

ACC.26

Prevalence and Clinical Impact of Hypercortisolism in Patients With Resistant Hypertension: *Primary Results From the MOMENTUM Study*

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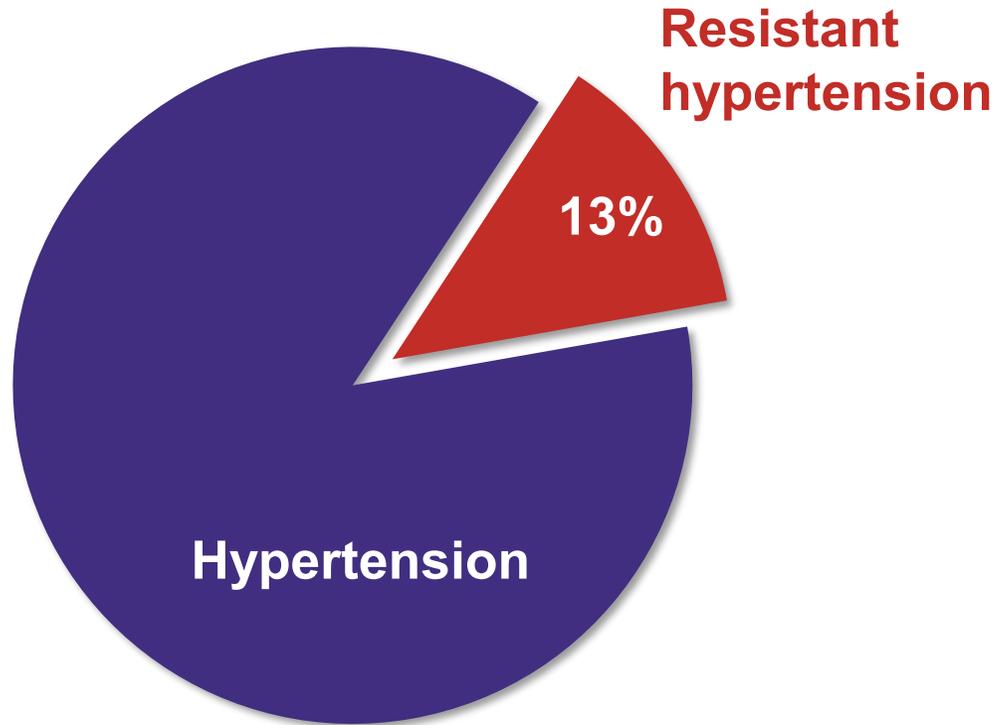
Disclosures

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This presentation may include discussion of off-label and investigational uses of drugs and devices.

