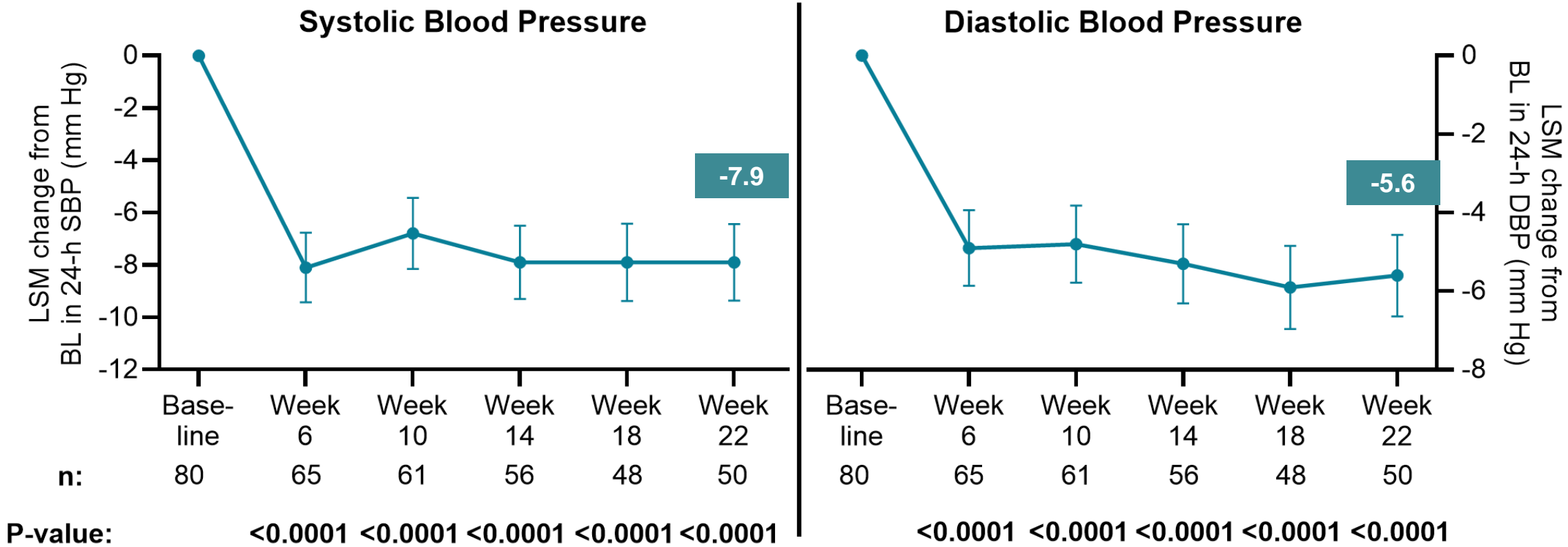
Patients with hypertension



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean; SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

Rapid and Sustained Improvements in Blood Pressure by ABPM With Relacorilant

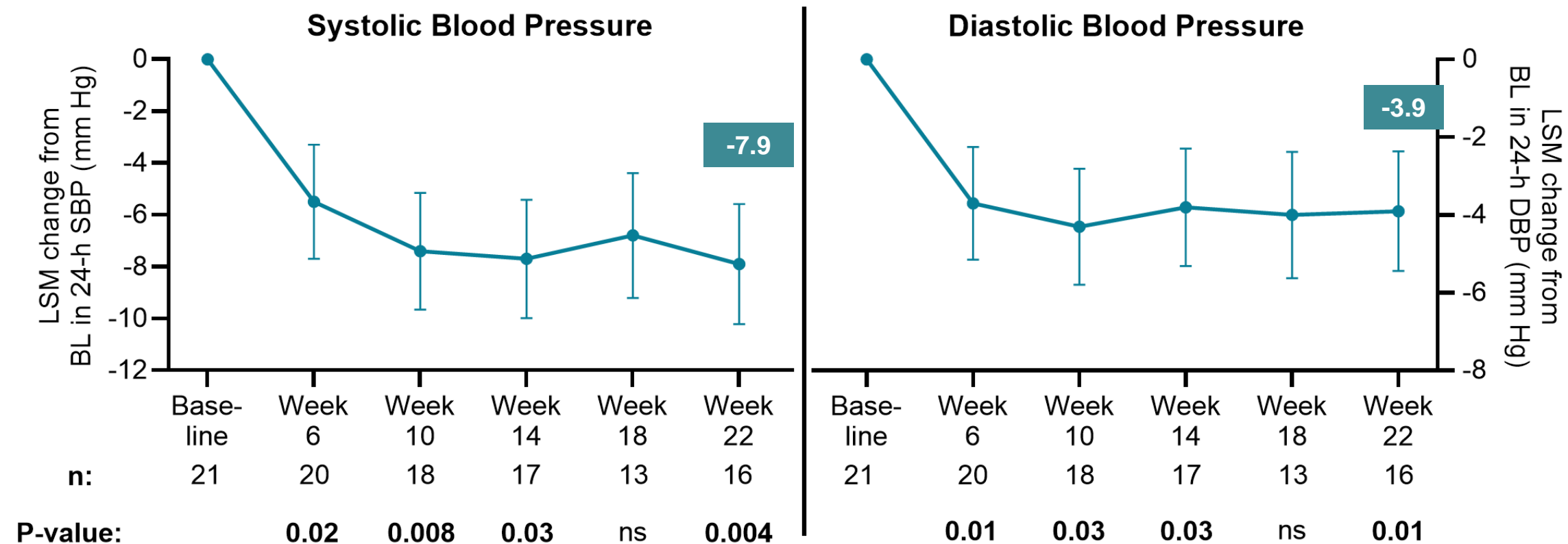
Patients with hypertension who took blood pressure medications



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean; SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

Rapid and Sustained Improvements in Blood Pressure by ABPM With Relacorilant

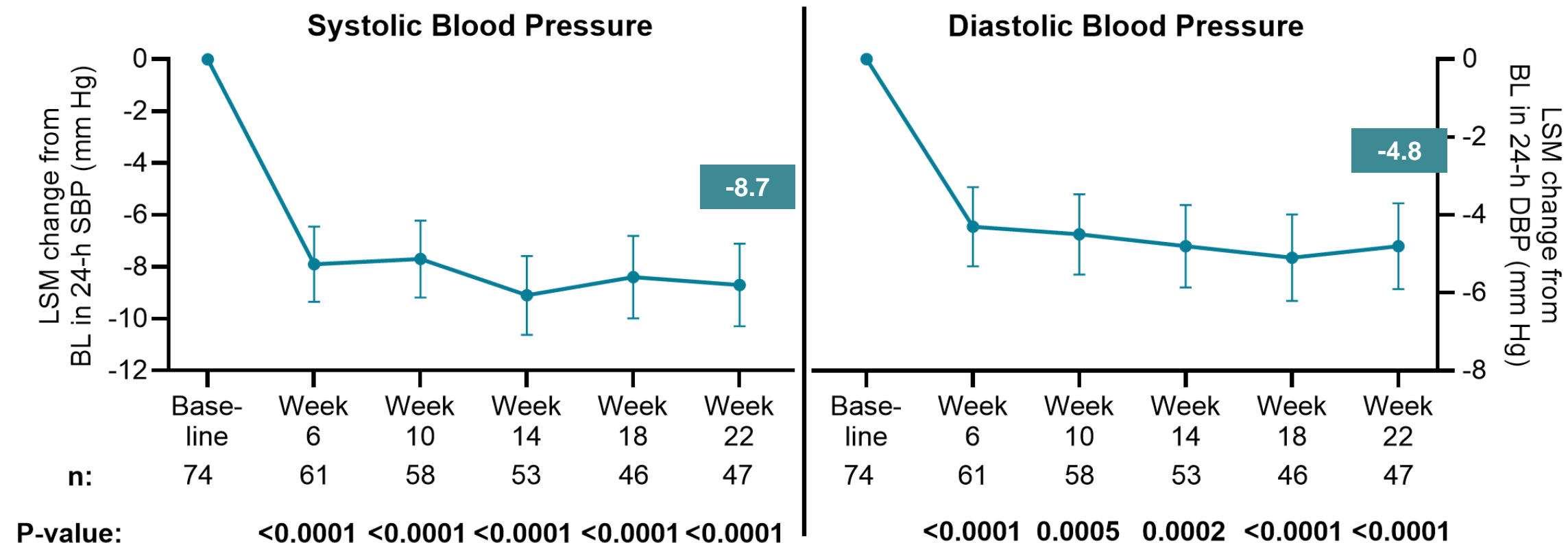
Patients with hypertension who did not take blood pressure medications



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean; ns, not significant ($P \geq 0.05$); SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

