

Hypertensive Vascular Disease

by
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- (Hypertension) high pressures that drive blood flow in excess of metabolic demands result in blood vessel and end-organ damage.

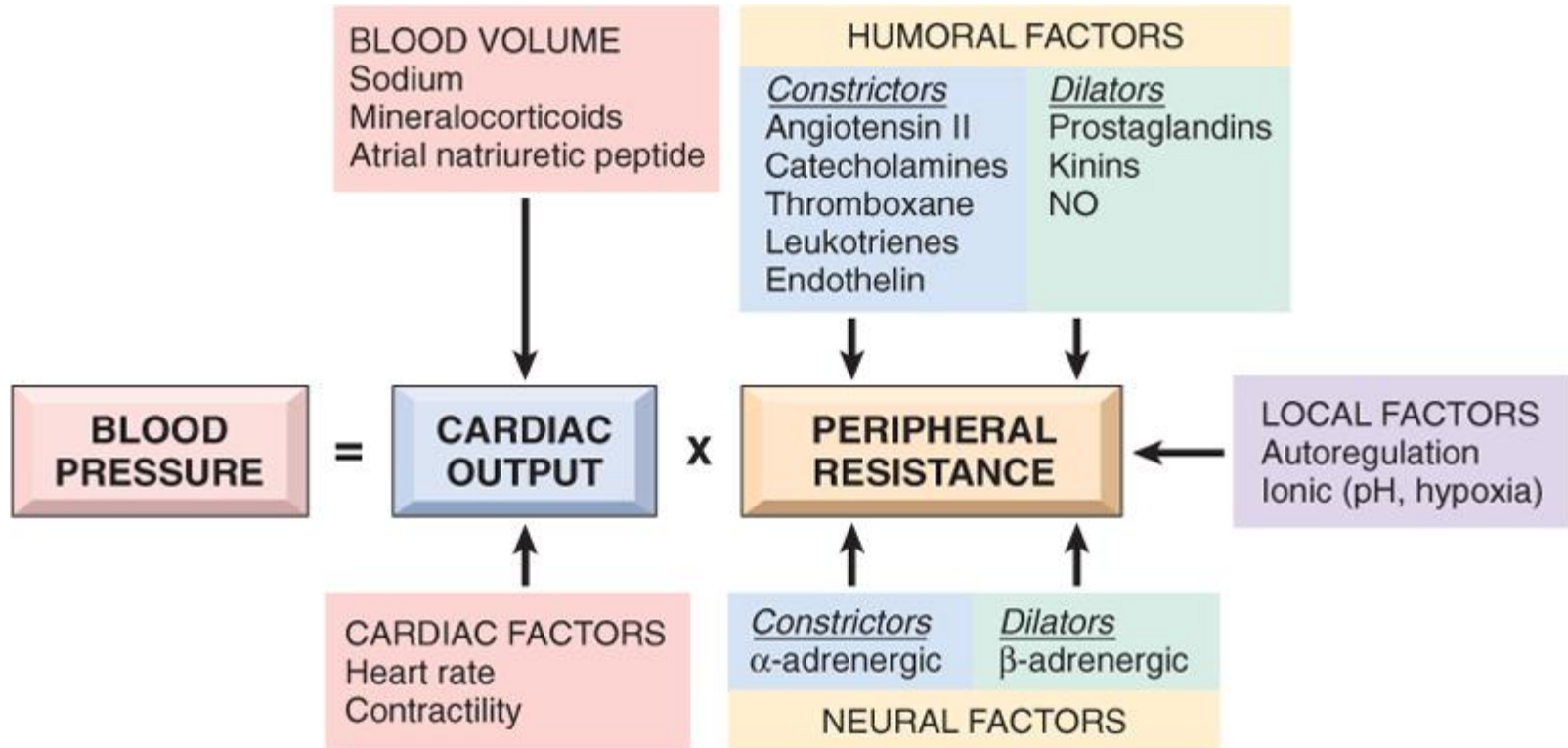
- Hypertension typically remains **asymptomatic** until late in its course.
- It contributes to the pathogenesis of:
 - ❑ Coronary heart disease.
 - ❑ Cerebrovascular accidents (CVA).
 - ❑ Cardiac hypertrophy and heart failure (*hypertensive heart disease*).
 - ❑ Aortic dissection.
 - ❑ Renal failure.