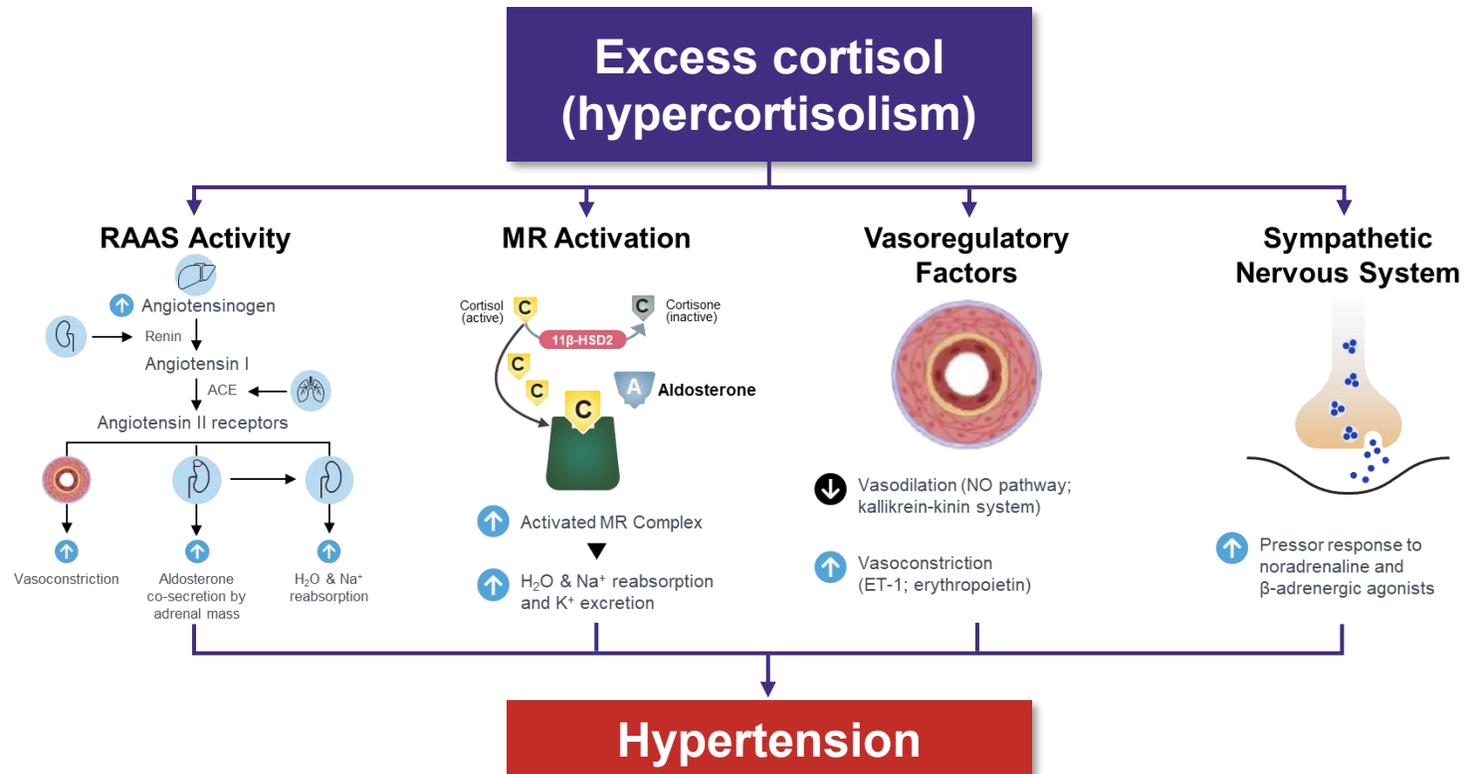
Resistant hypertension is common



- Approximately 13% of hypertensive patients have resistant hypertension¹
- In these patients, **secondary endocrine causes may contribute**, e.g., primary hyperaldosteronism or endogenous hypercortisolism²
- Awareness of primary hyperaldosteronism is growing, but **hypercortisolism prevalence is still uncertain**

HTN, hypertension. 1. Kumbhani et al. *Eur Heart J*. 2013. 2. Barbot et al. *Front Endocrinol (Lausanne)*. 2019.

Hypercortisolism raises BP via several pathways



Prior to MOMENTUM, a robust, US-based study in patients with resistant HTN had not been conducted

11β-HSD2, 11β-hydroxysteroid dehydrogenase type 2; ACE, angiotensin-converting enzyme; BP, blood pressure; ET-1, endothelin 1; MR, mineralocorticoid receptor; RAAS, renin-angiotensin-aldosterone system; HTN, hypertension.

Hypercortisolism is associated with excess CV risk

Consequences of excess cortisol

Up to 85%

Hypertension^{1,2}

4.5x risk

Stroke³

2x risk

Myocardial infarction³

6x risk

Heart failure³

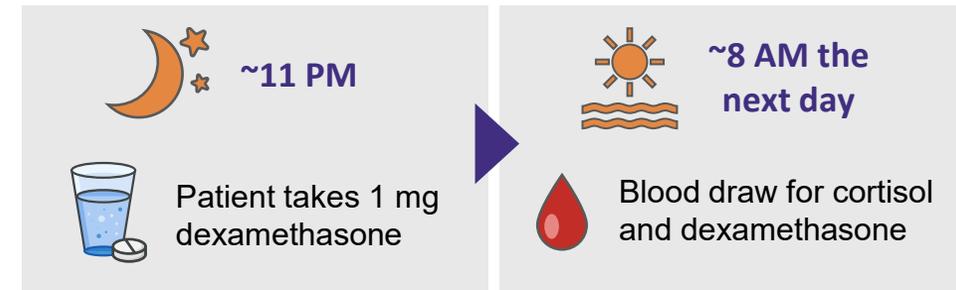
CV, cardiovascular. 1. Braun et al. *Front Endocrinol (Lausanne)*. 2019. 2. Prete et al. *Ann Intern Med*. 2022. 3. Pivonello et al. *Lancet Diabetes Endocrinol*. 2016.

Testing for endogenous hypercortisolism

Post-DST cortisol $>1.8 \mu\text{g/dL}$ and dexamethasone $\geq 140 \text{ ng/dL}$ in a population with common causes of false-positive DSTs excluded

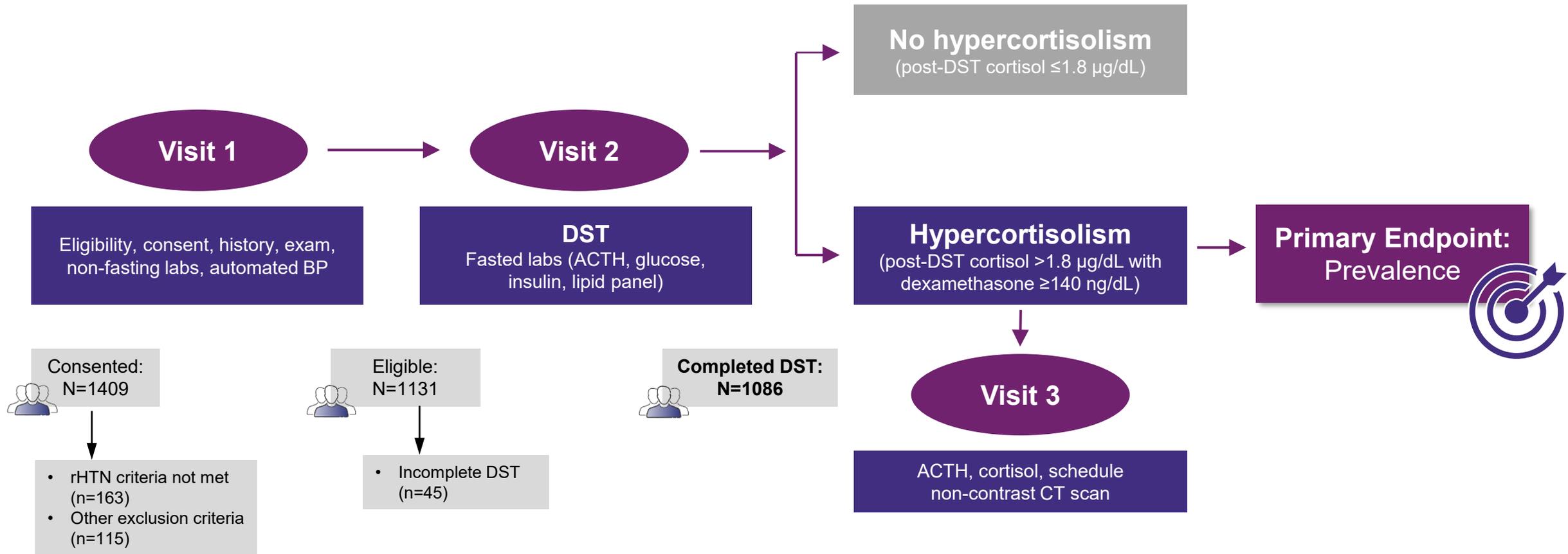
- The 1-mg DST is broadly available and the most sensitive screening test¹
- If cortisol is $>1.8 \mu\text{g/dL}$, the test is positive

Dexamethasone suppression test



DST, dexamethasone suppression test; rHTN, resistant hypertension. 1. Fassnacht et al. *Eur J Endocrinol.* 2023.