Rapid and Sustained Improvements in Blood Pressure by ABPM With Relacorilant

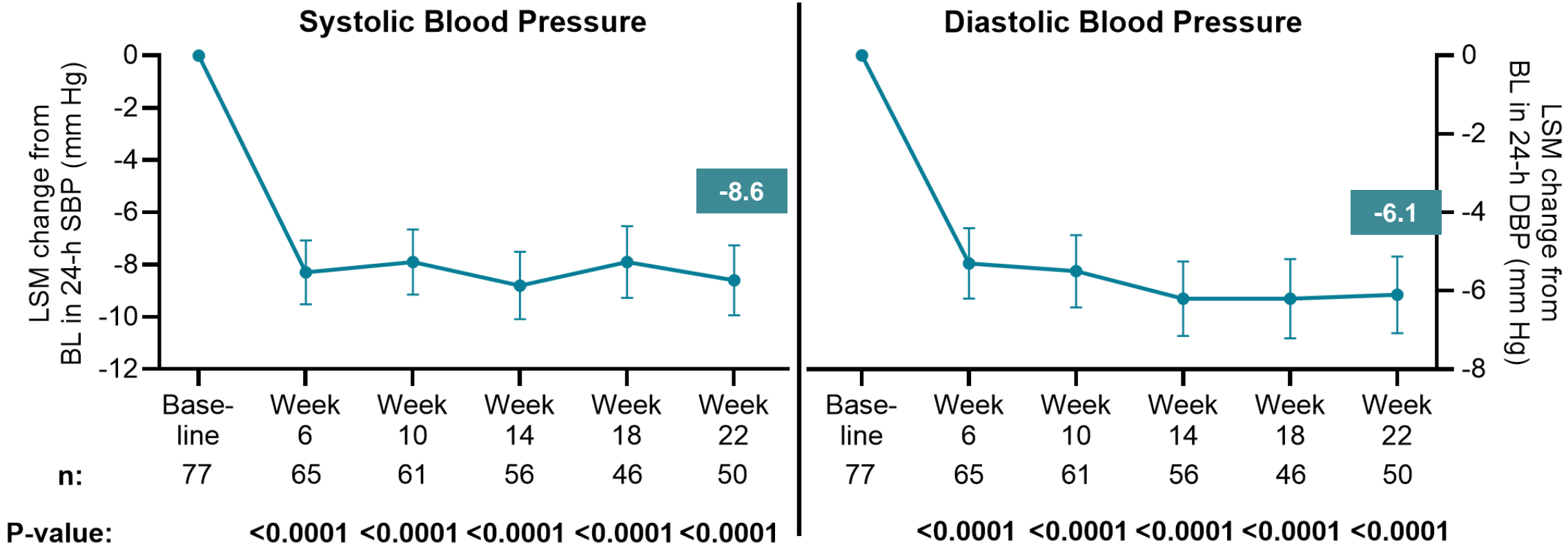
Patients with systolic hypertension



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean. SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

Rapid and Sustained Improvements in Blood Pressure by ABPM With Relacorilant

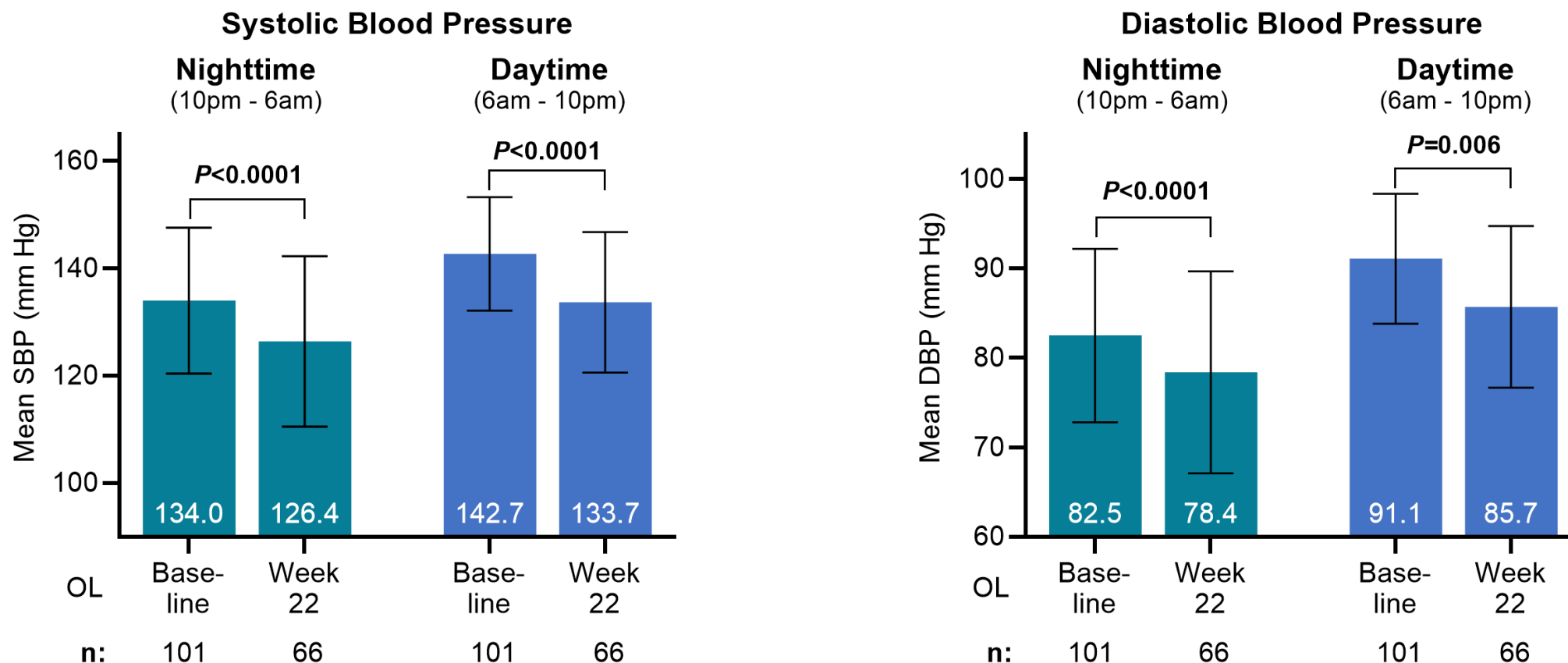
Patients with diastolic hypertension



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean; SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

Improvements in Day- and Nighttime Blood Pressure by ABPM With Relacorilant

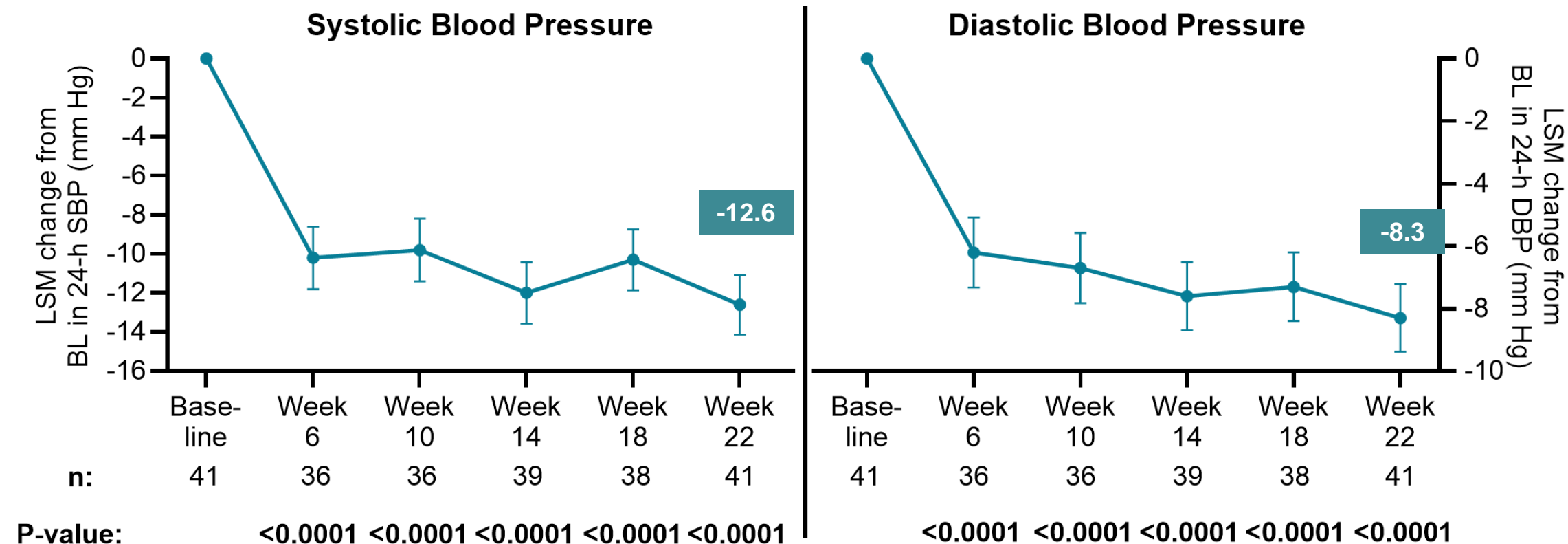
Patients with hypertension



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean; SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

Rapid and Sustained Improvements in Blood Pressure by ABPM With Relacorilant

Patients with hypertension who met hypertension response criteria & entered the RW phase



ABPM, ambulatory blood pressure monitoring; BL, baseline; DBP, diastolic blood pressure; LSM, least squares mean; SBP, systolic blood pressure; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test p-values for the mean change from baseline shown.