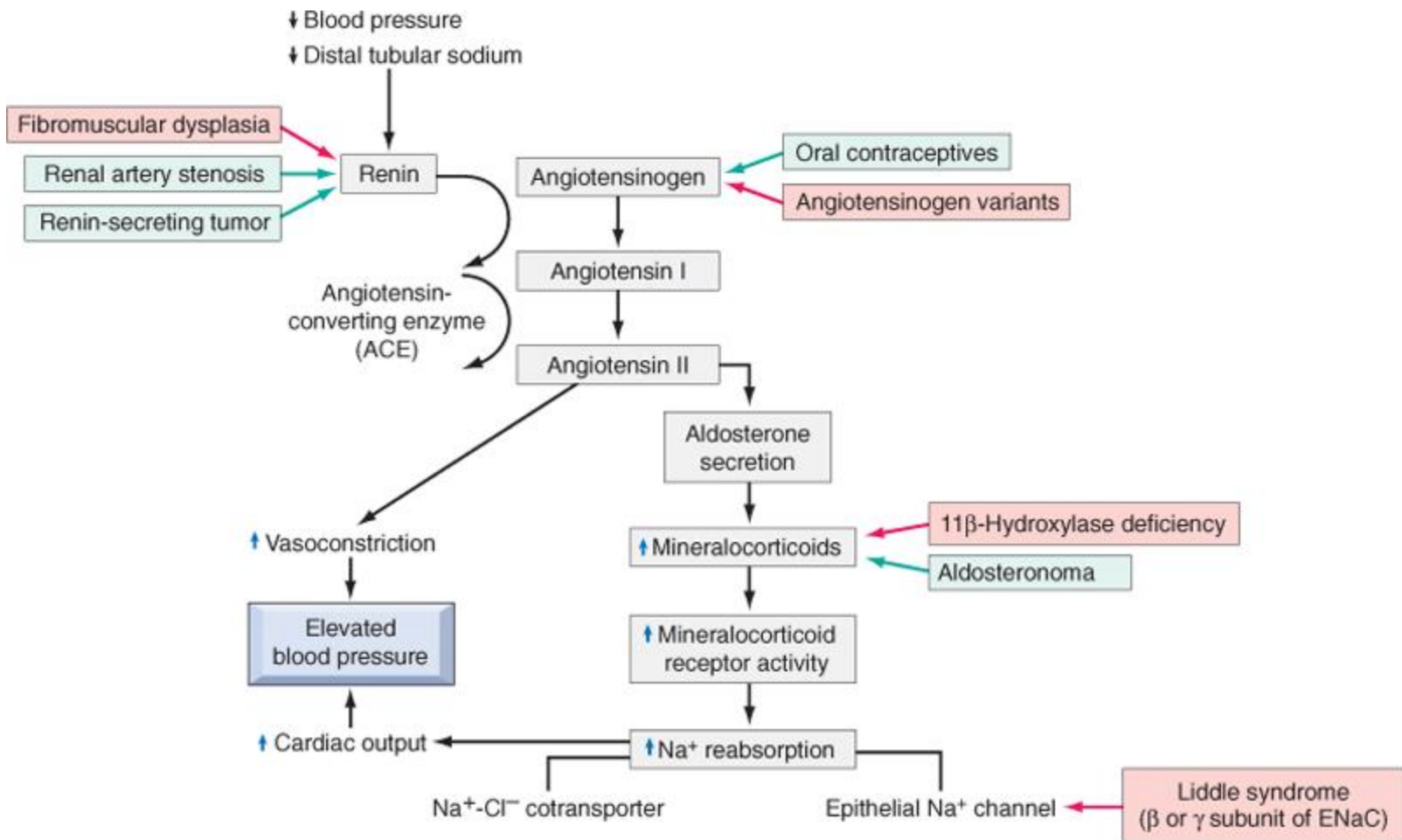
Causes

- Essential Hypertension (90% to 95% of Cases)
- Secondary Hypertension

- Secondary causes

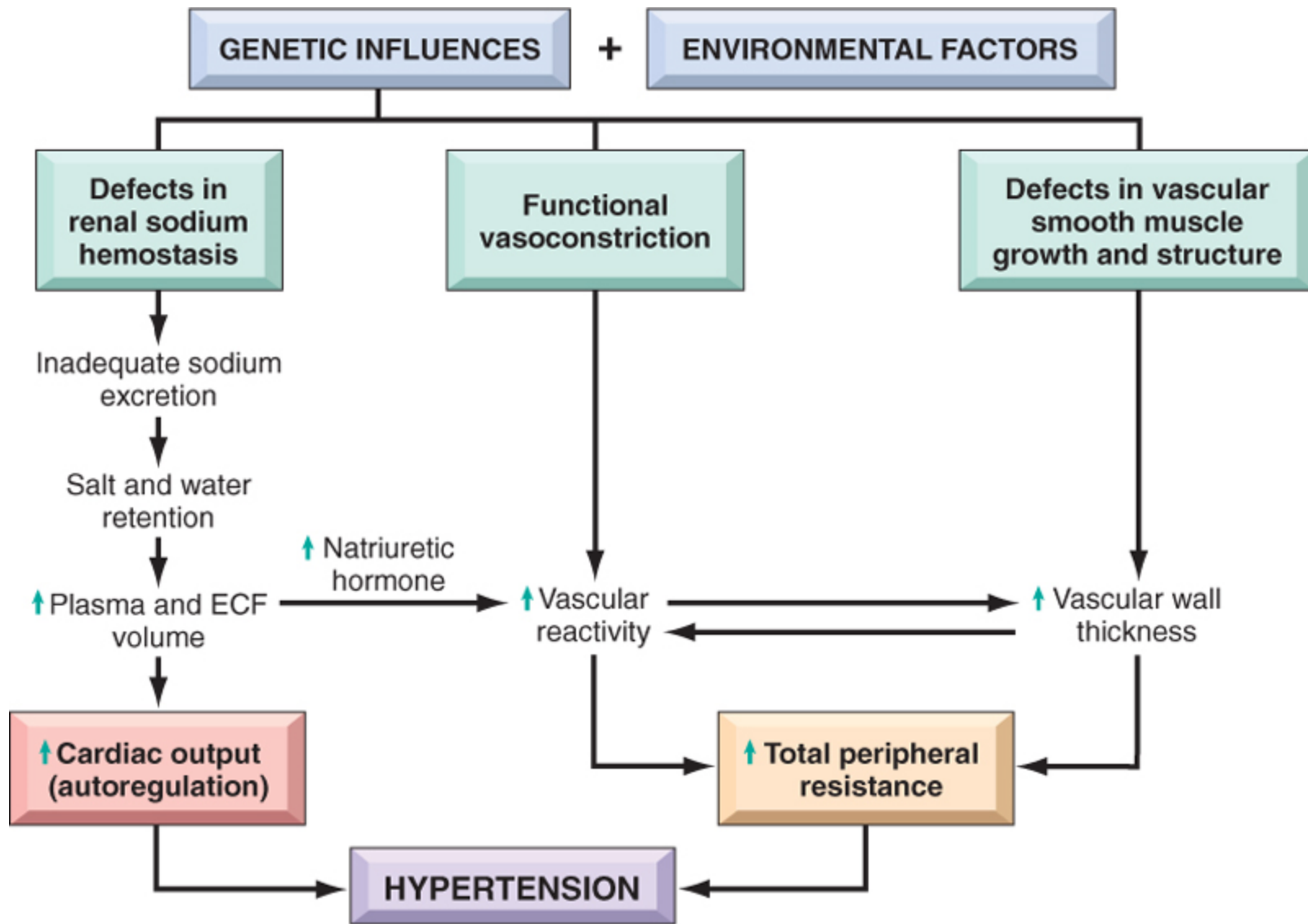
Pathogenesis of Hypertension





- *Reduced renal sodium excretion in the presence of normal arterial pressure*
- *Vascular changes may involve functional vasoconstriction or changes in vascular wall structure that result in increased resistance.*
- *Genetic factors.*

- *Allelic variations in the genes encoding components of the renin-angiotensin system.*
- *Environmental factors modify the expression of any underlying genetic determinants of hypertension; stress, obesity, smoking, physical inactivity, and heavy consumption of salt are all implicated.*



- About 5% of hypertensive persons show a rapidly rising blood pressure that if untreated leads to death within 1 or 2 years.
- Termed *accelerated or malignant hypertension*, the clinical syndrome is characterized by severe hypertension (diastolic pressure over 120mmHg), renal failure, and retinal hemorrhages and exudates, with or without papilledema.

- It may develop in previously normotensive persons but more often is superimposed on preexisting benign hypertension, either essential or secondary.