The prospective, multi-center MOMENTUM study¹



ACTH, adrenocorticotropic hormone; BP, blood pressure; CT, computed tomography; DST, dexamethasone suppression test; rHTN, resistant hypertension. 1. Plutzky et al. *JACC Advances*. 2026.

Conducted at 50 sites across the US
First participant enrolled: Mar 2025
Last participant enrolled: Dec 2025

MOMENTUM eligibility criteria¹

Key inclusion criteria



18–80 years

rHTN based on 2017 AHA criteria:

- A. SBP \geq 130 mmHg despite use of \geq 3 BP medications from different classes at maximally tolerated doses, including a diuretic
- B. SBP at any level with use of \geq 4 BP medications from different classes

Note on BP measurement:

- BP assessed using the same in-office, automated device at each site
- Measured 3x automatically (1-min between measurements), without the investigator present
- Mean BP used for eligibility

Key exclusion criteria

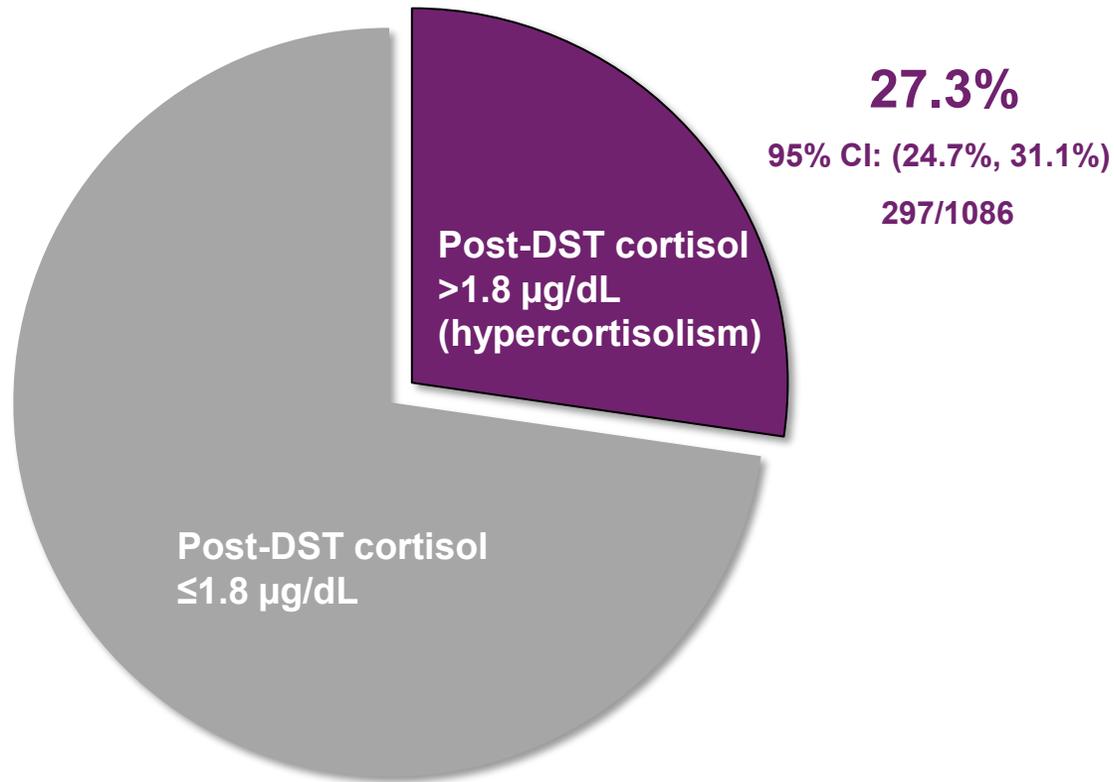


- White-coat hypertension
- Non-adherence to BP medications
- Systemic glucocorticoid exposure (excluding inhalers or topical)
- eGFR $<$ 30 mL/min/1.73 m²
- Severe psychiatric, medical, or surgical illness
- Excessive alcohol consumption
- Pregnant or lactating
- Use of oral contraceptive pills
- Severe untreated sleep apnea
- Diagnosed with endogenous hypercortisolism

AHA, American Heart Association; BP, blood pressure; eGFR, estimated glomerular filtration rate; rHTN, resistant hypertension; SBP, systolic blood pressure.