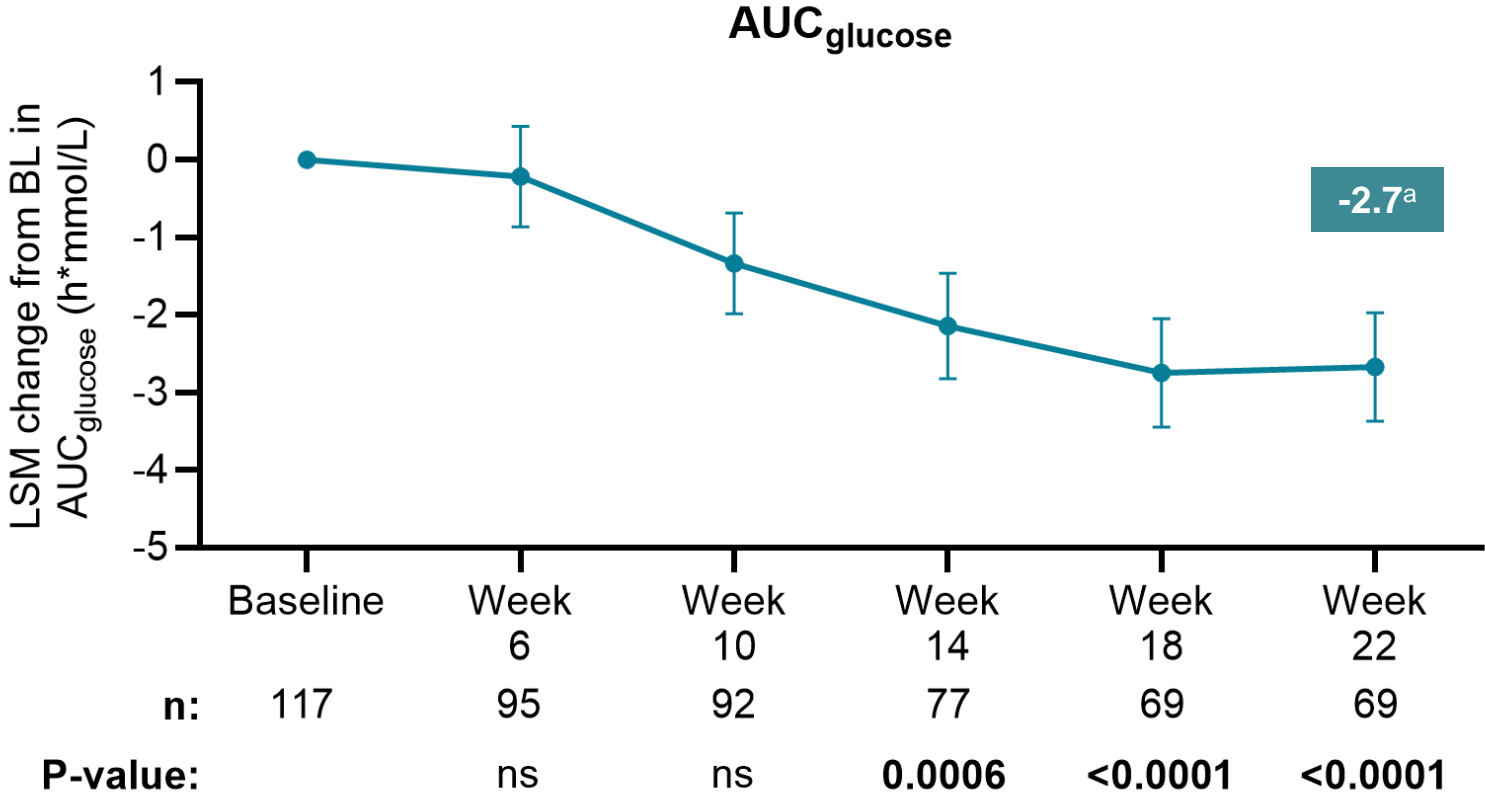
Open-label Results

HYPERGLYCEMIA

grace
STUDY

Rapid and Sustained Improvements in AUC_{glucose} With Relacorilant

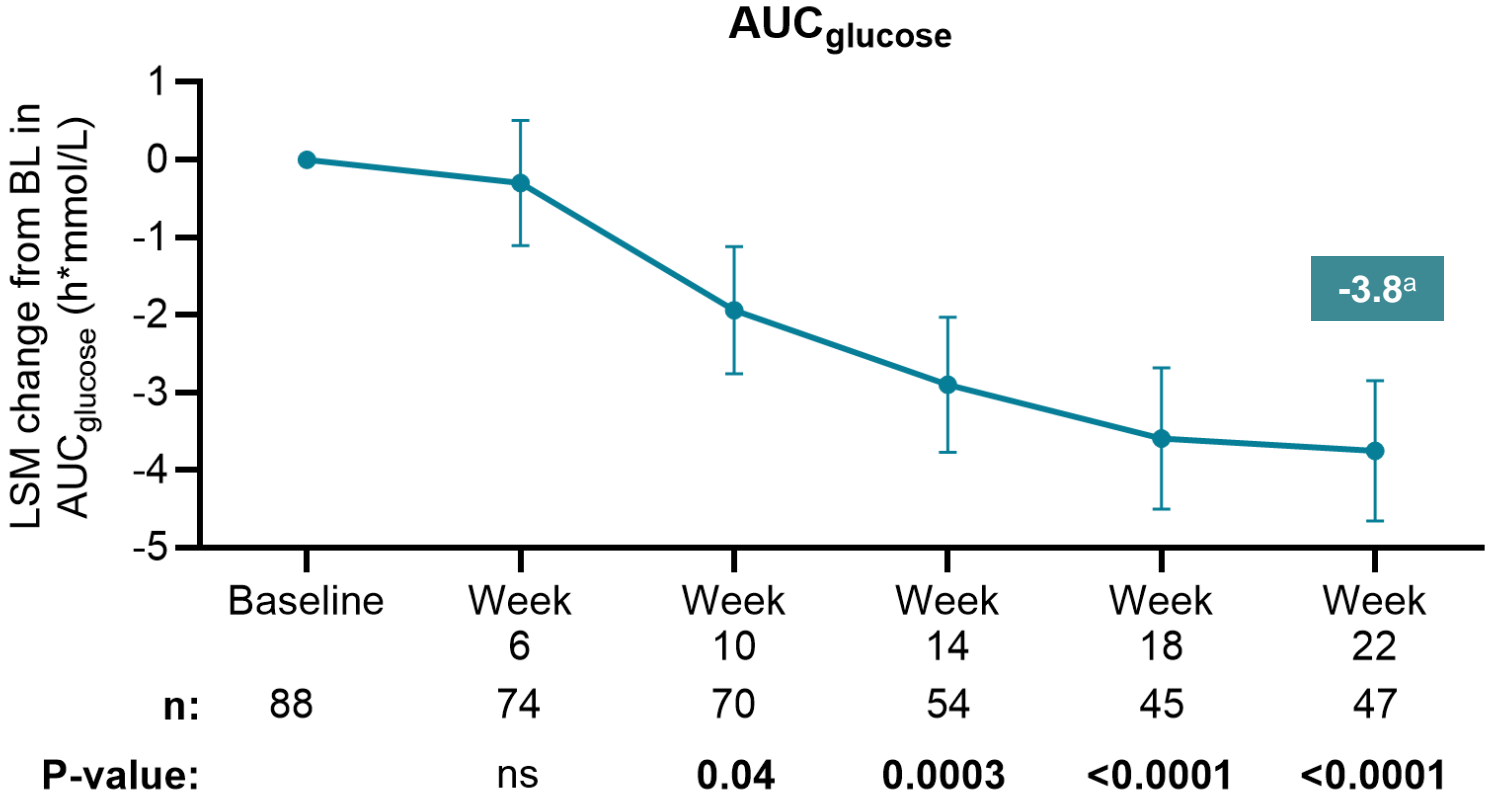
Patients with hyperglycemia (IGT or DM^b)



^aMean change from baseline to visit OL 22: -3.3 h*mmol/L. ^bDiabetes defined as fasting plasma glucose ≥126 mg/dL, 2-h oGTT plasma glucose ≥200 mg/dL, or HbA1c ≥6.5%. AUC_{glucose}: glucose area under the curve; BL, baseline; DM, diabetes mellitus; hemoglobin A1c; HbA1c, hemoglobin A1c; IGT, impaired glucose tolerance; LSM, least squares mean; ns, not significant (P≥0.05); oGTT, oral glucose tolerance test; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test P-values for the mean change from baseline shown.

Rapid and Sustained Improvements in AUC_{glucose} With Relacorilant

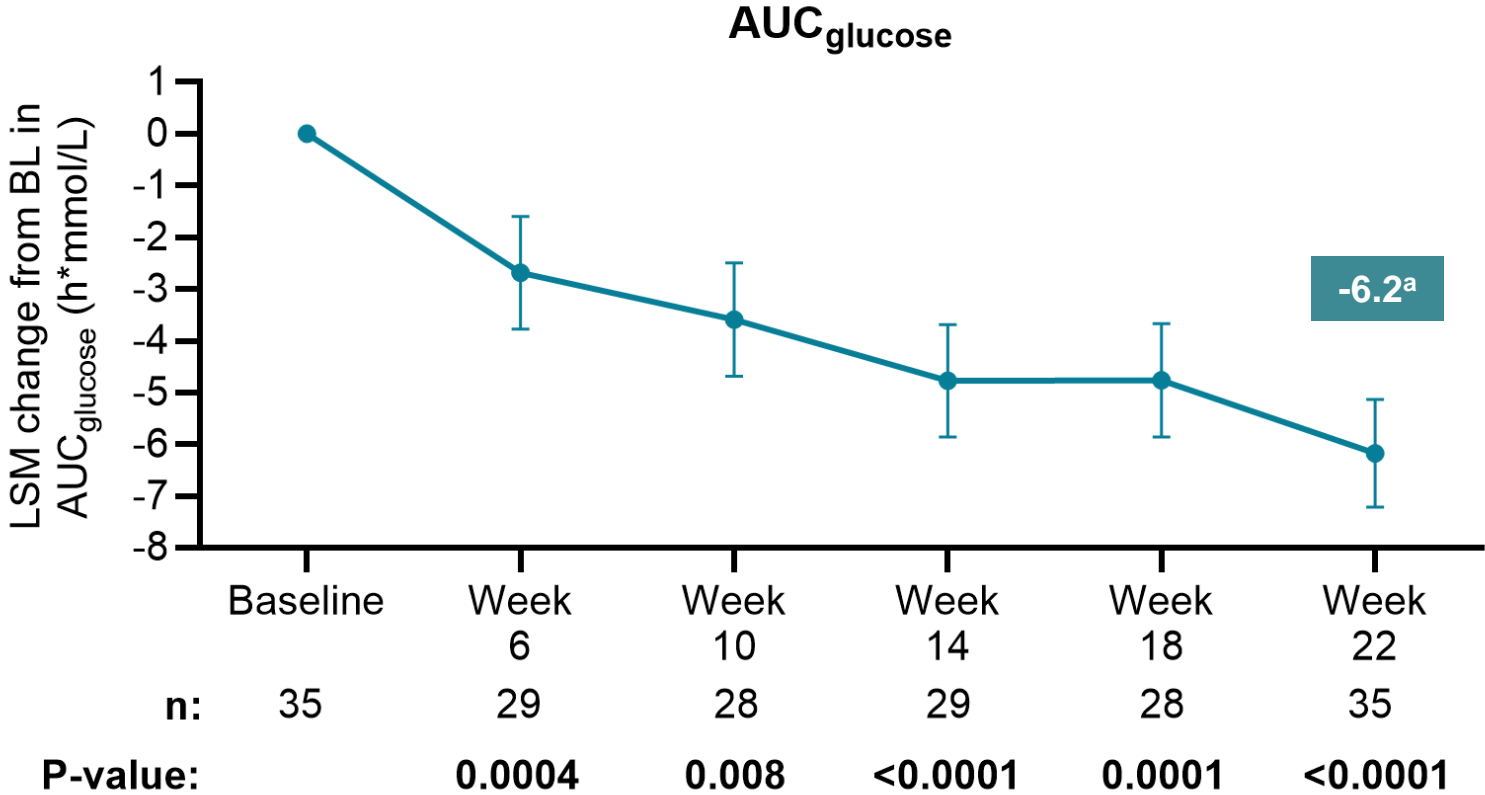
Patients with diabetes (DM)^b



^aMean change from baseline to visit OL 22: -4.7 h*mmol/L. ^bDiabetes defined as fasting plasma glucose ≥ 126 mg/dL, 2-h oGTT plasma glucose ≥ 200 mg/dL, or HbA1c $\geq 6.5\%$. AUC_{glucose} : glucose area under the curve; BL, baseline; LSM, least squares mean; ns, not significant ($P \geq 0.05$); oGTT, oral glucose tolerance test; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test P-values for the mean change from baseline shown.

