Endocrine Causes of High Blood Pressure

When hormones drive hypertension — understanding secondary hypertension from an endocrine perspective

What Is Endocrine Hypertension?

Most high blood pressure (about 90–95%) is "essential" — no single identifiable cause. But in 5–10% of cases, a hormone disorder is driving the blood pressure elevation. This is called secondary or endocrine hypertension. Finding and treating the underlying hormone condition can dramatically improve — or even cure — the blood pressure problem.

Endocrine Conditions That Cause High Blood Pressure

Condition	Hormone Involved	Key Clues
Primary hyperaldosteronism (Conn's syndrome)	Excess aldosterone	Low potassium, BP resistant to multiple medications, adrenal mass
Pheochromocytoma	Excess adrenaline (epine phrine/norepinephrine)	Episodes of headache, sweating, palpitations, dramatic BP spikes
Cushing's syndrome	Excess cortisol	Weight gain in abdomen/face, purple stretch marks, diabetes
Hypothyroidism	Low thyroid hormone	Fatigue, weight gain, cold intolerance — elevated diastolic BP
Hyperthyroidism	Excess thyroid hormone	Rapid heart rate, weight loss, anxiety — elevated systolic BP
Primary hyperparathyroidism	Excess PTH → high calcium	High calcium on blood test, kidney stones, bone loss
Obstructive sleep apnea	Cortisol & sympathetic nervous system activation	Snoring, daytime sleepiness, morning headaches

When Should Endocrine Causes Be Investigated?

- High blood pressure diagnosed before age 30
- Blood pressure that requires 3 or more medications to control
- Sudden worsening of previously controlled blood pressure
- Low potassium levels (hypokalemia) without a clear cause
- An adrenal mass found incidentally on imaging (adrenal incidentaloma)

- Episodes of severe headache, sweating, or palpitations with BP spikes
- Signs or symptoms of Cushing's syndrome or thyroid disease

Common Tests Ordered by Your Endocrinologist

- Aldosterone and renin levels (blood test)
- 24-hour urine catecholamines or plasma metanephrines (pheochromocytoma screen)
- Cortisol testing (24-hr urine, saliva, or dexamethasone suppression)
- Thyroid function (TSH, free T4)
- Calcium, PTH
- CT or MRI of adrenal glands if indicated

Good News: If an endocrine cause is found and treated, blood pressure often improves significantly — sometimes resolving completely without lifelong medication.