1. Plutzky et al. *JACC Advances*. 2026. 59% of participants enrolled under AHA criterion A; 41% under criterion B.

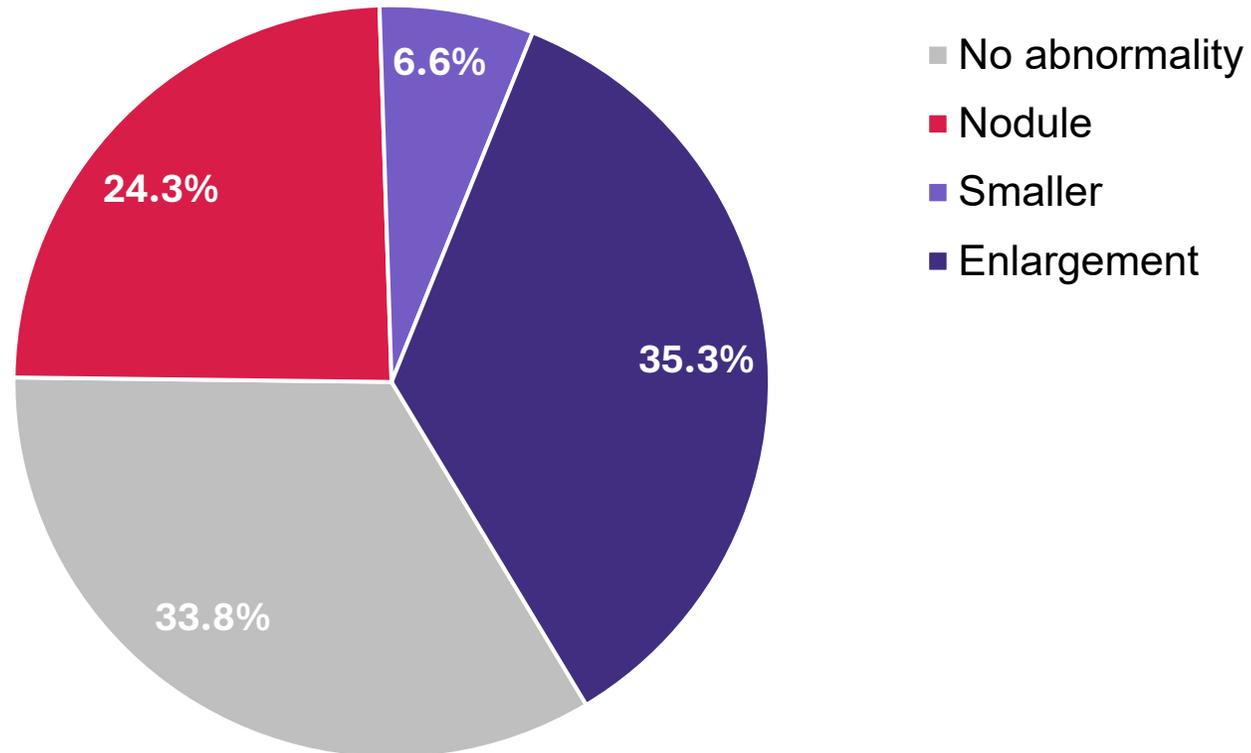
Primary endpoint: Prevalence of hypercortisolism



	Mean (SD)	Diagnostic threshold
Post-DST cortisol ^a , µg/dL	4.2 (3.5)	≤1.8
Dexamethasone ^a , ng/dL	484.2 (336.8)	>140

DST, dexamethasone suppression test; SD, standard deviation. ^aIn patients with hypercortisolism

~25% of patients with hypercortisolism have adrenal nodules on CT scans



CT, computed tomography.

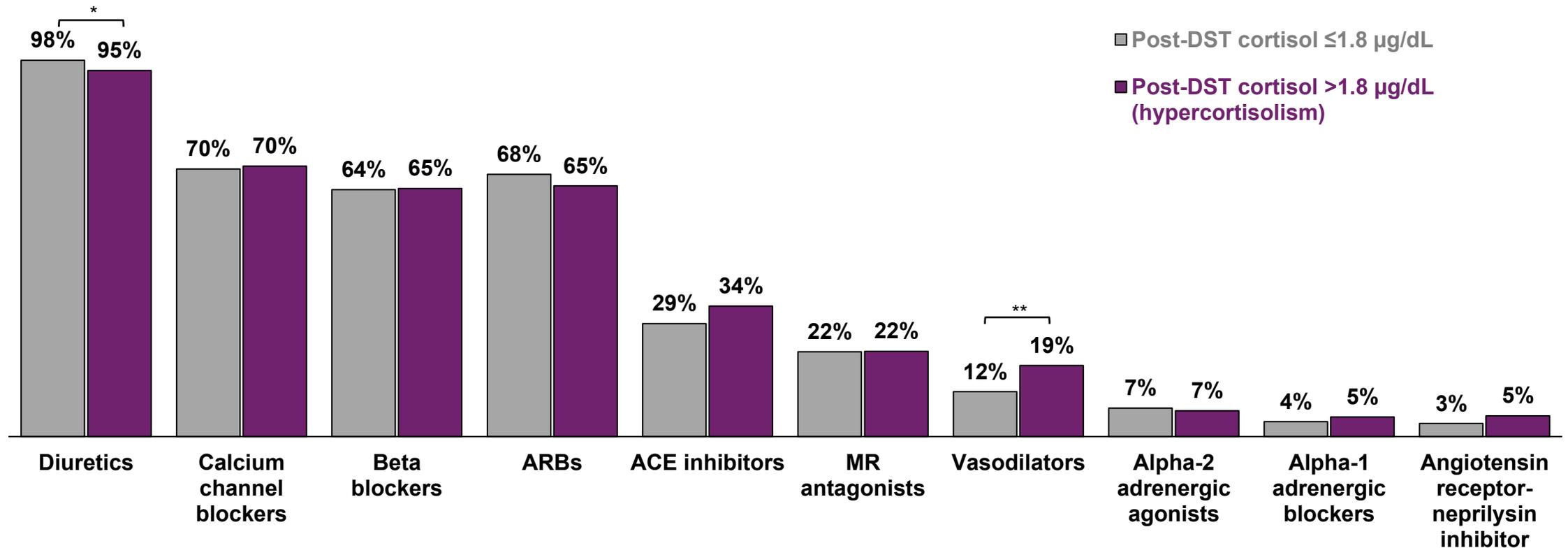
Few differences in baseline characteristics