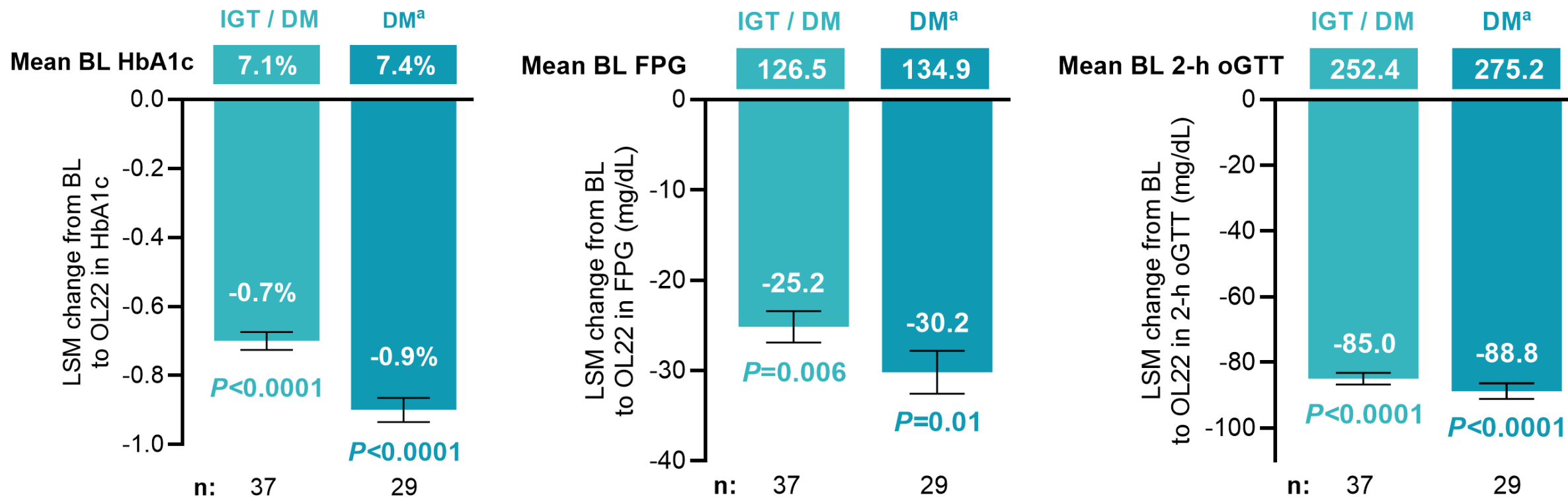
Rapid and Sustained Improvements in AUC_{glucose} With Relacorilant

Patients with hyperglycemia (IGT or DM^b) who met hyperglycemia response criteria & entered the RW phase



^aMean change from baseline to visit OL 22: -6.2 h*mmol/L. ^bDiabetes defined as fasting plasma glucose ≥126 mg/dL, 2-h oGTT plasma glucose ≥200 mg/dL, or HbA1c ≥6.5%.
AUC_{glucose}: glucose area under the curve; BL, baseline; DM, diabetes mellitus; HbA1c, hemoglobin A1c; IGT, impaired glucose tolerance; LSM, least squares mean; oGTT, oral glucose tolerance test; SE, standard error.
Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test P-values for the mean change from baseline shown.

Greater Improvements in Glucose Parameters With Relacorilant in Hyperglycemia Responders



^aDiabetes defined as fasting plasma glucose ≥ 126 mg/dL, 2-h oGTT plasma glucose ≥ 200 mg/dL, or HbA1c $\geq 6.5\%$.

BL, baseline; DM, diabetes mellitus; HbA1c, hemoglobin A1c; FPG, fasting plasma glucose; IGT, impaired glucose tolerance; LSM, least squares mean; oGTT, oral glucose tolerance test; SE, standard error. Error bars: SE of the mean. LSM and SE calculated using a linear mixed model for repeated measures (MMRM). Wilcoxon rank sum test P -values for the mean change from baseline shown.

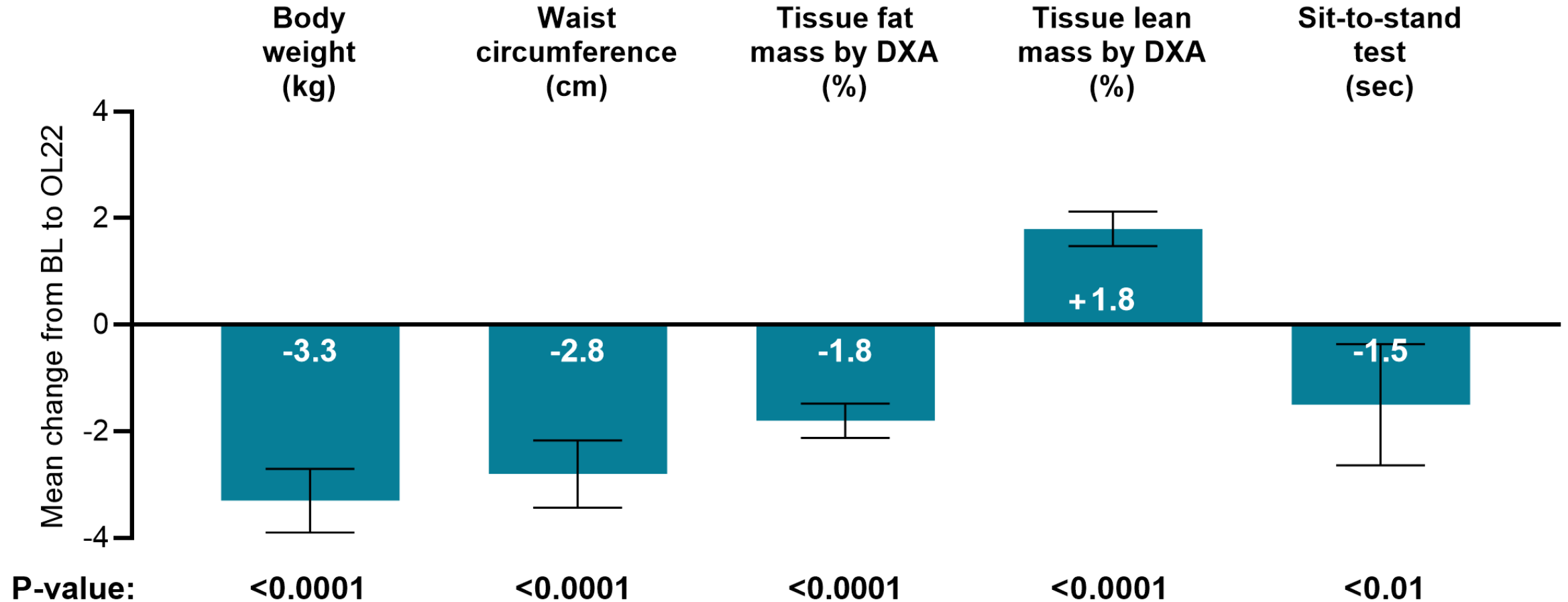
Open-label Results

OTHER SYMPTOMS AND
COMORBIDITIES

grace
STUDY

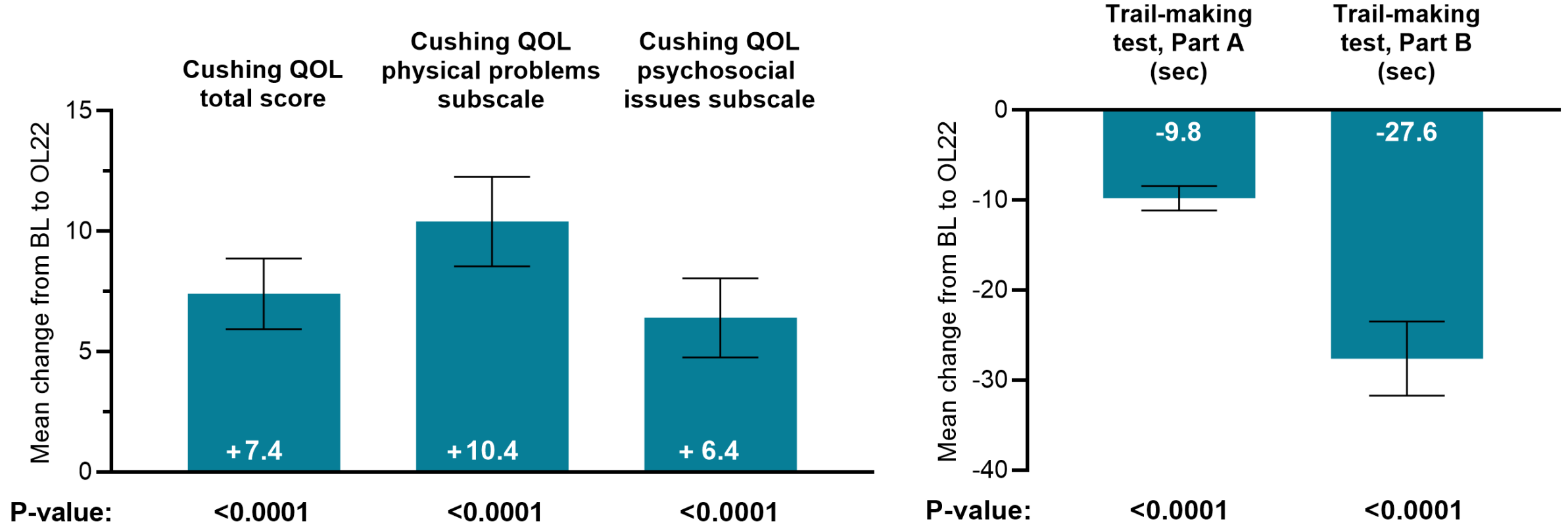
Significant Improvements in Body Composition With Relacorilant

Open Label



BL, baseline; DXA, Dual Energy X-Ray Absorptiometry, OL, open label. Error bars: Standard deviation. Wilcoxon rank sum test P-values for the mean change from baseline shown.

