



TOP TEN THINGS TO KNOW

Resistant Hypertension: Diagnosis, Evaluation and Treatment

1. **Definition:** Resistant hypertension is defined as blood pressure that remains above goal in spite of concurrent use of 3 antihypertensive agents of different classes. As defined, resistant hypertension includes patients whose blood pressure is controlled with use of more than 3 medications.
2. **Prevalence:** Clinical trials suggest 20-30% of general hypertensive cohorts may have resistant hypertension. Prevalence is increasing as suggested by increasing use of multi-drug regimens consisting of 3 or more medications.
3. **Prognosis:** Studies of patients with severe hypertension indicate that effective treatment can reduce cardiovascular morbidity and mortality by more than 90% during 18 months of follow-up.
4. **Characteristics Associated with Resistant Hypertension:** History of severe hypertension, particularly severe systolic hypertension, older age, obesity, CKD, LVH, diabetes, being of African American race, and female gender.
5. **Causes of Pseudoresistance:** Poor medication adherence, poor blood pressure monitoring technique and “white coat effect”
6. **Agents Contributing to Resistant Hypertension:** Non-steroidal anti-inflammatory agents (most common), sympathomimetic compounds (decongestants, diet pills; amphetamine-like stimulants), glucocorticoids (prednisone, cortisone, hydrocortisone), oral contraceptives, Cyclosporine, Erythropoietin, natural licorice, and herbal compounds (ephedra or ma huang).
7. **Secondary Causes of Hypertension that Commonly Contribute to Resistant Hypertension:** Obstructive sleep apnea, primary aldosteronism, chronic kidney disease, and renal artery stenosis.
8. **Evaluation:** Medical history, physical examination and biochemical evaluation should be directed toward confirming true treatment resistance. Accurate assessment of medication adherence is essential to confirm true pharmacologic treatment resistance.

Home or work-site blood pressure measurements or 24-hr ambulatory monitoring is recommended to exclude a significant “white coat effect”. High plasma aldosterone/ renin activity ratio (generally 20-30 when plasma aldosterone is reported in ng/dL and plasma renin activity in ng/ml/hr) is suggestive of primary aldosteronism, but further evaluation is necessary to confirm the diagnosis.

9. **Treatment:** Maximize medication adherence and lifestyle modifications.
 - Treat secondary causes of hypertension, including obstructive sleep apnea, if present.
 - Pharmacologic Treatment
 - Reduce alcohol consumption
10. **Referral to a Specialist:** If a specific secondary cause of hypertension is suspected in a patient with resistant hypertension, referral to the appropriate specialist is recommended as needed. In the absence of suspected secondary causes of hypertension, referral to a hypertension specialist is recommended if the blood pressure remains elevated in spite of 6 months of treatment.