	Post-DST cortisol		P-value ^a
	≤1.8 µg/dL (n=789)	>1.8 µg/dL (hypercortisolism) (n=297)	
Age , years, mean (SD)	65.0 (10.9)	66.2 (10.2)	NS
Female , %	53.9%	43.8%	0.003
Body mass index , kg/m ² , mean (SD)	33.5 (7.1)	32.0 (6.9)	0.002
Waist circumference , cm, mean (SD)	109.3 (17.0)	106.9 (18.0)	0.048
Race , %			
White	57.0%	57.2%	NS ^b
Black or African American	36.4%	36.7%	
Asian	2.9%	4.0%	
Other	3.7%	2.0%	
Ethnicity , %			
Hispanic/Latino	26.6%	25.3%	NS
Non-Hispanic/Latino	73.4%	74.7%	
SBP , mmHg, mean (SD)	140.2 (17.5)	141.3 (18.3)	NS
DBP , mmHg, mean (SD)	83.9 (12.3)	84.4 (13.1)	NS
HbA1c , %, mean (SD)	6.4 (1.4)	6.6 (1.6)	NS

Patients with hypercortisolism “look no different” than those without, except for lower body mass index and waist circumference

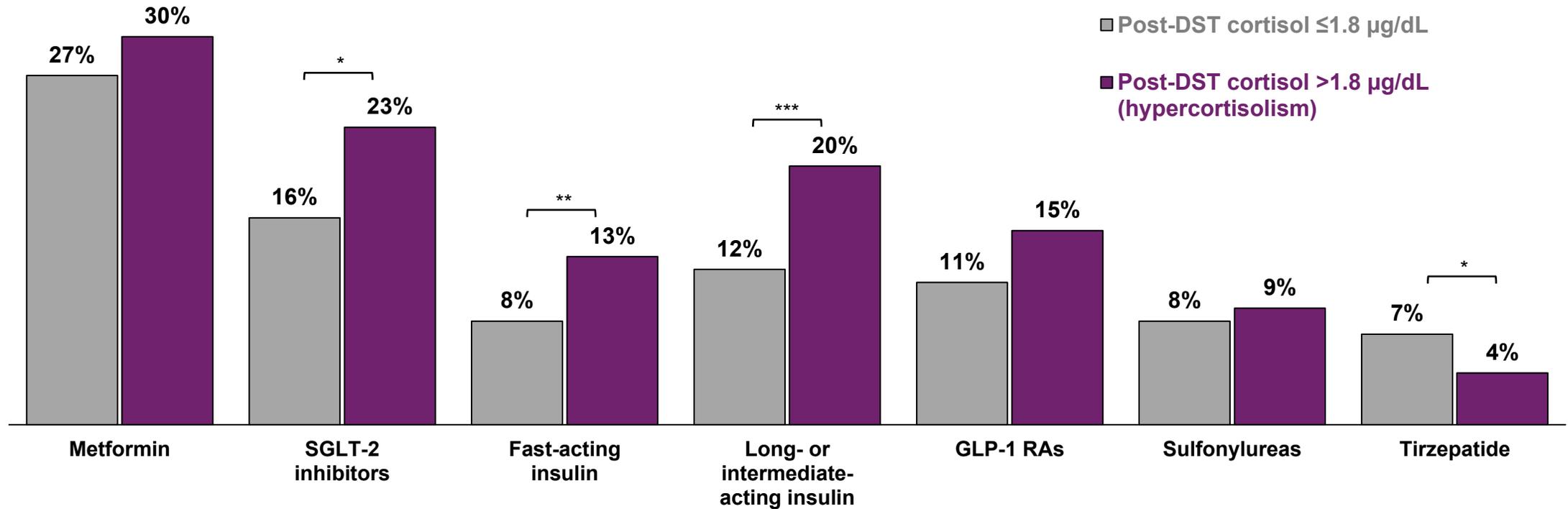
DBP, diastolic blood pressure; DST, dexamethasone suppression test; HbA1c, hemoglobin A1c; NS, not significant ($P>0.05$); SBP, systolic blood pressure; SD, standard deviation. ^aP-value for binary variables from a χ^2 test (expected counts ≥ 5) or Fisher’s exact test (expected counts < 5). P-value for continuous variables from two-sample t-test ($n \geq 5$ per group) or Wilcoxon rank-sum test ($n < 5$ per group). ^bWhite vs non-White.

Antihypertensive medication use was similar in patients with and without hypercortisolism