Significant Improvements in Quality of Life and Cognitive Assessments With Relacorilant



BL, baseline, OL, open label; QOL, quality of life. Error bars: Standard deviation. Wilcoxon rank sum test *P*-values for the mean change from baseline shown.

Open-label Results

SAFETY

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STUDY

Adverse Event Summary

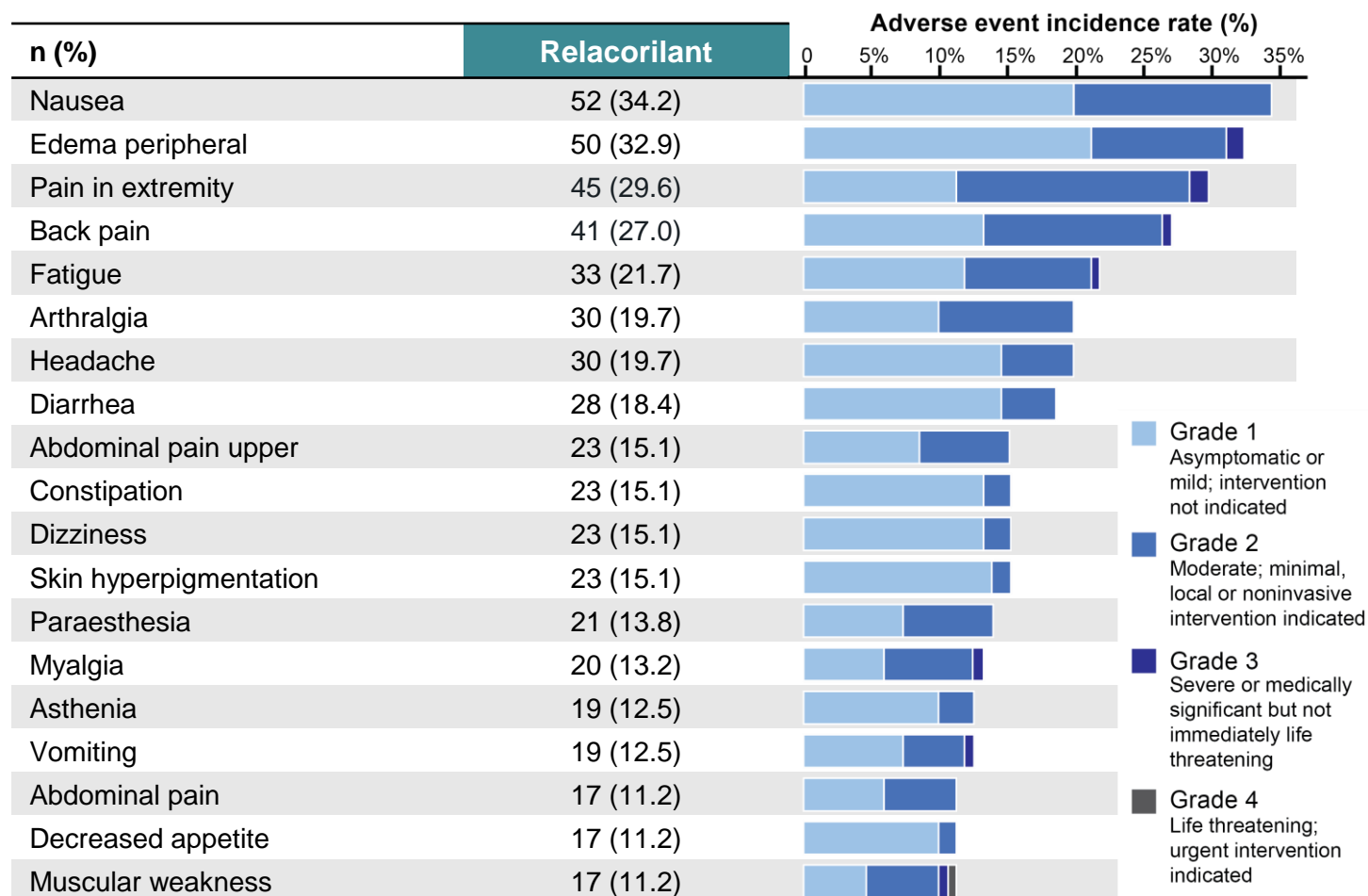
n (%)	Relacorilant (N=152)
Patients reporting at least one TEAE (any grade)	147 (96.7)
Patients reporting at least one grade ≥ 3 TEAE	37 (24.3)
TEAEs resulting in:	
Dose interruption	50 (32.9)
Dose reduction	50 (32.9)
Permanent withdrawal	24 (15.8)
Serious TEAEs	28 (18.4)
Treatment-related serious TEAEs	7 (4.6)
TEAEs leading to death ^a (none relacorilant related)	2 (1.3)

^aDeaths due to COVID-19 and chronic cardiac failure.
GR, glucocorticoid receptor; OL, open label; TEAE, treatment-emergent adverse event.

- Due to relacorilant's **specificity for the GR** and its **unique mechanism of action**, the **observed efficacy was seen:**
 - Without cases of relacorilant-induced irregular **vaginal bleeding** with endometrial hypertrophy
 - Without **increases in cortisol** concentrations and relacorilant-induced **hypokalemia**
 - Without reported cases of **adrenal insufficiency**
 - Without independently confirmed **QT prolongation**

Adverse Events Occurring in $\geq 10\%$ of Patients

Among patients in the open-label phase



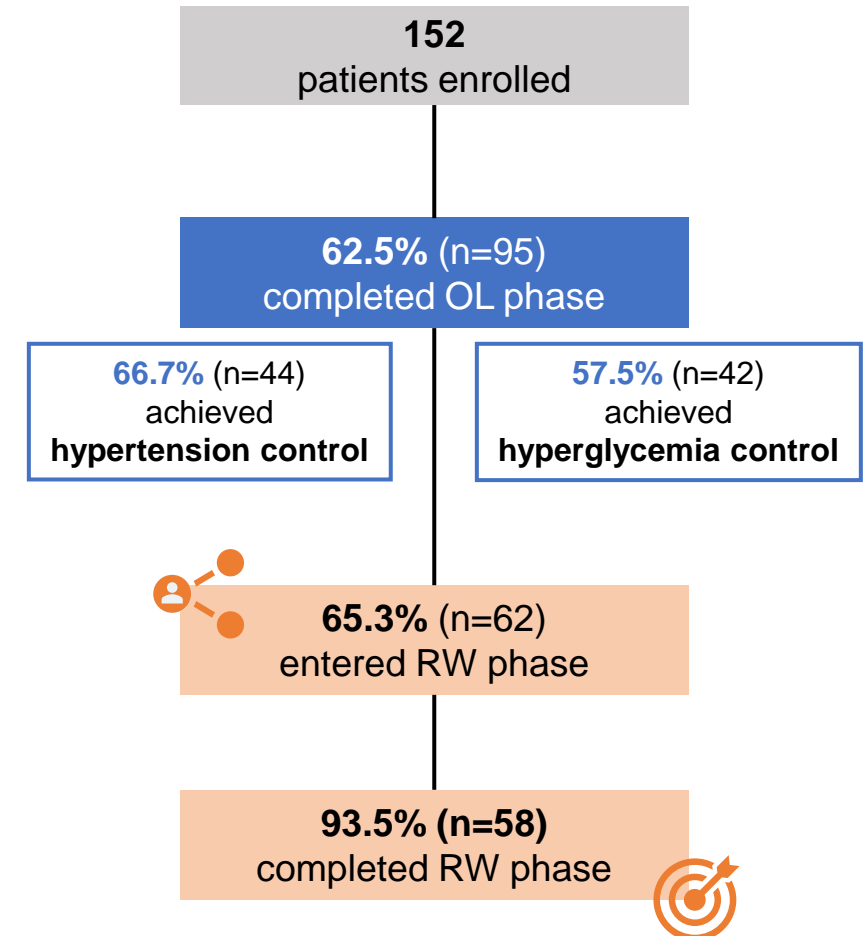
- The majority of AEs were **mild to moderate** in severity
- No new safety signals were identified
- The frequency of serious AEs was low, with no dose-dependent pattern

Randomized-withdrawal Results



Patient Demographics & Baseline Characteristics

Mean (SD)	Relacorilant (n=30)	Placebo (n=32)
Age, yrs	46.6 (11.0)	48.8 (14.4)
Female, n (%)	22 (73.3)	26 (81.3)
Weight, kg	93.3 (27.4)	88.6 (21.1)
BMI, kg/m ²	33.3 (7.6)	32.6 (6.5)
Waist circumference, cm	113.8 (17.7)	108.9 (17.1)
ACTH-dependent, n (%)	26 (86.7)	23 (71.9)
Plasma ACTH, pg/mL	91.7 (85.7)	71.7 (74.7)
24-h UFC, µg/d	257.1 (449.1)	301.3 (287.9)
ACTH-independent, n (%)	4 (13.3)	9 (28.1)
Plasma ACTH, pg/mL	5.9 (2.3)	10.0 (9.0)
24-h UFC, µg/d	66.9 (36.8)	142.2 (194.1)



