Initial evaluation of the hypertensive adult

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TUMS

Most hypertensive have no clinical cardiovascular disease or signs of hypertension-related target-organ damage.

The diagnosis of hypertension:

- ✓ elevated and properly measured blood pressure
- ✓ confirmed on at least two occasions
- ✓ Preferably confirmed by out-of-office measurements

Appropriate management

persistent blood pressure values ≥130 mmHg systolic and/or ≥80 mmHg diastolic:

- ✓Presence or absence of specific comorbidities
- ✓ Overall cardiovascular risk
- ✓ Whether or not the hypertension is being caused by a second, potentially reversible disorder

History

- ✓Presence of precipitating or aggravating factors
- ✓Natural course of the blood pressure
- ✓The extent of target-organ damage
- ✓Presence of other risk factors for cardiovascular disease
- ✓ Symptoms that suggest an identifiable cause of hypertension(pheochromocytoma,…)
- ✓History of prior treatment for hypertension
- ✓Nonadherence to antihypertensive medications

"How long have you had high blood pressure?“

Instead:

"When was the last time you were told your blood pressure was normal?"

Clinical features of several causes of secondary hypertension

- 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
- Paroxysmal elevations in blood pressure
- Triad of headache (usually pounding), palpitations, and sweating

- Cushingoid facies, central obesity, proximal muscle weakness, and ecchymoses
- Sleep Apnea is common in patients with resistant hypertension, particularly if overweight or obese
- Loud snoring or witnessed apneic episodes
- Daytime somnolence, fatigue, and morning confusion
- Symptoms of hypothyroidism

Drug History

- Oral contraceptives
- Anabolic steroids
- NSAIDs
- Chemotherapeutic agents (eg, Tyrosine kinase inhibitors/VEGF blockade)
- Stimulants (eg , cocaine , methylphenidate)
- Calcineurin inhibitors (eg , cyclosporine)
- Antidepressants (eg, venlafaxine)
- Glucocorticoid use

Physical examination

- ✓ Proper technique for measurement of blood pressure
- ✓ Evaluate for signs of end-organ damage (such as retinopathy)
- ✓ Various pulses should be palpated
- ✓ Abdomen auscultation for a renal artery bruit(suggestive of renal artery stenosis)
- ✓ Brachial and femoral pulses palpated simultaneously(delay characteristic of coarctation of the Aorta)

Laboratory testing

- ✓Blood chemistries : electrolytes, glucose, and creatinine (eGFR)
- ✓Lipid profile
- ✓Urinalysis to detect hematuria and an albumin/creatinine ratio to estimate albumin excretion
- ✓ Electrocardiogram (ECG)
- ✓TSH
- ✓Serum Ca

Ambulatory blood pressure monitoring

- ✓Reducing the costs of the management of hypertension
- ✓Rapidly identifying the 20 percent of patients with "white coat hypertension"
- ✓Ensuring adequacy of therapy
- ✓Main indication :persistent office hypertension but normal out-of-office (self-measured) blood pressure readings, or if self-measurement is not feasible

Echocardiography

Routine echocardiography is not recommended
unless :

- Clinical evidence of heart failure
- Left ventricular dysfunction
- Coronary artery disease is suspected(stress echocardiography is preferred)

Echocardiography is a more sensitive method to detect left ventricular hypertrophy than the ECG

Serum uric acid

- Precursor
- Possible pathogenetic factor
- It is not known whether the presence of hyperuricemia or its treatment will influence the management of hypertension

Plasma renin activity

Although PRA may provide prognostic information ,
BUT
the test is usually performed only in patients with possible low-renin forms of hypertension, such as primary mineralocorticoid excess.

The PRA may provide guidance in the evaluation and treatment of resistant hypertension.

Workup for renovascular hypertension

Indicated **only** in patients in whom the history is suggestive:

- 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)

Albuminuria

Moderately increased albuminuria (formerly, microalbuminuria) is associated with an increased incidence of cardiovascular disease.

The value of measuring albumin excretion in patients with primary hypertension without diabetes is being increasingly advocated to assess cardiovascular

CARDIOVASCULAR RISK

- LVH is found by echocardiography in nearly 30% of unselected hypertensive adults and in up to 90% of persons with severe hypertension
- More LVH with:

obesity, high dietary sodium intake, anemia of end-stage renal disease, alcohol abuse, diabetes, and hypercholesterolemia

- The association between LVH and hypertension is stronger for systolic levels.

Contributors Disclosures Date

Calculator: Cardiovascular risk assessment in adults (10-year, ACC/AHA 2013) (conventional and SI units)

Input

Race
- ◯ African American
- ◯ White
- ◯ Other (see notes)

Sex
- ◯ Female
- ◯ Male

Age [ ] yr

Total cholesterol [ ] mg/dL

HDL cholesterol [ ] mg/dL

Systolic blood pressure [ ] mmHg

On hypertension medication
- ◯ No
- ◯ Yes

Diabetes
- ◯ No
- ◯ Yes

Smoking
- ◯ No
- ◯ Yes

Results

10-year risk [ ] %

Decimal precision 2

Cerebrovascular Disease

- Hypertension is the major cause of stroke
- Isolated systolic hypertension (ISH) in the elderly is associated with a 2.7 times greater incidence of strokes
- Marked increase in the onset of ischemic stroke in the early morning hours after arising
- Both excessively wide pulse pressure (reflecting arterial stiffness)and narrow pulse pressure (reflecting reduced cerebral perfusion) are associated with increased risk for Alzheimer's disease and dementia
- carotid bruit indicates the need for carotid ultrasonography in the hope of finding a correctable lesion

Vascular Assessment

- A low ankle-brachial index (ABI) using a Doppler flow detector is a proven measure of peripheral vascular disease and the risk for cardiovascular events.
- Carotid intima-media thickening by ultrasonography and augmentation index derived by pulse wave analysis have been claimed to be useful markers of cardiovascular risk.