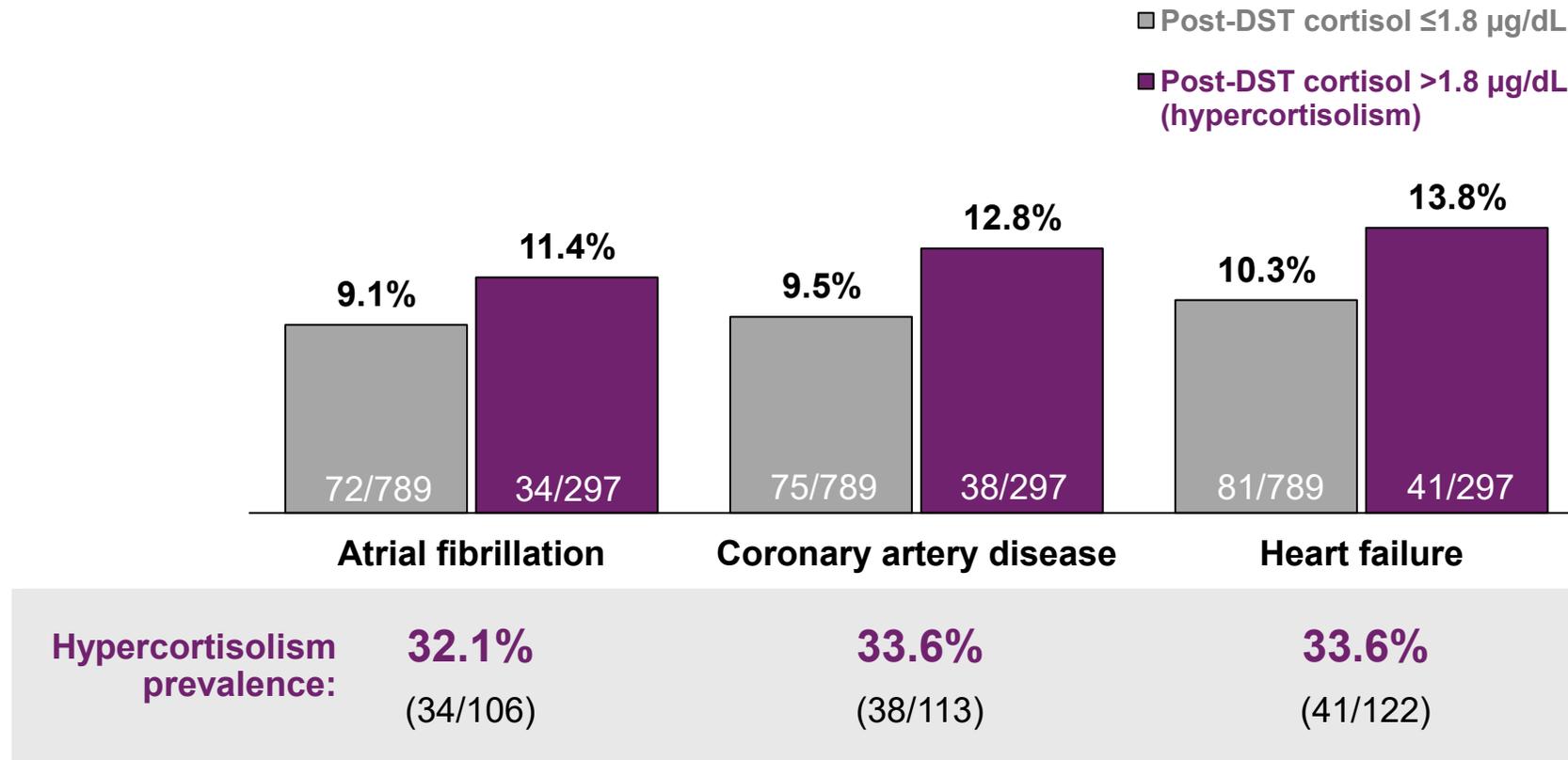
ACE, angiotensin-converting enzyme; ARBs, angiotensin II receptor blockers; DST, dexamethasone suppression test. *P*-value for binary variables from a χ^2 test (expected counts ≥ 5) or Fisher's exact test (expected counts < 5). Only *P*-values < 0.05 shown. *, $P < 0.05$; **, $P < 0.01$.

Trend toward more antihyperglycemic medications in patients with hypercortisolism



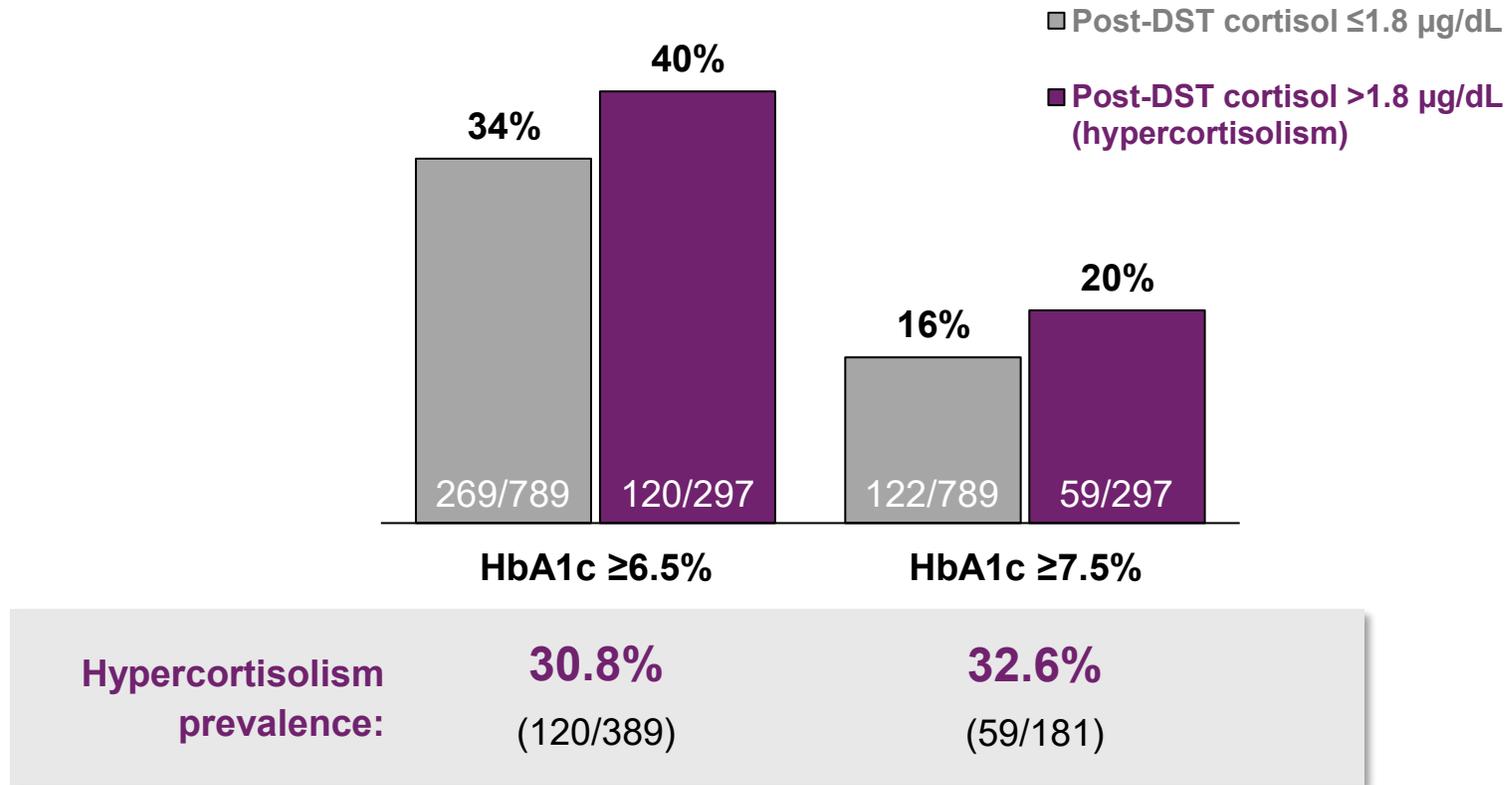
DST, dexamethasone suppression test; GLP-1 RAs, glucagon-like peptide-1 receptor agonists; SGLT-2, sodium-glucose co-transporter. *P*-value for binary variables from a χ^2 test (expected counts ≥ 5) or Fisher's exact test (expected counts < 5). Only *P*-values < 0.05 shown. *, $P < 0.05$; **, $P < 0.01$; ***, $P < 0.001$.