Randomized-withdrawal Results

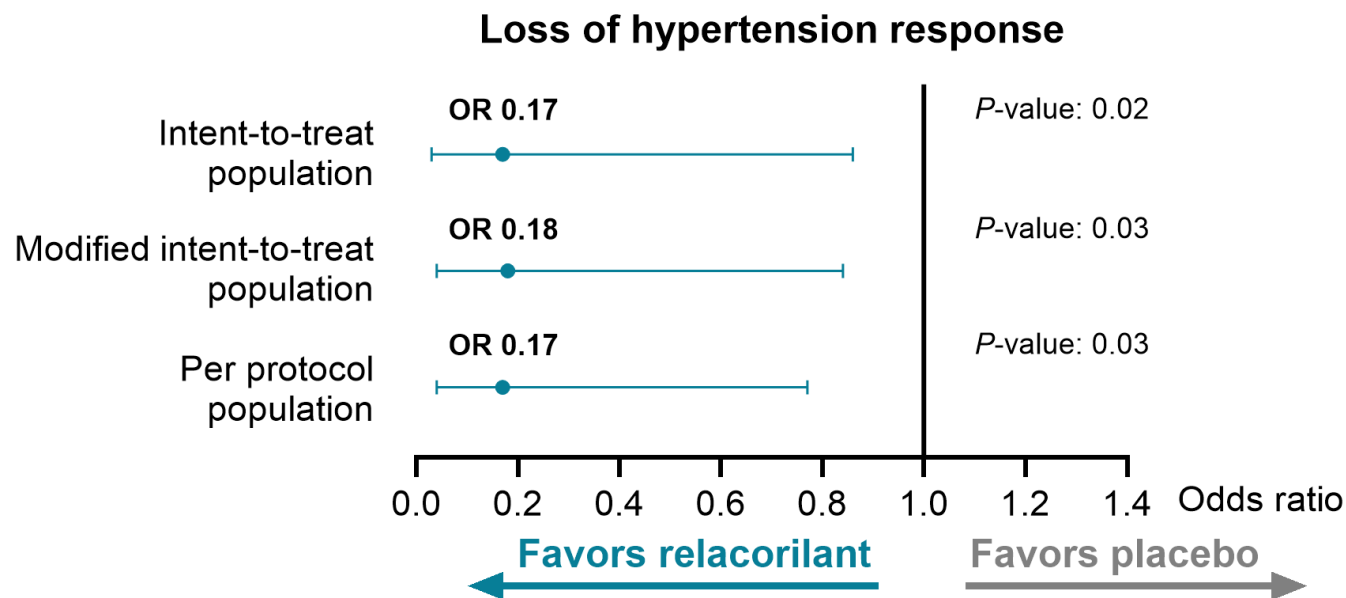
HYPERTENSION

grace
STUDY

Primary Endpoint Met: Hypertension

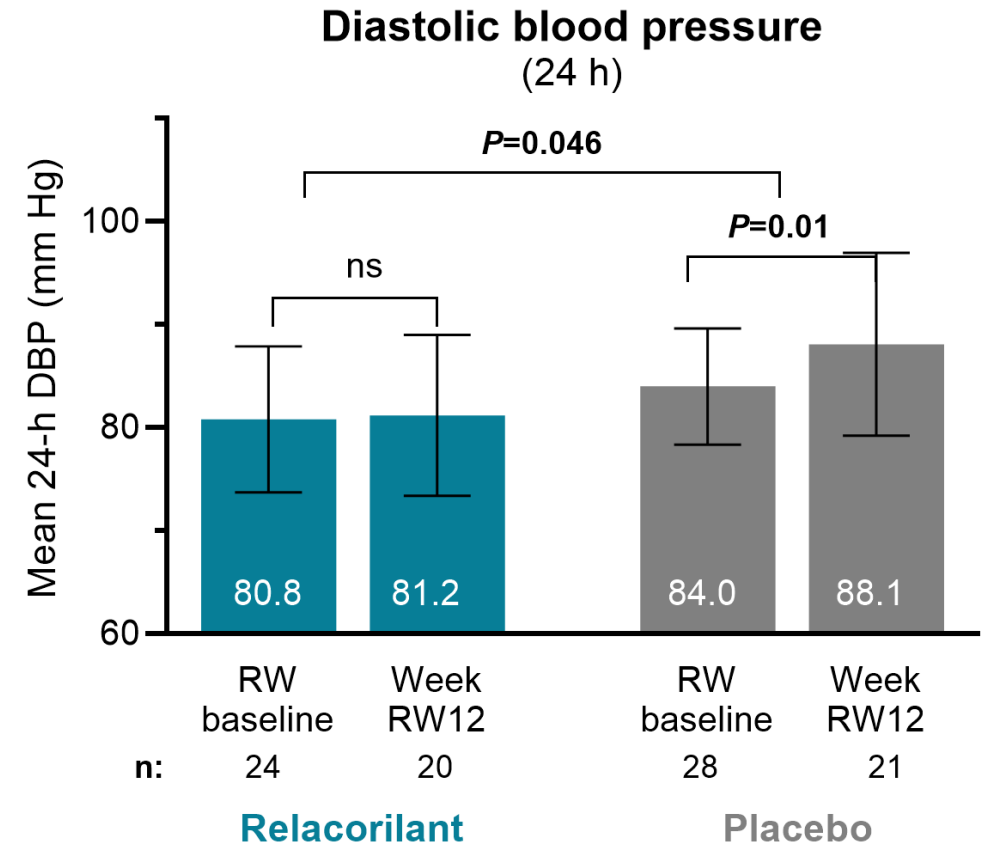
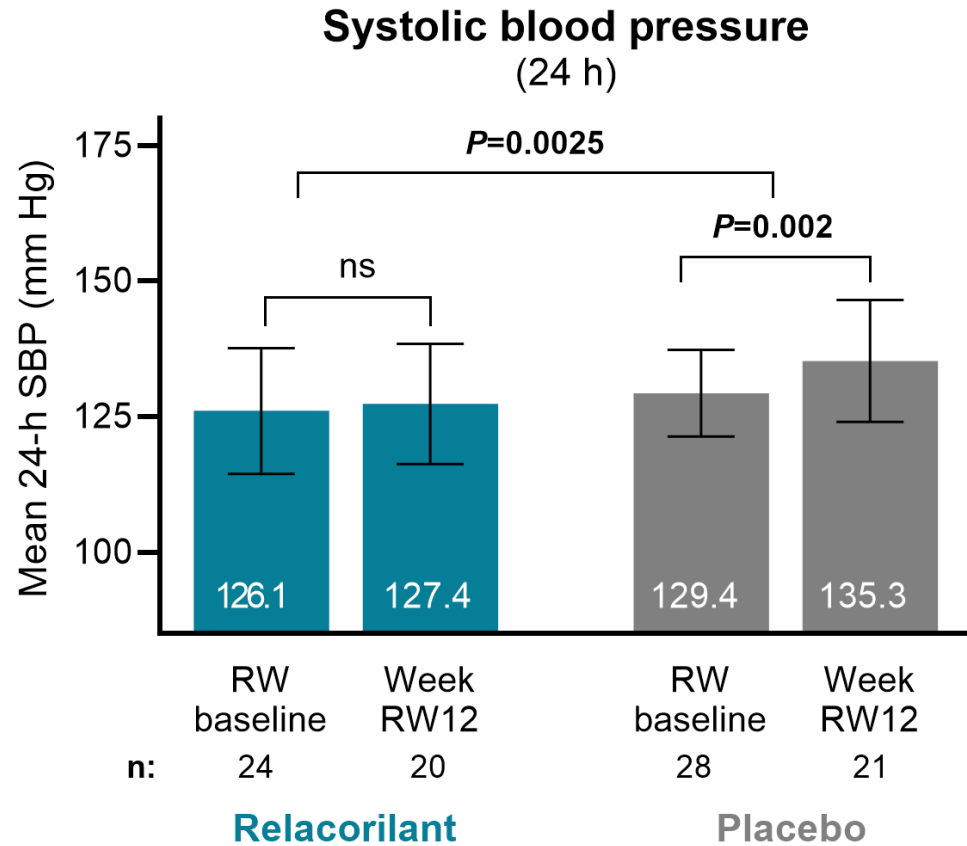
Hypertension responders who randomized

- In the randomized-withdrawal phase, **significantly more patients receiving placebo lost hypertension control** compared to those who continued to receive relacorilant
 - **Odds ratio 0.17** for relacorilant vs placebo ($P=0.02$)
 - Patients receiving relacorilant were **5.9x more likely to maintain hypertension response**



Similar Blood Pressure Trends Observed in all Patients Randomized, Favoring Relacorilant Over Placebo