Vascular Pathology in Hypertension

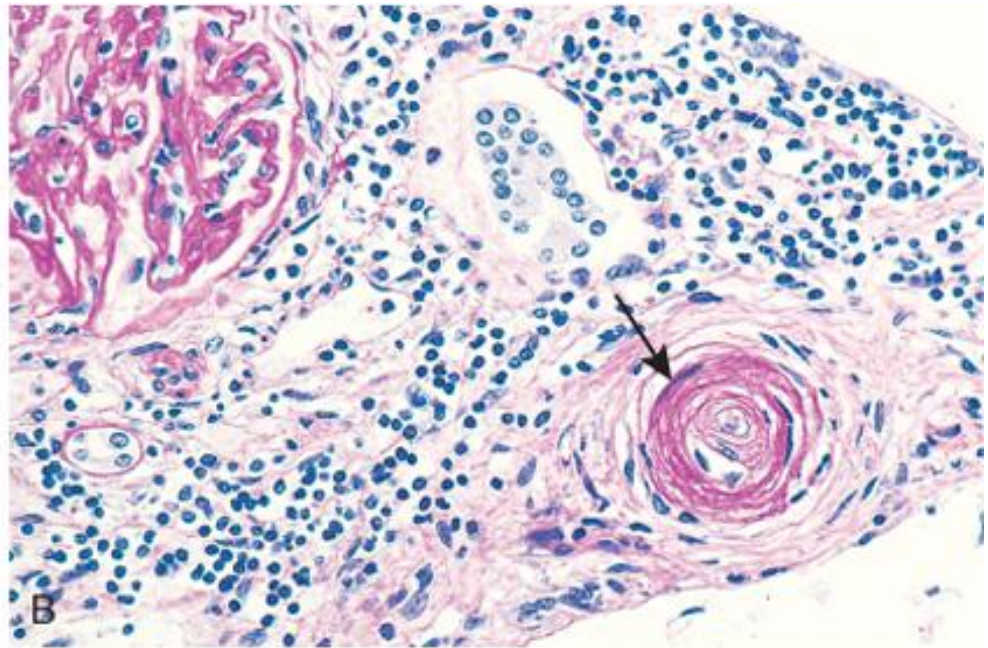
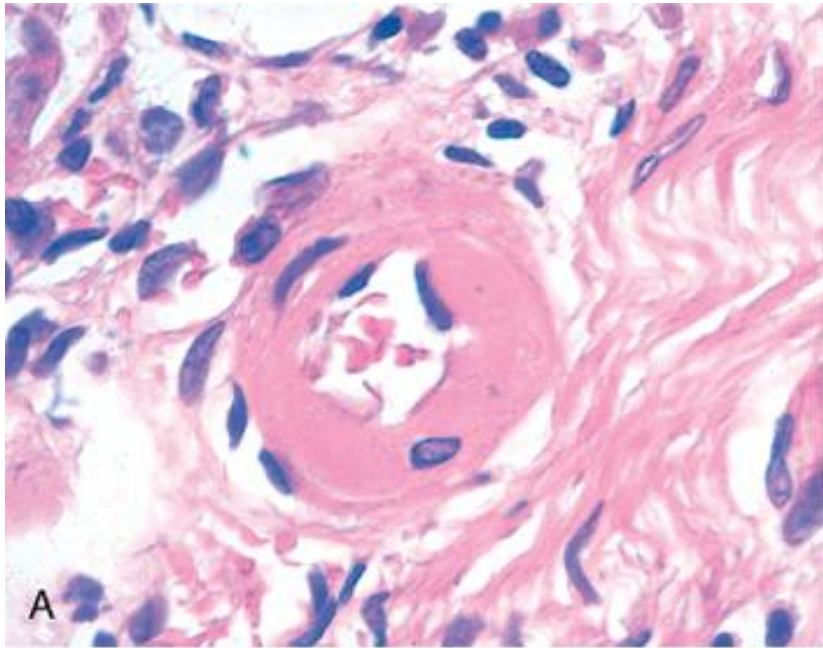
- accelerating atherogenesis,
- hypertension-associated degenerative changes in the walls of large and medium arteries can potentiate both aortic dissection and cerebrovascular hemorrhage.
- Hypertension is also associated with two forms of small blood vessel disease: hyaline arteriolosclerosis and hyperplastic arteriolosclerosis

➤ Hyaline Arteriolosclerosis.

- This vascular lesion consists of a homogeneous pink hyaline thickening of the walls of arterioles with loss of underlying structural detail and with narrowing of the lumen.
- Encountered frequently in elderly patients, whether normotensive or hypertensive, hyaline arteriolosclerosis is more generalized and more severe in patients with hypertension. It is also common as part of the characteristic microangiopathy in diabetes

- **Hyperplastic Arteriolosclerosis**

- Related to more acute or severe elevations of blood pressure, hyperplastic arteriolosclerosis is characteristic of (but not limited to) malignant hypertension (typically, diastolic pressures over 120 mm Hg associated with acute cerebral and/or renal injury).
- Hyperplastic arteriolosclerosis is associated with "onion-skin," concentric, laminated thickening of the walls of arterioles with luminal narrowing



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