

**Clinical features of several causes of secondary hypertension**

Disorder	Suggestive clinical features
General	<ul style="list-style-type: none"> ▪ Severe or resistant hypertension ▪ An acute rise in blood pressure over a previously stable value ▪ Proven age of onset before puberty ▪ Age less than 30 years with no family history of hypertension and no obesity
Renovascular disease	<ul style="list-style-type: none"> ▪ Unexplained creatinine elevation and/or acute and persistent elevation in serum creatinine of at least 50% after administration of ACE inhibitor, ARB, or renin inhibitor ▪ Moderate to severe hypertension in a patient with diffuse atherosclerosis, a unilateral small kidney, or asymmetry in kidney size of more than 1.5 cm that cannot be explained by another reason ▪ Moderate to severe hypertension in patients with recurrent episodes of flash pulmonary edema ▪ Onset of hypertension with blood pressure >160/100 mmHg after age 55 years ▪ Systolic or diastolic abdominal bruit (not very sensitive)
Primary kidney disease	<ul style="list-style-type: none"> ▪ Elevated serum creatinine concentration ▪ Abnormal urinalysis
Drug-induced hypertension: <ul style="list-style-type: none"> ▪ Oral contraceptives ▪ Anabolic steroids ▪ NSAIDs ▪ Chemotherapeutic agents (eg, tyrosine kinase inhibitors/VEGF blockade) ▪ Stimulants (eg, cocaine, methylphenidate) ▪ Calcineurin inhibitors (eg, cyclosporine) ▪ Antidepressants (eg, venlafaxine) 	<ul style="list-style-type: none"> ▪ New elevation or progression in blood pressure temporally related to exposure
Pheochromocytoma	<ul style="list-style-type: none"> ▪ Paroxysmal elevations in blood pressure ▪ Triad of headache (usually pounding), palpitations, and sweating
Primary aldosteronism	<ul style="list-style-type: none"> ▪ Unexplained hypokalemia with urinary potassium wasting; however, more than one-half of patients are normokalemic
Cushing's syndrome	<ul style="list-style-type: none"> ▪ Cushingoid facies, central obesity, proximal muscle weakness, and ecchymoses ▪ May have a history of glucocorticoid use
Sleep apnea syndrome	<ul style="list-style-type: none"> ▪ Common in patients with resistant hypertension, particularly if overweight or obese ▪ Loud snoring or witnessed apneic episodes ▪ Daytime somnolence, fatigue, and morning confusion
Coarctation of the aorta	<ul style="list-style-type: none"> ▪ Hypertension in the arms with diminished or delayed femoral pulses and low or unobtainable blood pressures in the legs ▪ Left brachial pulse is diminished and equal to the femoral pulse if origin of the left subclavian artery is distal to the coarct
Hypothyroidism	<ul style="list-style-type: none"> ▪ Symptoms of hypothyroidism ▪ Elevated serum thyroid stimulating hormone
Primary hyperparathyroidism	<ul style="list-style-type: none"> ▪ Elevated serum calcium

ACE: angiotensin-converting enzyme; ARB: angiotensin II receptor blocker; NSAID: nonsteroidal antiinflammatory drug; VEGF: vascular endothelial growth factor.

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