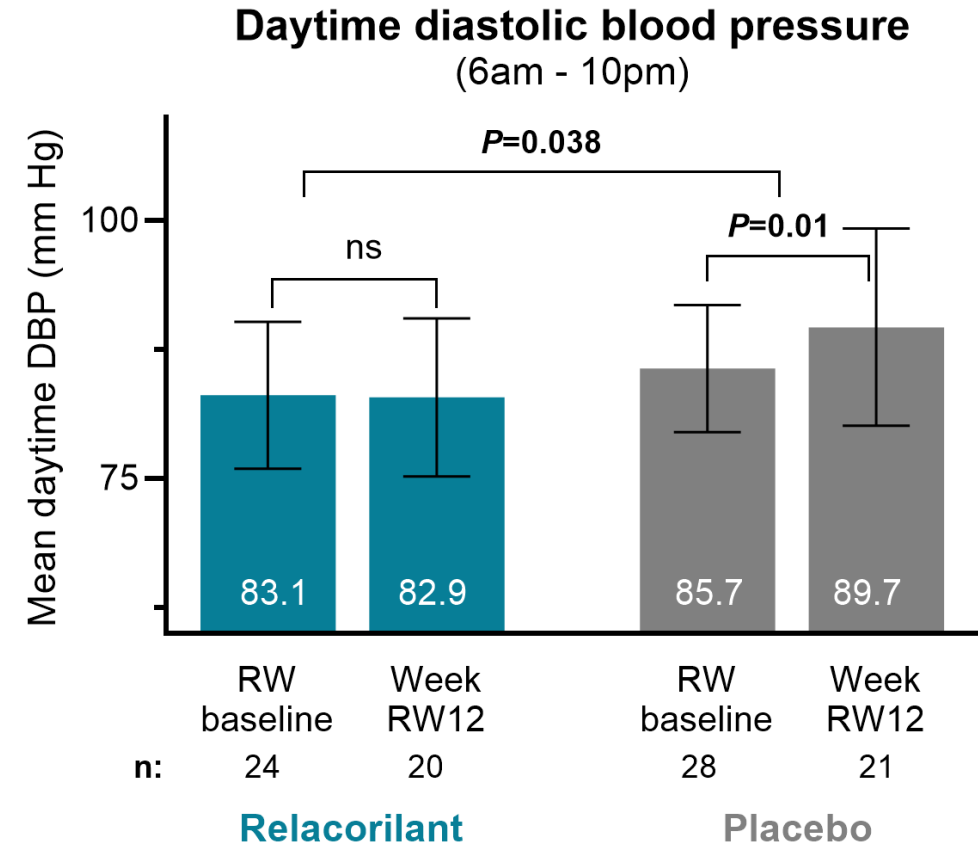
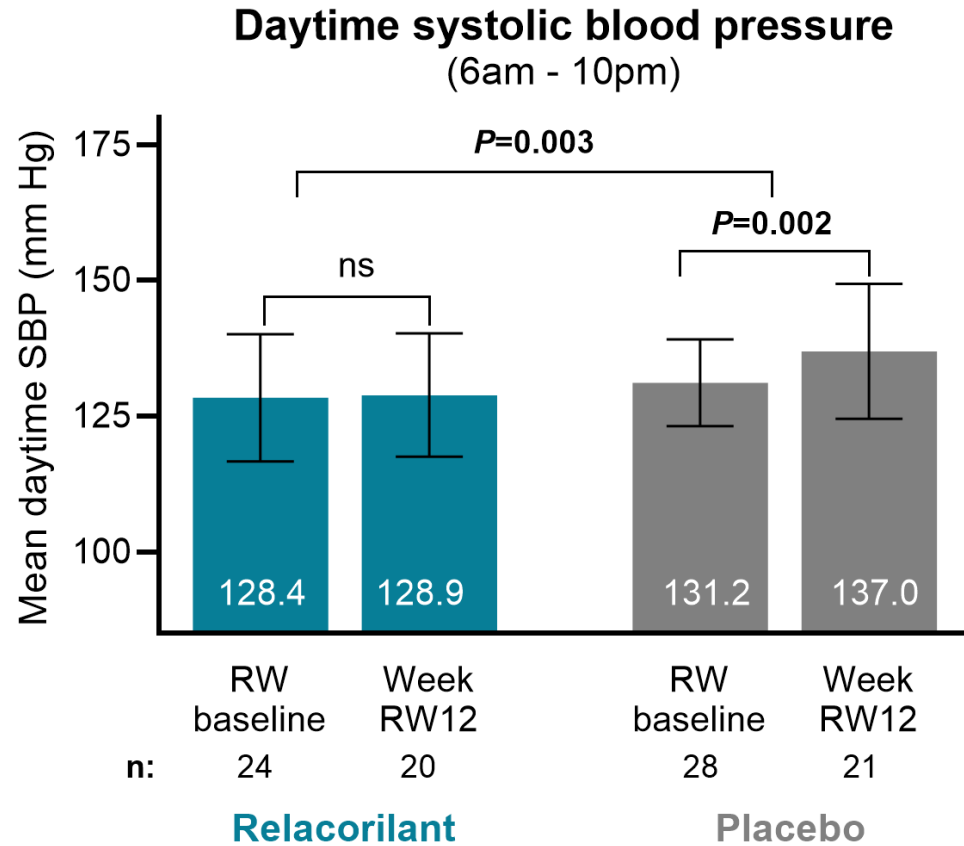
In all patients with available ABPM data



ABPM, ambulatory blood pressure monitoring; DBP, diastolic blood pressure; ns, not significant ($P \geq 0.05$); RW, randomized withdrawal; SBP, systolic blood pressure. Blood pressure measured by ABPM. Error bars: Standard deviation. Wilcoxon rank sum test P -values for the observed mean within each treatment arm shown.

Similar Blood Pressure Trends Observed in all Patients Randomized, Favoring Relacorilant Over Placebo

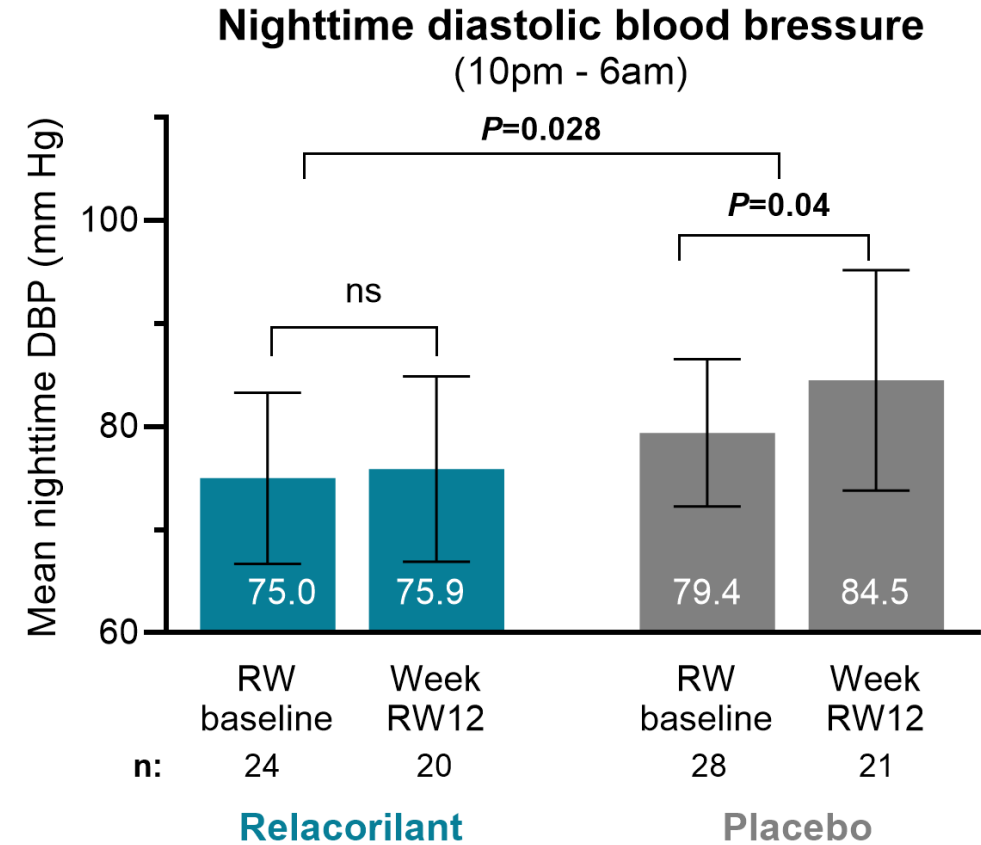
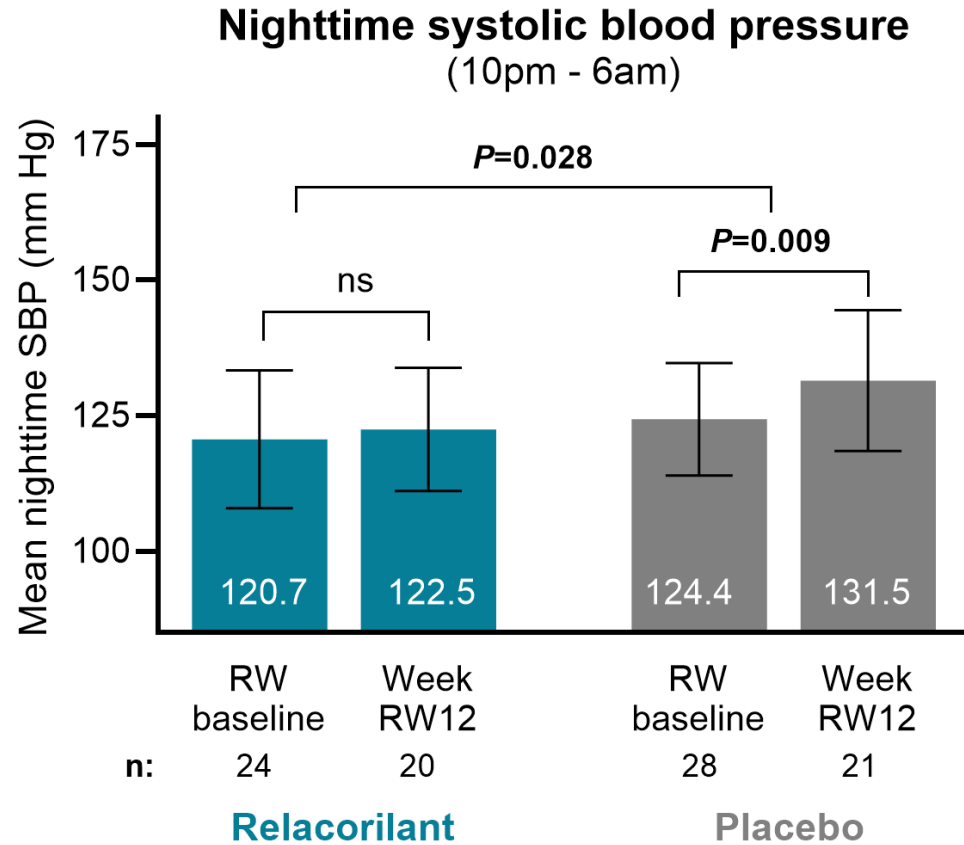
In all patients with available ABPM data



ABPM, ambulatory blood pressure monitoring; DBP, diastolic blood pressure; ns, not significant ($P \geq 0.05$); RW, randomized withdrawal; SBP, systolic blood pressure. Blood pressure measured by ABPM; daytime blood pressure defined as blood pressure measurements between 6am and 10pm. Error bars: Standard deviation. Wilcoxon rank sum test P -values for the observed mean within each treatment arm shown.