Cardiac disorders were numerically more common in patients with hypercortisolism



DST, dexamethasone suppression test. Differences in the frequency of cardiac comorbidities were not statistically significant ($P > 0.05$).

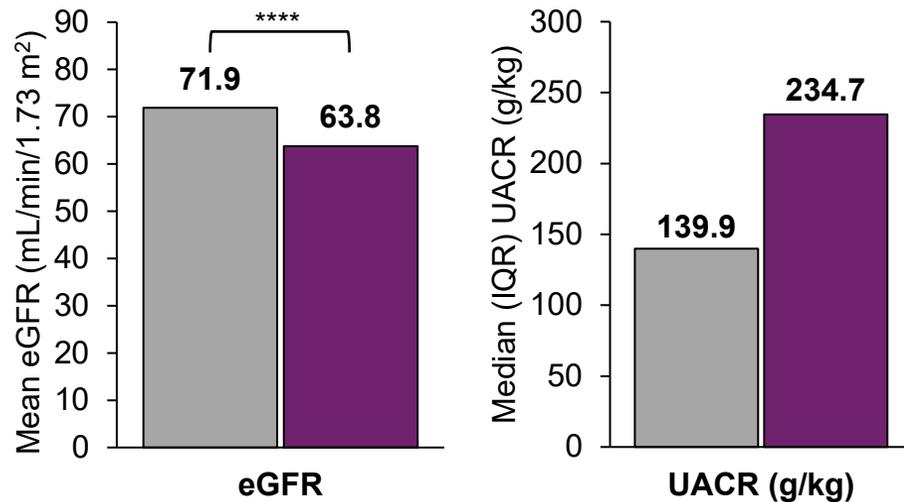
Glucose above target was numerically more common with hypercortisolism



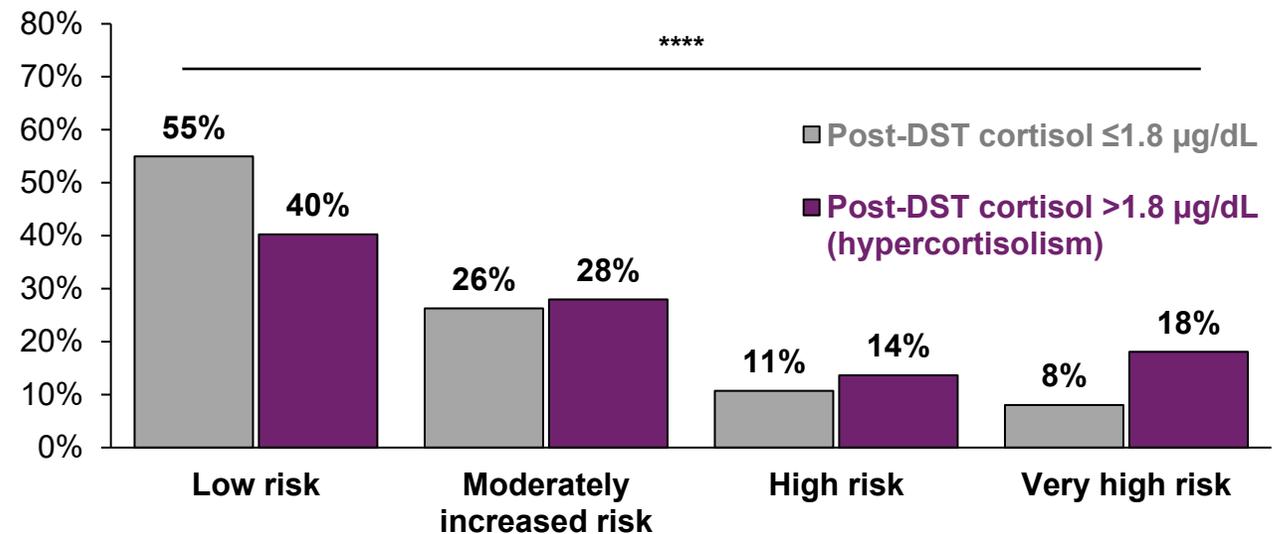
DST, dexamethasone suppression test; HbA1c, hemoglobin A1c. Differences in the HbA1c categories were not statistically significant ($P>0.05$).

