

When do you need to look for secondary hypertension?

In generally more than 95% of hypertension cases are primary forms of hypertension, i.e. essential hypertension. Nevertheless theoretically, one has to think of secondary hypertension in each hypertension patient, since each diagnosis is only a differential diagnosis. In clinical practice, one has to be especially aware of those secondary hypertension forms, which can be easily missed, since the patient has only hypertension without any other guiding lead-symptom.

To this «easy to miss» group belong the renal artery stenosis, the primary hyperaldosteronism, and the pheochromocytoma. The screening tools for these three secondary hypertension forms are summarized in table 1. Table 2 lists clinical hints and flags, which should make us think of a secondary form of hypertension. Other forms of secondary hypertension, which are usually accompanied with characteristic symptoms and signs are summarized in table 3

Table 1: Overview of screening examinations for the “easy to miss” secondary forms of hypertension.

<u>Hypertension form</u>	<u>Screening-Examination</u>
Primary hyperaldosteronism	Plasma renin and aldosterone concentration. Calculation of the Aldosterone-Renin Ratio (< 11.5 ng/mU makes the diagnosis of 1° hyperaldosteronism unlikely). A concomitant measurement of the K plasma concentration is necessary for correct interpretation. .
Pheochromocytoma	Metanephrines in the plasma or urine
Renal artery stenosis	Duplex-ultrasound of the renal artery

Table 2: Clinical hints towards secondary hypertension

- The higher the blood pressure, the higher the level of suspicion (>180/110 mm Hg)
- Onset of hypertension in patients < 30 years or > 50 years of age.
- Hypertension in patients without family history of hypertension
- Sudden onset of a high blood pressure without any explainable reason
- Any form of difficult to treat hypertension and resistant hypertension (antihypertensive non-compliance excluded)
- Signs of an active kidney disease (pathological urinary sediment, signs of inflammation etc.)
- Hypertensive crisis with/without accompanying symptoms (tachycardia, sweating, pale face)
- Clinical signs of an endocrine disease
- Unexplainable hypokalemia
- Increase in plasma creatinine after a RAAS blocking antihypertensive agent
- Other suspicious symptoms and signs (snoring, nightly apnea)
- «Gut-Feeling» (something must be wrong)

Table 3: Causes of secondary hypertension, which are usually not missed since associated with other characteristic and typical clinical signs and symptoms

- Cushing-Syndrome
- Acromegalia
- Hypo- and hyperthyreosis
- Hyperparathyreoidism
- Coarctation of the aorta

- Elevated intracranial pressure
- Baroreceptor-dysfunction
- Sleep apnea / circadian disruption & desynchronisation (e.g. night shift)
- Drugs (e.g. alcohol, cocaine)
- Medications (e.g. NSAIDs, ciclosporine, tacrolimus, **erythropoietin**)
- Hypertension during pregnancy
- Estrogen treatment
- Overweight and obesity

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