Similar Blood Pressure Trends Observed in all Patients Randomized, Favoring Relacorilant Over Placebo

In all patients with available ABPM data



ABPM, ambulatory blood pressure monitoring; DBP, diastolic blood pressure; ns, not significant ($P \geq 0.05$); RW, randomized withdrawal; SBP, systolic blood pressure. Blood pressure measured by ABPM; nighttime blood pressure defined as blood pressure measurements between 10pm and 6am. Error bars: Standard deviation. Wilcoxon rank sum test P -values for the observed mean within each treatment arm shown.

Randomized-withdrawal Results

HYPERGLYCEMIA AND
OTHER SYMPTOMS AND
COMORBIDITIES

grace
STUDY

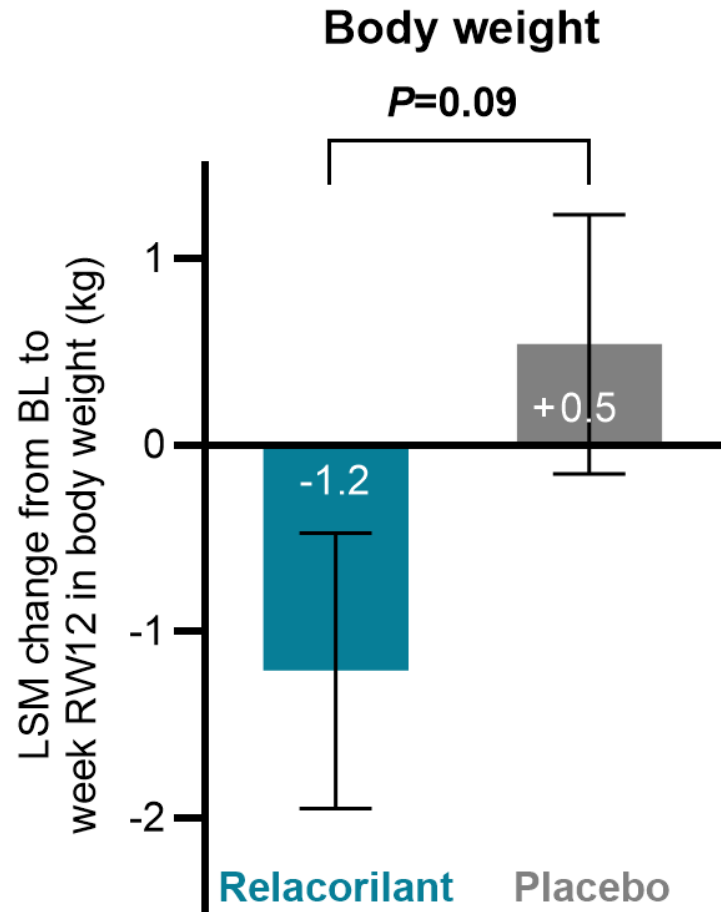
Improvements in Glycemic Measures Maintained With Relacorilant

	Relacorilant (n=30)	Placebo (n=32)
Change from RW baseline to week RW12 in:		
AUC_{glucose} (in patients with hyperglycemia at study entry), h*mmol/L		
n	15	19
Mean (SD)	+1.1 (4.7)	+4.9 (6.1)
Wilcoxon signed rank sum P-value ^a	ns	0.0003
HbA1c (in patients with hyperglycemia at study entry), %		
n	16	19
Mean (SD)	+0.1 (0.8)	+0.3 (0.6)
Wilcoxon signed rank sum P-value ^a	ns	0.03
HbA1c (in patients with diabetes at study entry), %		
n	13	13
Mean (SD)	+0.1 (0.8)	+0.4 (0.6)
Wilcoxon signed rank sum P-value ^a	ns	0.04

- At the end of the RW phase, patients who switched to **placebo** experienced significant increases in **AUC_{glucose}** and **HbA1c**
- In contrast, glycemic measures were maintained in patients who continued to receive **relacorilant**

AUC_{glucose}, glucose area under the curve; HbA1c, hemoglobin A1c; ns, not significant ($P \geq 0.05$); RW, randomized withdrawal. Wilcoxon rank sum test P -values for the observed mean within each treatment arm shown.
^aWilcoxon signed-rank test P -values within each treatment arm.

Improvements in Body Composition Maintained With Relacorilant



	Relacorilant (n=30)	Placebo (n=32)
Change from RW baseline to week RW12 in all patients in the RW phase:		
Waist circumference		
n	26	30
Mean (SD), cm	-1.2 (3.7)	+3.8 (10.4)
Wilcoxon signed rank sum P-value ^a	ns	0.008
Tissue fat mass		
n	17	22
Mean (SD), %	-0.2 (1.7)	+1.6 (1.8)
Wilcoxon signed rank sum P-value ^a	ns	0.0002
Tissue lean mass		
n	17	22
Mean (SD), %	+0.2 (1.7)	-1.6 (1.8)
Wilcoxon signed rank sum P-value ^a	ns	0.0002

- Similar trends observed across measures of body composition
- Those who **switched to placebo** experienced a **deterioration** in body composition
- In contrast, **trends toward further improvement** were observed in the **relacorilant** arm

BL, baseline; LSM, least squares mean; ns, not significant ($P \geq 0.05$); RW, randomized withdrawal; SE, standard error. Error bars: SE of the mean. ^aWilcoxon signed-rank test P-values within each treatment arm.

Randomized-withdrawal Results

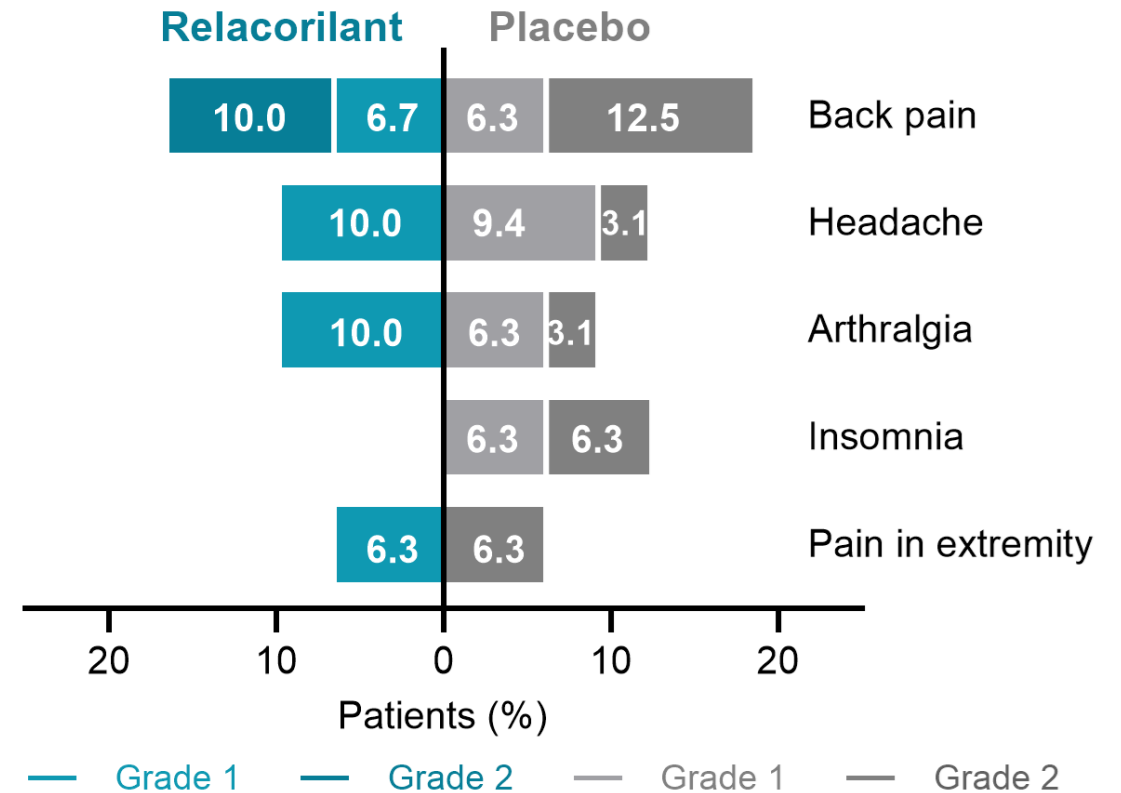
SAFETY

grace
STUDY

Adverse Events Occurring in $\geq 5\%$ of Patients

Among patients in the randomized-withdrawal phase

n (%)	Relacorilant (n=30)	Placebo (n=32)
Back pain	5 (16.7)	6 (18.8)
Headache	3 (10.0)	4 (12.5)
Arthralgia	3 (10.0)	3 (9.4)
Insomnia	0	4 (12.5)
Pain in extremity	2 (6.7)	2 (6.3)



Conclusions

- GRACE met its primary endpoint
- Significant improvements in hypertension, hyperglycemia, and other manifestations of cortisol excess were observed throughout the treatment with relacorilant
- Due to relacorilant's specificity for the glucocorticoid receptor and its unique mechanism of action, the observed efficacy was seen:
 - Without cases of relacorilant-induced irregular vaginal bleeding with endometrial hypertrophy
 - Without increases in cortisol concentrations and relacorilant-induced hypokalemia
 - Without reported cases of adrenal insufficiency
 - Without independently-confirmed QT prolongation



Thanks to all Those who Contributed to the GRACE Study!

The GRACE investigators & their teams

- Dr. Lisa Abbott
- Dr. Amer Al-Karadsheh
- Dr. Carmen Aresta
- Prof. Dr. Giorgio Arnaldi
- Dr. Richard Auchus
- Prof. Corin Badiu
- Dr. Garni Barkhoudarian
- Prof. Isabelle Bourdeau
- Dr. Robert Busch
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- Dr. Ty Carroll
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- Prof. Carla Scaroni
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- Prof. Dr. Antonio Stigliano
- Prof. Dr. Massimo Terzolo
- Prof. Dr. Francisco Jose Tinahones Madueno
- Dr. Anke Tonjes
- Dr. Ehud Ur
- Dr. Elena Valassi
- Dr. Christina Wang
- Prof. Dr. Susan Webb
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The study patients
and their families.

The sponsor team

THANK YOU!