Poorer kidney function and higher CKD progression risk with hypercortisolism

Markers of kidney function



CKD progression risk categories

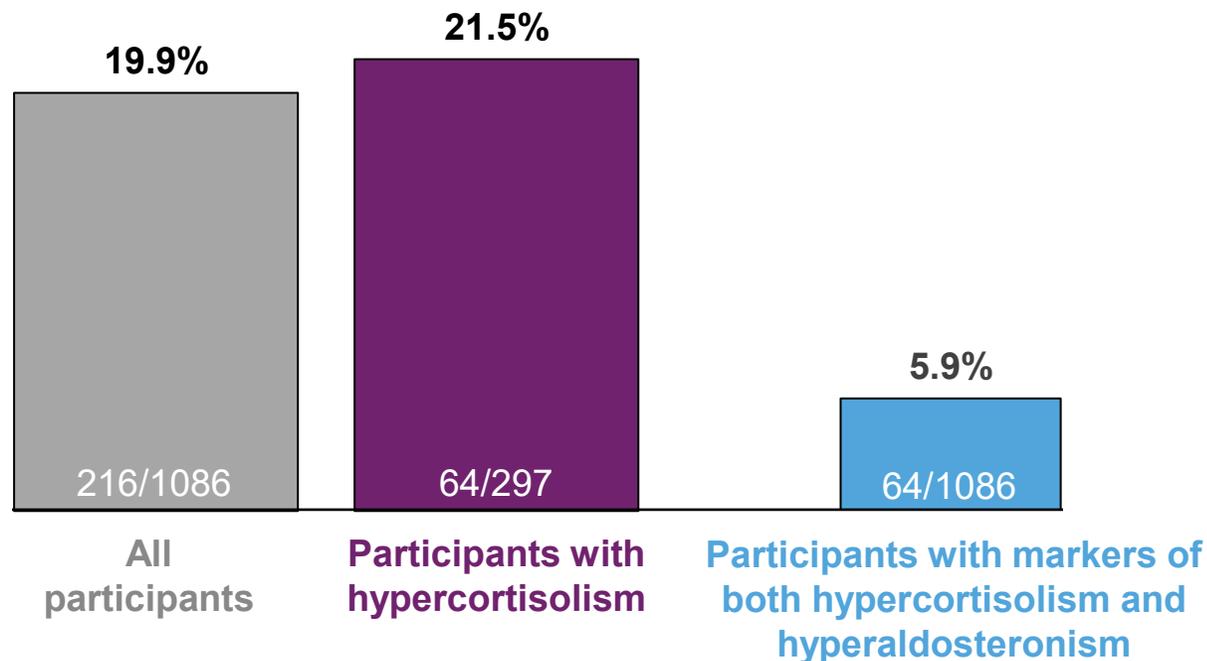


Hypercortisolism prevalence in participants with eGFR <45 mL/min/1.73 m²: **43.6%** (61/140)

CKD, chronic kidney disease; DST, dexamethasone suppression test; eGFR, estimated glomerular filtration rate; UACR, urine albumin-to-creatinine ratio. *P*-values for eGFR and UACR based on a *t*-test; only *P*-values <0.05 shown. ****, *P*<0.0001. CKD progression risk categories defined based on KDIGO 2012 guidelines; χ^2 *P*-value comparing the distribution of CKD risk categories between the post-DST cortisol groups shown.

Excess cortisol and aldosterone co-secretion common

Participants with markers of hyperaldosteronism



Prevalence of hyperaldosteronism was consistent with the literature for individuals with rHTN

Similar prevalence of hyperaldosteronism in MOMENTUM participants with and without hypercortisolism

rHTN, resistant hypertension. Hyperaldosteronism defined as aldosterone >20 ng/dL or aldosterone >15 ng/dL with aldosterone-renin-ratio >20.

Limitations

- Geographic study footprint limited to the US
 - However, the MOMENTUM prevalence (27.3%) aligns with a prior, smaller Brazilian study (26.5%)¹ that used the same enrollment criteria
- Low proportion of Asian patients, but substantial representation of women, Black, and Hispanic patients
- Study did not differentiate between heart failure with or without reduced ejection fraction
- No longitudinal follow-up to assess cardiovascular event rates
 - But other studies have shown higher rates of cardiovascular events in patients with hypercortisolism^{2,3}
- Causation cannot be established in this study

1. Martins et al. *J Hypertens*. 2012. 2. Di Dalmazi G, et al. *J Clin Endocrinol Metab*. 2020. 3. Petramala L, et al. *Endocrine*. 2020.

Conclusions

- MOMENTUM is the first, large US-based study in patients with resistant HTN assessing the prevalence of **hypercortisolism**
- Among the 1086 patients screened, **hypercortisolism prevalence was 27.3%**
- **Adrenal nodules** were seen in **24.3%** of patients with hypercortisolism
- The prevalence of **hypercortisolism** was **>30%** in patients with cardiac disorders or diabetes and **>40%** in patients with CKD
- **Primary hyperaldosteronism** screening was positive in **21.5%** of these patients, with **5.9%** screening positive for both hyperaldosteronism and hypercortisolism
- ▶ **Screening for both hypercortisolism and hyperaldosteronism should be considered in patients with resistant hypertension**

CKD, chronic kidney disease; rHTN, resistant hypertension.

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